Department of Environmental Protection

Division of Air Resources Management

new facility

APPLICATION FOR AIR PERMIT - NON-TITLE V SOURCE

See Instructions for Form No. 62-210.900(3)

I. APPLICATION INFORMATION

1190044-001-AC

Identification of Facility

1. Facility Owner/Company Name: Ronnie & Linda Graves	
2. Site Name: SUMTER CREMTION SERVICES, INC.	
3. Facility Identification Number: 1190044 [x] Unknown	
4. Facility Location: Street Address or Other Locator: Southand Ave City: BUSHNELL County: SUMTER Zip Code: 33513	
5. Relocatable Facility? [ ] Yes [x] No	6. Existing Permitted Facility? [ ] Yes [x] No

Application Contact

1. Name and Title of Application Contact:

Marco A. Salgado

Engineer

Dept. of Environmental Protection

MAY 25 2006

Southwest District

2. Application Contact Mailing Address:
Organization/Firm: **Matthews Cremation Division (formerly IEE Co.)**
Street Address: **2045 Sprint Blvd.**
City: **Apopka** State: **FL** Zip Code: **32703**

3. Application Contact Telephone Numbers:
Telephone: **(407)886-5533** Fax: **(407)886-5990**

Application Processing Information (DEP Use)

1. Date of Receipt of Application:	5/25/06
2. Permit Number:	1190044-001-AC

Purpose of Application

Air Operation Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[ ] Initial non-Title V air operation permit for one or more existing, but previously unpermitted, emissions units.

[ ] Initial non-Title V air operation permit for one or more newly constructed or modified emissions units.

Current construction permit number:_____

[ ] Non-Title V air operation permit revision to address one or more newly constructed or modified emissions units.

Current construction permit number:_____

Operation permit number to be revised:_____

[ ] Initial non-Title V air operation permit under Rule 62-210.300(2)(b), F.A.C., for an existing facility seeking classification as a synthetic non-Title V source.

Current operation/construction permit number(s):

_____

[ ] Non-Title V air operation permit revision for a synthetic non-Title V source. Give reason for revision; e.g., to address one or more newly constructed or modified emissions units.

Operation permit number to be revised:_____

Reason for revision:_____

Air Construction Permit Application

This Application for Air Permit is submitted to obtain: (Check one)

[X] Air construction permit to construct or modify one or more emissions units.

[ ] Air construction permit to make federally enforceable an assumed restriction on the potential emissions of one or more existing, permitted emissions units.

[ ] Air construction permit for one or more existing, but unpermitted, emissions units.

Owner/Authorized Representative

1. Name and Title of Owner/Authorized Representative:
   Ronnie Graves - President
2. Owner/Authorized Representative Mailing Address:
   Organization/Firm: Sumter Cremation Services, Inc
   Street Address: 720 East Southland Ave
   City: Bushnell State: FL Zip Code: 33513
3. Owner/Authorized Representative Telephone Numbers:
   Telephone: 352-793-4477 Fax: 352-793-1448
4. Owner/Authorized Representative Statement:

   I, the undersigned, am the owner or authorized representative of the facility addressed in this application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained 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 understand that a permit, if granted by the Department, cannot be transferred without authorization from the Department, and I will promptly notify the Department upon sale or legal transfer of any permitted emissions unit.*

   Ronnie N. Graves 5-22-06

   Signature Date

* Attach letter of authorization if not currently on file.

Professional Engineer Certification

1. Professional Engineer Name: **Dale E. Walter**
   Registration Number: **56697**
2. Professional Engineer Mailing Address:
   Organization/Firm: **Matthews Cremation Division (formerly IEE Co.)**
   Street Address: **2045 Sprint Blvd.**
   City: **Apopka** State: **FL** Zip Code: **32703**
3. Professional Engineer Telephone Numbers:
   Telephone: **(386) 767-2881** Fax: **(407)886-5990**
   E-mail: **dandjwalter@yahoo.com**

Prosthetics Research Specialists, Inc

4. Professional Engineer Statement:

I, the undersigned, hereby certify, except as particularly noted herein, that:*

(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and

(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.

If the purpose of this application is to obtain an air construction permit for one or more proposed new or modified emissions units (check here [x], if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.

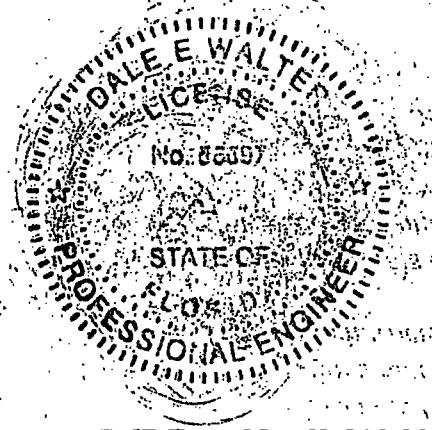
If the purpose of this application is to obtain an initial air operation permit or operation permit revision for one or more newly constructed or modified emissions units (check here [ ], if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.

Dale E Walter
Signature

2/20/2006
Date

(seal)

* Attach any exception to certification statement.



Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type	Processing Fee
001	Dual chamber gas-fired cremation unit for animal remains ---Power-Pak II	AC1F	$250

Application Processing Fee

Check one: [X] Attached - Amount: **$250** [ ] Not Applicable

Construction/Modification Information

1. Description of Proposed Project or Alterations:

   Installation of Matthews Cremation Division Power-Pak II Pet Cremator.

2. Projected or Actual Date of Commencement of Construction: JULY - AUGUST 2006

3. Projected Date of Completion of Construction: OCT - NOV 2006

Application Comment

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates: Zone: **17** East (km): **391.571** North (km): **3170.276**			
2. Facility Latitude/Longitude: Latitude (DD/MM/SS): **28/39/18** Longitude (DD/MM/SS): **82/06/34**			
3. Governmental Facility Code: **0**	4. Facility Status Code: **C**	5. Facility Major Group SIC Code: **65**	6. Facility SIC(s): **6553**
7. Facility Comment (limit to 500 characters):			

Facility Contact

1. Name and Title of Facility Contact: Ronnie Graves
2. Facility Contact Mailing Address: Organization/Firm: Sumter Cremation Services, Inc Street Address: 720 East Southland Ave City: Bushnell State: FL Zip Code: 33513
3. Facility Contact Telephone Numbers: Telephone: 352-793-4477 Fax: 352-793-1448

Facility Regulatory Classifications

Check all that apply:

1. [ ] Small Business Stationary Source?	[X] Unknown
2. [ ] Synthetic Non-Title V Source?	
3. [ ] Synthetic Minor Source of Pollutants Other than HAPs?	
4. [ ] Synthetic Minor Source of HAPs?	
5. [ ] One or More Emissions Units Subject to NSPS?	
6. [ ] One or More Emission Units Subject to NESHAP Recordkeeping or Reporting?	
7. Facility Regulatory Classifications Comment (limit to 200 characters):	
This facility is a minor source.	

Rule Applicability Analysis

This facility is subject to the general regulations found in 62-210.300 FAC and 62-212.300 FAC and specifically to the animal crematory regulations in 62-296.401(6) FAC.

B. FACILITY POLLUTANTS

List of Pollutants Emitted

1. Pollutant Emitted	2. Pollutant Classif.	3. Requested Emissions Cap lb/hour	tons/year	4. Basis for Emissions Cap	5. Pollutant Comment
PM	**B**	**no cap**	**no cap**		**no emission rate cap**
CO	**B**	**no cap**	**no cap**		**no emission rate cap**

C. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Area Map Showing Facility Location: [X] Attached, Document ID: **A** [ ] Not Applicable [ ] Waiver Requested
2. Facility Plot Plan: [X] Attached, Document ID: **B** [ ] Not Applicable [ ] Waiver Requested
3. Process Flow Diagram(s): [X] Attached, Document ID: **C** [] Not Applicable [ ] Waiver Requested
4. Precautions to Prevent Emissions of Unconfined Particulate Matter: [ ] Attached, Document ID:_____ [X] Not Applicable [ ] Waiver Requested
5. Supplemental Information for Construction Permit Application: [ ] Attached, Document ID:_____ [X] Not Applicable
6. Supplemental Requirements Comment:

III. EMISSIONS UNIT INFORMATION

A separate Emissions Unit Information Section (including subsections A through G as required) must be completed for each emissions unit addressed in this Application for Air Permit. If submitting the application form in hard copy, indicate, in the space provided at the top of each page, the number of this Emissions Unit Information Section and the total number of Emissions Unit Information Sections submitted as part of this application.

A. GENERAL EMISSIONS UNIT INFORMATION

Emissions Unit Description and Status

1. Type of Emissions Unit Addressed in This Section: (Check one)

[X] This Emissions Unit Information Section addresses, as a single emissions unit, a single process or production unit, or activity, which produces one or more air pollutants and which has at least one definable emission point (stack or vent).

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, a group of process or production units and activities which has at least one definable emission point (stack or vent) but may also produce fugitive emissions.

[ ] This Emissions Unit Information Section addresses, as a single emissions unit, one or more process or production units and activities which produce fugitive emissions only.

2. Description of Emissions Unit Addressed in This Section (limit to 60 characters):
Dual chamber gas-fired cremation unit for human remains. Matthews Cremation Division ; Model Power-Pak II

3. Emissions Unit Identification Number:
ID: **001**
[ ] No ID
[ ] ID Unknown

4. Emissions Unit Status Code:	5. Initial Startup Date:	6. Emissions Unit Major Group SIC Code:
C		**65**

7. Emissions Unit Comment: (Limit to 500 Characters)

Fuel is natural gas or LP gas.

Emissions Unit Information Section 1 of 1

Emissions Unit Control Equipment

1. Control Equipment/Method Description (limit to 200 characters per device or method):

The cremation unit is a multiple chamber design with a minimum secondary chamber operating temperature of 1600 °F.

2. Control Device or Method Code(s): **021**

Emissions Unit Details

1. Package Unit: **cremation unit**
   Manufacturer: **Matthews Cremation Division** Model Number: **Power-Pak II**
2. Generator Nameplate Rating: MW
3. Incinerator Information:
   Dwell Temperature: **>1200** °F
   Dwell Time: **>1** seconds
   Incinerator Afterburner Temperature: **>1600** °F

Emissions Unit Operating Capacity and Schedule

1. Maximum Heat Input Rate: **2.2** mmBtu/hr
2. Maximum Incineration Rate: **150 (approx.)** lb/hr **1.8** tons/day
3. Maximum Process or Throughput Rate:
4. Maximum Production Rate:
5. Requested Maximum Operating Schedule:
   24 hours/day **7** days/week
   52 weeks/year **8760** hours/year
6. Operating Capacity/Schedule Comment (limit to 200 characters):

The expected usage of this unit will be 2500 hours per year or less.

Emissions Unit Information Section 1 of 1

B. EMISSION POINT (STACK/VENT) INFORMATION

Emission Point Description and Type

1. Identification of Point on Plot Plan or Flow Diagram? **stack**	2. Emission Point Type Code: **1**	
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking (limit to 100 characters per point): **Single stack with unobstructed vertical discharge.**		
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common:		
5. Discharge Type Code: **V**	6. Stack Height: **17 feet estimated**	7. Exit Diameter: **1.7** feet
8. Exit Temperature: **1200°F**	9. Actual Volumetric Flow Rate: **2600** acfm	10. Water Vapor: **10 %**
11. Maximum Dry Standard Flow Rate: **750** dscfm	12. Nonstack Emission Point Height: feet	
13. Emission Point UTM Coordinates: Zone: **17** East (km): **391.571** North (km): **3170.276**		
14. Emission Point Comment (limit to 200 characters): **UTM coordinates are estimated.**		

C. SEGMENT (PROCESS/FUEL) INFORMATION

Segment Description and Rate: Segment 1 of 1

1. Segment Description (Process/Fuel Type) (limit to 500 characters): **Cremation of animal remains with gas fuel.**		
2. Source Classification Code (SCC): **5-02-005-05**	3. SCC Units: **tons**	
4. Maximum Hourly Rate: **0.075**	5. Maximum Annual Rate: **657**	6. Estimated Annual Activity Factor: **n/a**
7. Maximum % Sulfur: **unknown**	8. Maximum % Ash: **unknown**	9. Million Btu per SCC Unit: **n/a**
10. Segment Comment (limit to 200 characters): **Actual annual rate expected to be 188 tons or less.**		

Segment Description and Rate: Segment _____ of _____

1. Segment Description (Process/Fuel Type) (limit to 500 characters):		
2. Source Classification Code (SCC):	3. SCC Units:	
4. Maximum Hourly Rate:	5. Maximum Annual Rate:	6. Estimated Annual Activity Factor:
7. Maximum % Sulfur:	8. Maximum % Ash:	9. Million Btu per SCC Unit:
10. Segment Comment (limit to 200 characters):		

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: **PM**		2. Pollutant Regulatory Code: **EL**
3. Primary Control Device Code: **021**	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control:
6. Potential Emissions: **0.51** lb/hour **2.23** tons/year		7. Synthetically Limited? [ ]
8. Emission Factor: **see comment** Reference:		9. Emissions Method Code: **0**

10. Calculation of Emissions (limit to 600 characters):

Emission Rate = 0.08 gr/dscf x 750 dscf/min x 60 min/hr / 7000 gr/lb = 0.51 lb/hr

Emission Rate (tpy) = 0.51 lb/hr x 8760 hr/yr / 2000 lb/ton = 2.23 ton/year

11. Pollutant Potential Emissions Comment (limit to 200 characters):

Potential emissions based on concentration limit of 0.08 gr/dscf.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **rule**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **0.08 grains/dscf @ 7% O_2**	4. Equivalent Allowable Emissions: lb/hour tons/year

5. Method of Compliance (limit to 60 characters):
Submission of an EPA method 5 stack test report from an identical cremation unit in Florida.

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):

rule- 62-296.401(6)(a) FAC

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: **CO**		2. Pollutant Regulatory Code: **EL**
3. Primary Control Device Code: **021**	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control:
6. Potential Emissions: **0.33** lb/hour **1.5** tons/year		7. Synthetically Limited? [ ]
8. Emission Factor: **see comment** Reference:		9. Emissions Method Code: **0**

10. Calculation of Emissions (limit to 600 characters):

Emission Rate = [100ppm x 1.14mg/cu.m. x 750 dscfm x 60 min/hr] / [453600 mg/lb x 35.3 cu.ft./cu.m.] = 0.33 lb/hr

Emission Rate (tpy) = 0.33 lb/hr x 8760 hr/yr / 2000 lb/ton = 1.5 ton/year

11. Pollutant Potential Emissions Comment (limit to 200 characters):

Potential emissions based on concentration limit of 100 ppm.

Allowable Emissions Allowable Emissions 1 of 1

1. Basis for Allowable Emissions Code: **rule**	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units: **100 ppm @ 7% O_2**	4. Equivalent Allowable Emissions: lb/hour tons/year

5. Method of Compliance (limit to 60 characters):
Submission of an EPA method 5 stack test report from an identical cremation unit in Florida.

6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):

rule- 62-296.401(6)(b) FAC

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: **NOx**		2. Pollutant Regulatory Code: **NS**
3. Primary Control Device Code: **n/a**	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control:
6. Potential Emissions: **0.88** lb/hour **3.9** tons/year		7. Synthetically Limited? [ ]
8. Emission Factor: **see comment** Reference:		9. Emissions Method Code: **5**
10. Calculation of Emissions (limit to 600 characters): **Emission Rate (tpy) = 0.88 lb/hr x 8760 hr/yr / 2000 lb/ton = 3.9 ton/year**		
11. Pollutant Potential Emissions Comment (limit to 200 characters): **See attachment "Calculation of Emissions".**		

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: **SO_2**		2. Pollutant Regulatory Code: **NS**
3. Primary Control Device Code: **n/a**	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control:
6. Potential Emissions: **0.11** lb/hour **0.48** tons/year		7. Synthetically Limited? [ ]
8. Emission Factor: **see comments** Reference:		9. Emissions Method Code: **5**
10. Calculation of Emissions (limit to 600 characters): **Emission Rate (tpy) = 0.11 lb/hr x 8760 hr/yr / 2000 lb/ton = 0.48 ton/year**		
11. Pollutant Potential Emissions Comment (limit to 200 characters): **See attachment "Calculation of Emissions".**		

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

D. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION

Potential Emissions

1. Pollutant Emitted: **VOC**		2. Pollutant Regulatory Code: **NS**
3. Primary Control Device Code: **n/a**	4. Secondary Control Device Code:	5. Total Percent Efficiency of Control:
6. Potential Emissions: **0.01** lb/hour **0.04** tons/year		7. Synthetically Limited? [ ]
8. Emission Factor: **see comments** Reference:		9. Emissions Method Code: **5**
10. Calculation of Emissions (limit to 600 characters): **Emission Rate (tpy) = 0.01 lb/hr x 8760 hr/yr / 2000 lb/ton = 0.04 ton/year**		
11. Pollutant Potential Emissions Comment (limit to 200 characters): **See attachment "Calculation of Emissions".**		

Allowable Emissions Allowable Emissions _____ of _____

1. Basis for Allowable Emissions Code:	2. Future Effective Date of Allowable Emissions:
3. Requested Allowable Emissions and Units:	4. Equivalent Allowable Emissions: lb/hour tons/year
5. Method of Compliance (limit to 60 characters):	
6. Allowable Emissions Comment (Desc. of Operating Method) (limit to 200 characters):	

E. VISIBLE EMISSIONS INFORMATION
(Only Emissions Units Subject to a VE Limitation)

Visible Emissions Limitation: Visible Emissions Limitation **1** of **1**

1. Visible Emissions Subtype: **VE05**	2. Basis for Allowable Opacity: [X] Rule [ ] Other
3. Requested Allowable Opacity: Normal Conditions: **5 %** Exceptional Conditions: **20 %** Maximum Period of Excess Opacity Allowed: **3** min/hour	
4. Method of Compliance: **EPA Method 9**	
5. Visible Emissions Comment (limit to 200 characters):	

F. CONTINUOUS MONITOR INFORMATION
(Only Emissions Units Subject to Continuous Monitoring)

Continuous Monitoring System: Continuous Monitor **1** of **1**

1. Parameter Code: **TEMP**	2. Pollutant(s):
3. CMS Requirement:	[X] Rule [ ] Other
4. Monitor Information: Manufacturer: **Partlow** Model Number: **MRC 5000** Serial Number: **not available**	
5. Installation Date:	6. Performance Specification Test Date:
7. Continuous Monitor Comment (limit to 200 characters): **Secondary combustion chamber temperature.**	

G. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Supplemental Requirements

1. Process Flow Diagram [X] Attached, Document ID: **C** [ ] Not Applicable [ ] Waiver Requested
2. Fuel Analysis or Specification [ ] Attached, Document ID:_____ [ ] Not Applicable [X] Waiver Requested
3. Detailed Description of Control Equipment [ ] Attached, Document ID:_____ [X] Not Applicable [ ] Waiver Requested
4. Description of Stack Sampling Facilities [ ] Attached, Document ID:_____ [X] Not Applicable [ ] Waiver Requested
5. Compliance Test Report [X] Attached, Document ID: **H [Stack test Report]** [ ] Previously submitted, Date:_____ [ ] Not Applicable
6. Procedures for Startup and Shutdown [ ] Attached, Document ID:_____ [X] Not Applicable [ ] Waiver Requested
7. Operation and Maintenance Plan [ ] Attached, Document ID:_____ [X] Not Applicable [ ] Waiver Requested
8. Supplemental Information for Construction Permit Application [X] Attached, Document ID: **D,E,F** [] Not Applicable
9. Other Information Required by Rule or Statute [X] Attached, Document ID: **H** [X] Not Applicable
10. Supplemental Requirements Comment: **Attachment D: Calculation of emissions- Power-Pak II (NOx, SO2, VOC)** **Attachment E: Elevation drawings of cremation unit** **Attachment F: Cremator mass balance** **Attachment G: Training program approval letter**

(D)

Air Emissions Testing

IE43-PPII, Power-Pak II Cremator

Reflections Pet Funeral Home
Pinellas Park, Florida

May 7, 2002

Testing Performed By:

Southern Environmental Sciences, Inc.

Air Emissions Testing

IE43-PPII, Power-Pak II Cremator

Reflections Pet Funeral Home
Pinellas Park, Florida

May 7, 2002

Table of Contents

1.0 INTRODUCTION

Southern Environmental Sciences, Inc. conducted emissions testing of the Industrial Equipment & Engineering Company Model IE43-PPII, Power-Pak II cremator (serial number 0691201) on May 7, 2002. The unit is located at Reflections Pet Funeral Home in Pinellas Park, Florida (permit number 1030136-004-AC). Testing was conducted for the particulates, carbon monoxide, and visible emissions. Oxygen (O_2) concentrations were measured in order to correct results to 7% O_2.

2.0 SUMMARY OF RESULTS

The equipment was found to be in compliance with all applicable emission limiting standards. Results of the particulate and carbon monoxide testing for runs 2, 3, and 4 are summarized in Table 1.

The average measured particulate emission concentration was 0.022 grains per dry standard cubic foot (corrected to 7% O_2).

The average measured carbon monoxide emission concentration was 2.5 parts per million by volume (corrected to 7% O_2).

A visible emissions evaluation was conducted over a 60-minute period. The maximum three minute average opacity was 0 percent.

The data for the first run, run 1, were not valid because of a problem with the pitot tube used in the sampling train. The field data sheets for run 1 are included in the appendix. The data were not analyzed.

EMISSIONS TEST SUMMARY

Company: REFLECTION PET FUNERAL HOME
Source: IEE POWER-PAK II ANIMAL CREMATORY

	Run 2	Run 3	Run 4
Date of Run	5/7/02	5/7/02	5/7/02
Start Time (24-hr. clock)	1456	1628	1916
End Time (24-hr. clock)	1554	1742	2028
Vol. Dry Gas Sampled Meter Cond. (DCF)	31.172	47.554	50.327
Gas Meter Calibration Factor	1.000	1.000	1.000
Barometric Pressure at Barom. (in. Hg.)	30.15	30.09	30.08
Elev. Diff. Manom. to Barom. (ft.)	0	0	0
Vol. Gas Sampled Std. Cond. (DSCF)	30.172	45.527	48.276
Vol. Liquid Collected Std. Cond. (SCF)	2.801	5.587	6.177
Moisture in Stack Gas (% Vol.)	8.5	10.9	11.3
Molecular Weight Dry Stack Gas	29.62	29.36	29.40
Molecular Weight Wet Stack Gas	28.63	28.11	28.11
Stack Gas Static Press. (in. H2O gauge)	-0.02	-0.01	-0.01
Stack Gas Static Press. (in. Hg. abs.)	30.15	30.09	30.08
Average Square Root Velocity Head	0.167	0.196	0.199
Average Orifice Differential (in. H2O)	0.814	1.213	1.290
Average Gas Meter Temperature (Deg. F)	90.8	96.3	95.1
Average Stack Gas Temperature (Deg. F)	1393.5	1291.1	1207.3
Pitot Tube Coefficient	0.84	0.84	0.84
Stack Gas Vel. Stack Cond. (ft./sec.)	17.56	20.27	20.05
Effective Stack Area (sq. ft.)	2.18	2.18	2.18
Stack Gas Flow Rate Std. Cond. (DSCFM)	604	717	741
Stack Gas Flow Rate Stack Cond. (ACFM)	2,298	2,654	2,625
Net Time of Run (min.)	60.0	72.0	72.0
Nozzle Diameter (in.)	0.601	0.601	0.601
Percent Isokinetic	92.3	97.7	100.3
Oxygen (%)	8.4	10.7	10.0
Particulate Collected (mg.)	31.0	56.6	56.5
Particulate Emissions (lb./hr.)	0.082	0.118	0.115
Particulate Emissions (gr./DSCF)	0.016	0.019	0.018
Particulate Emissions (gr./DSCF @ 7% O2)	0.018	0.026	0.023
Avg. Particulate Emissions (gr./DSCF @ 7)		**0.022**	
Allowable Part. Emissions (gr./DSCF @ 7%)		**0.08**	
CO Emissions (ppm)	4.1	1.0	1.2
CO Emissions (ppm @ 7% O2)	4.6	1.4	1.6
Avg. CO Emissions (ppm @ 7% O2)		**2.5**	
Allowable CO Emissions (ppm @ 7% O2)		**100**	

Note: Standard conditions 68˚F, 29.92 in. Hg

3.0 PROCESS DESCRIPTION

The Power-Pak II cremator has a multiple chamber design with a 150 pound per hour nominal burning capacity of animal remains. Animal remains are loaded into the primary chamber. The afterburner ignites and heats the secondary chamber to the required temperature. A process controller that automatically modulates the gas supply to the afterburner maintains the secondary chamber temperature.

After the secondary chamber has been heated sufficiently, the cremation burner ignites and the cremation process is initiated. A typical batch of animals takes 60 to 150 minutes to burn, but the time may vary depending upon various factors.

A gas flow schematic is shown in Figure 1. Process rates for the test are included in the appendix.

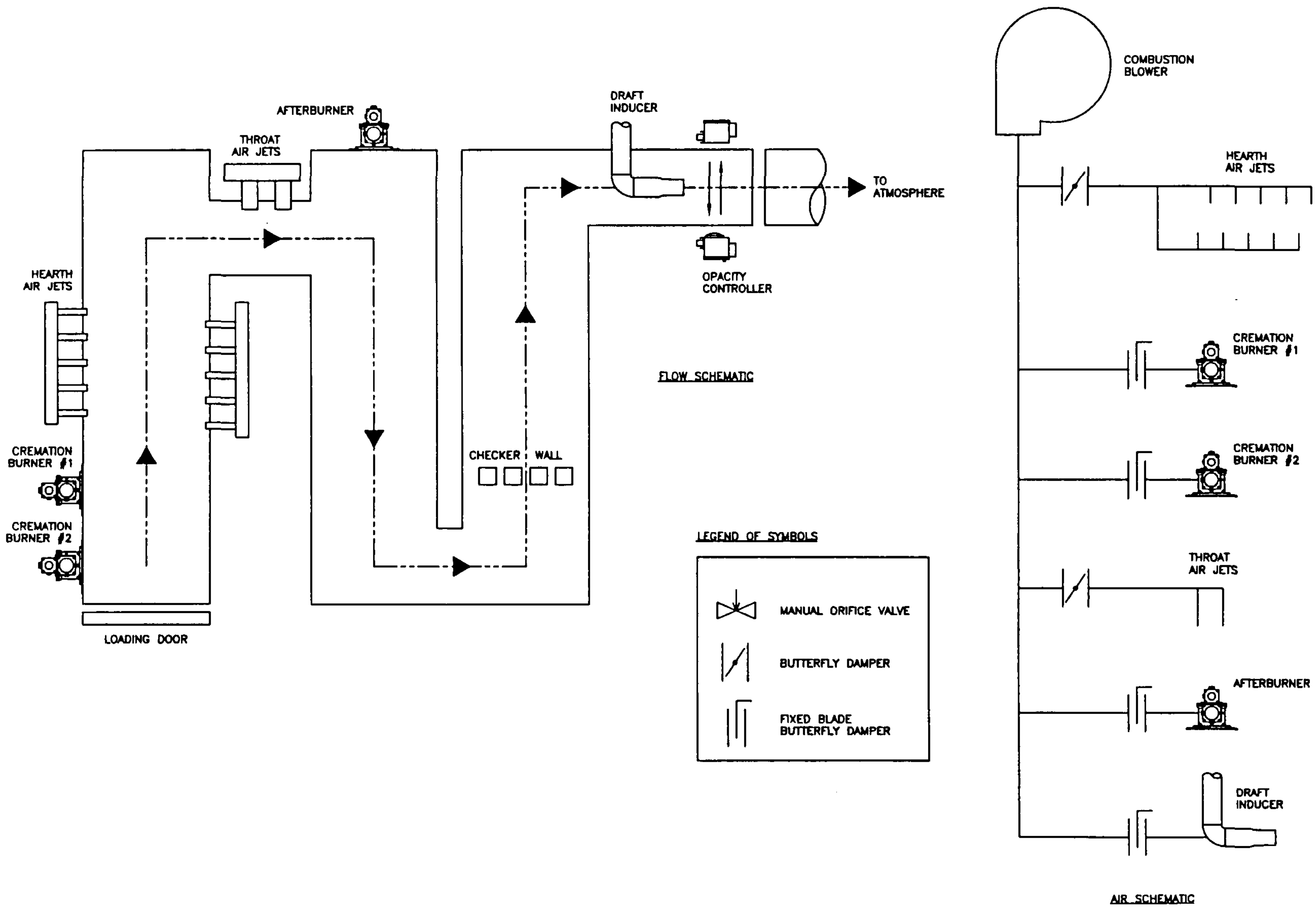

AFTERBURNER
THROAT AIR JETS
DRAFT INDUCER
TO ATMOSPHERE
OPACITY CONTROLLER
HEARTH AIR JETS
CREMATION BURNER #1
CREMATION BURNER #2
LOADING DOOR
CHECKER WALL
FLOW SCHEMATIC
LEGEND OF SYMBOLS
MANUAL ORIFICE VALVE
BUTTERFLY DAMPER
FIXED BLADE BUTTERFLY DAMPER
COMBUSTION BLOWER
HEARTH AIR JETS
CREMATION BURNER #1
CREMATION BURNER #2
THROAT AIR JETS
AFTERBURNER
DRAFT INDUCER
AIR SCHEMATIC

Figure 1.

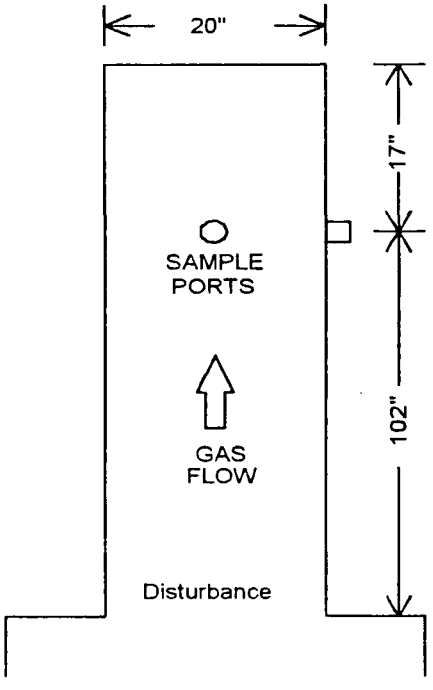
4.0 SAMPLING PROCEDURES

4.1 Methods

Particulate sampling and analyses were conducted in accordance with EPA Method 5 - Determination of Particulate Emissions from Stationary Sources, 40 CFR 60, Appendix A. Carbon monoxide emissions were conducted in accordance with EPA Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources, 40 CFR 60, Appendix A. The visible emissions evaluation was performed in accordance with EPA Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources, 40 CFR 60, Appendix A. The oxygen content of the stack was determined in accordance with EPA Method 3 - Gas Analysis for Carbon Dioxide, Oxygen, Excess Air, and Dry Molecular Weight, 40 CFR 60, Appendix A.

4.2 Sampling Locations

Locations of the sample ports and stack dimensions are shown in Figure 2. Particulate sampling was accomplished by conducting horizontal traverses through each of two ports located on the stack at a 90° angle from one another. Twenty-four sample points were chosen in accordance with EPA Method 1 - Sample and Velocity Traverses for Stationary Sources, 40 CFR 60, Appendix A. Carbon monoxide and oxygen sampling were performed from the same sampling ports as the particulate sampling.



DRAWING "NOT TO SCALE"

Stack Dimensions and Sample Port Locations, Reflections Pet Funeral Home, IEE Power-Pak II Animal Crematory, Reflections Pet Funeral Home, St. Petersburg, Florida

Figure 2.

4.3 Sampling Trains

The particulate sampling train consisted of a Nutech Corporation 3 foot water-cooled probe utilizing a heated stainless steel liner, heated glass fiber filter, and four impingers arranged as shown in Figure 3. Flexible tubing was used between the heated filter and the impingers. The first two impingers were each charged with 100 milliliters of water, the third served as a dry trap, and the fourth impinger was charged with indicating silica gel desiccant. The impingers were cooled in an ice and water bath during sampling. A Nutech Corporation control console was used to monitor the gas flow rates and stack conditions during sampling.

The carbon monoxide sampling train (Figure 4) consisted of a stainless steel probe, teflon sample line, condenser, silica gel and ascarite tubes, and a Thermo Environmental Instruments, Inc. Model 48 Gas Filter Correlation Carbon Monoxide Analyzer.

The oxygen sampling train consisted of a probe, sample line, tedlar bag in a rigid container, valve, vacuum pump and flow meter.

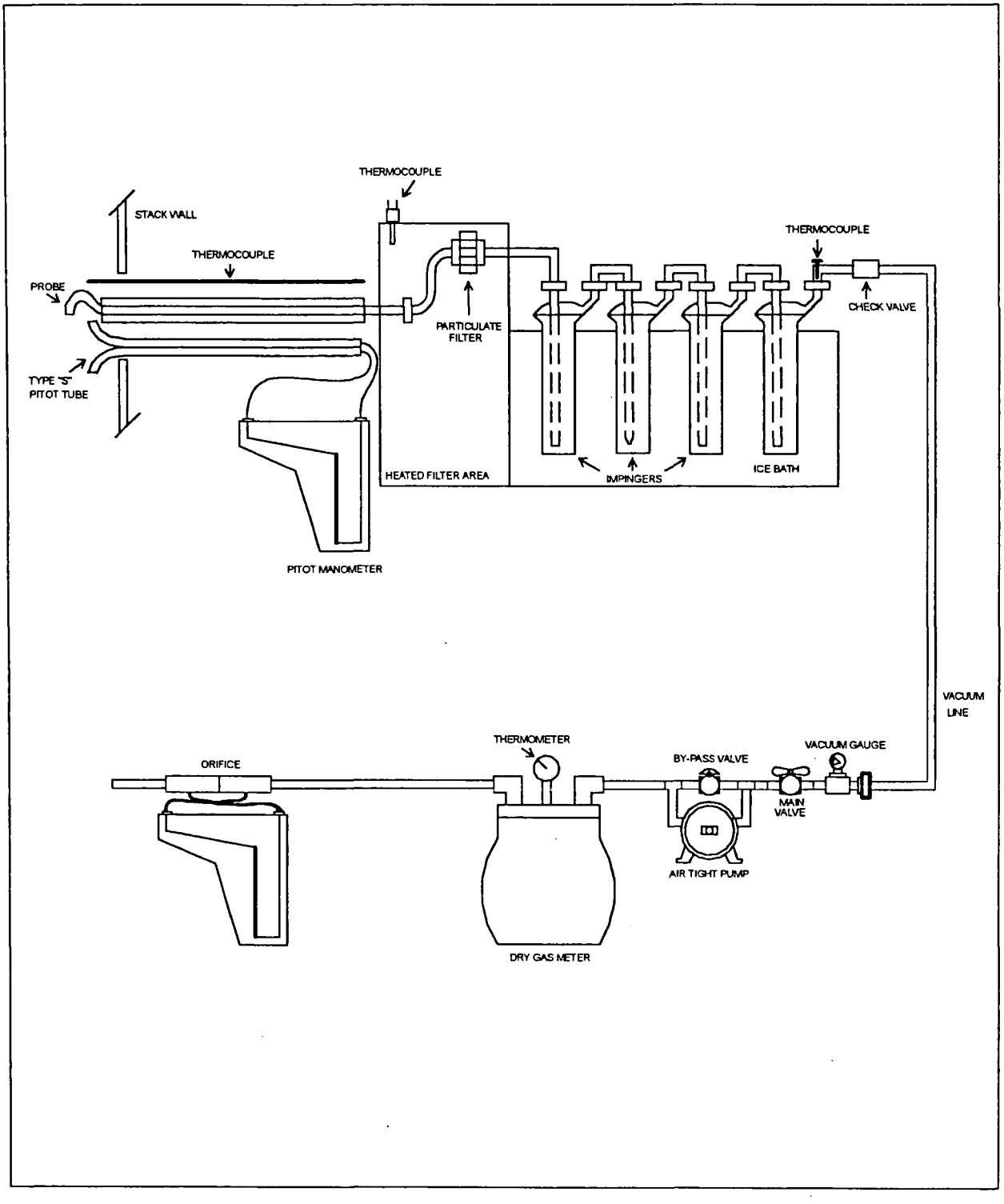
4.4 Sample Collection

Prior to particulate sampling, the pitot tubes were checked for leaks and the manometers were zeroed. A pretest leak check of the particulate sampling train was conducted by sealing the nozzle and applying a 15" Hg. vacuum. A leak rate of less than 0.02 cubic feet per minute was considered acceptable. Particulate sample was collected isokinetically for two and one half minutes at each of the points sampled.

The carbon monoxide analyzer was calibrated immediately before the beginning and after the end of the test by introducing known gases into the instrument through the sampling train. Zero and a calibration gas were also introduced after each run.

The tedlar bag used for obtaining an integrated oxygen sample was leak checked prior to the test by pressurizing it to 2 to 4 in. H_2O and allowing it to stand overnight. A deflated bag indicated a leak. A one hour integrated sample was obtained at a rate of 0.5 liters per minute for each run.

Carbon monoxide and oxygen sampling were conducted simultaneously with particulate sampling.



EPA Method 5 Sampling Train.

Figure 3.

4.5 Sample Recovery

A post test leak check of the particulate sampling train was performed at the completion of each run by sealing the nozzle and applying a vacuum equal to or greater than the maximum value reached during the sample period. A leak rate of less than 0.02 CFM or 4 percent of the average sampling rate (whichever was less) was considered acceptable. The nozzle and probe were brushed and rinsed with reagent grade acetone and the washings were placed in clean polyethylene containers and sealed. The glass fiber filter was removed from the holder with forceps and placed in a covered petri dish for return to the laboratory. The front half of the filter holder was rinsed with acetone and the washings were added to the nozzle and probe wash. The contents of the first three impingers were measured volumetrically and the silica gel in the fourth impinger was weighed to the nearest 0.1 gram for determination of moisture content.

Two calculations of the moisture content of the stack gas were made for each run, one from the impinger analysis and one from the assumption of saturated conditions based upon the average stack gas temperature and a psychrometric chart as described in EPA Method 4 - Determination of Moisture Content in Stack Gases, 40 CFR 60, Appendix A. The lower of the two values of moisture content was considered to be correct.

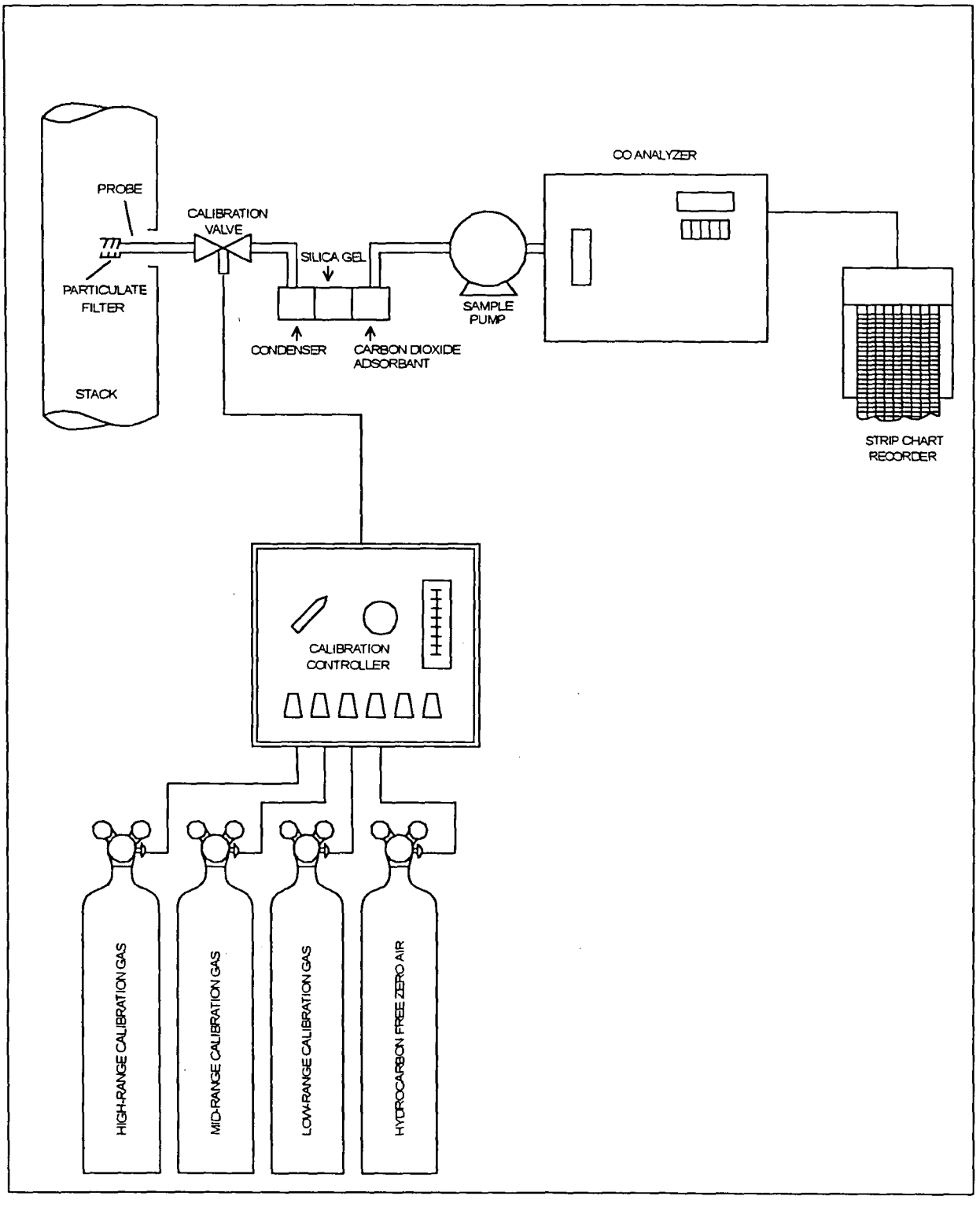
5.0 ANALYTICAL PROCEDURE

5.1 Pretest Preparation

The glass fiber filters for the particulate train were numbered, oven dried at 105° C for three hours, desiccated and weighed to a constant weight in preparation for the test. Results were recorded to the nearest 0.1 milligram. Filters were loaded into holders and a filter was set aside as a control blank. The impingers were charged as described in section 4.3 and the contents of the fourth impinger were weighed to the nearest 0.1 gram.

5.2 Analysis

Upon return to the laboratory, the particulate filters were removed from the containers with forceps, dried at 105° C for three hours, desiccated and weighed to a constant weight. Results were recorded to the nearest 0.1 milligram. The probe and nozzle washes and an acetone blank were measured volumetrically and transferred to clean, tared evaporating dishes and evaporated to dryness over low heat. The evaporating dishes were then oven dried at 105° C for three hours, desiccated and weighed to a constant weight. Results were recorded to the nearest 0.1 milligram. The total particulate reported is the sum of the filter weight gain and the weight gain of the evaporating dishes, corrected for the acetone blank.



EPA Method 10 Sampling Train.

Figure 4.

APPENDIX

Project Participants

Certification

Visible Emissions Evaluation

Temperature Chart

Daily Log Sheet

Laboratory Data

Field Data Sheets

Gas Analysis Sheets

CO Strip Charts

Calibration Data

Calculations and Symbols

Field Data Sheets for Run #1 (Not Analyzed)

PROJECT PARTICIPANTS AND CERTIFICATION

REFLECTION PET FUNERAL HOME
IEE - POWER-PAK II ANIMAL CREMATORY

St. Petersburg, Florida

May 7, 2002

Project Participants:

Byron E. Nelson Terry L. Wilson Travis B. Nelson	Conducted the field testing.
Byron E. Nelson	Performed the visible emissions evaluation.
Kenneth M. Roberts	Performed laboratory analyses.
Kenneth M. Roberts	Computed test results.

Certification:

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

Byron E. Nelson, CIH

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

1204 North Wheeler Street, Plant City, Florida 33566 (813)752-5014

VISIBLE EMISSIONS EVALUATION

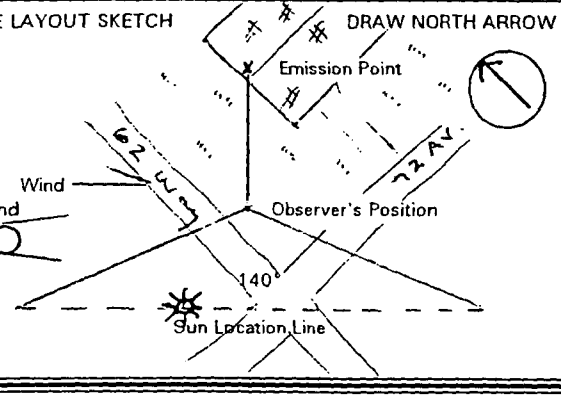
COMPANY: Reflections Pet Funeral Home

UNIT: Animal Crematory

ADDRESS: Pinellas Park, FL

PERMIT NO. 1030136-004-AC	COMPLIANCE? YES ☒ NO ☐
AIRS NO. 1030136	EU NO.
PROCESS RATE 350 lb batch;	PERMITTED RATE 350 lb batch; 150 lb/hr
PROCESS EQUIPMENT: IEE Power-Pak II	
CONTROL EQUIPMENT: Multiple chamber	
OPERATING MODE: Natural gas fired	AMBIENT TEMP. (°F) START ~90 STOP ~90
HEIGHT ABOVE GROUND LEVEL START ~15' STOP ~15'	HEIGHT REL. TO OBSERVER START ~15' STOP ~15'
DISTANCE FROM OBSERVER START ~75' STOP ~75'	DIRECTION FROM OBSERVER START 45° STOP 45°
EMISSION COLOR: None	PLUME TYPE NA CONTIN. ☐ INTERMITTENT ☐
WATER DROPLETS PRESENT NO ☒ YES ☐	IS WATER DROPLET PLUME ATTACHED ☐ DETACHED ☐ NA
POINT IN THE PLUME AT WHICH OPACITY WAS DETERMINED START: Stack exit STOP: Stack exit	
DESCRIBE BACKGROUND START: Trees STOP: Trees	
BACKGROUND COLOR START Green STOP Green	SKY CONDITIONS START 50% clouds STOP 50% clouds
WIND SPEED (MPH) START 0-3 STOP 0-3	WIND DIRECTION START W STOP NW
AVERAGE OPACITY FOR HIGHEST PERIOD 0%	RANGE OF OPAC. READINGS MIN. 0% MAX. 0%

SOURCE LAYOUT SKETCH — DRAW NORTH ARROW



COMMENTS:

OBSERVATION DATE	START TIME	STOP TIME
5/7/02	2:52 PM	3:52PM

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

Observer: Byron Malone

Certified by: FDEP Certified at: Tampa FL

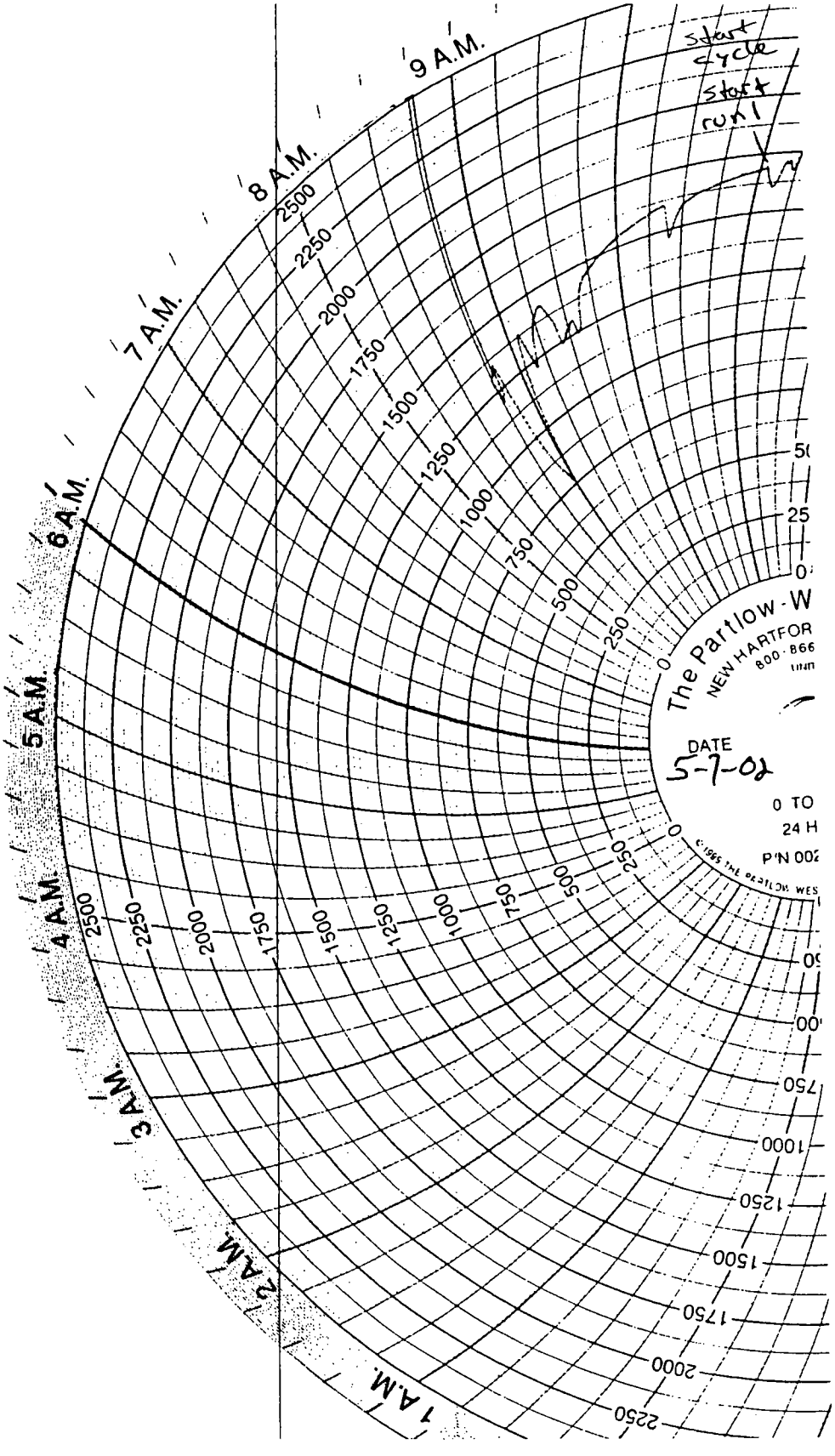
Date Certified: 2/02 Exp. Date: 8/02

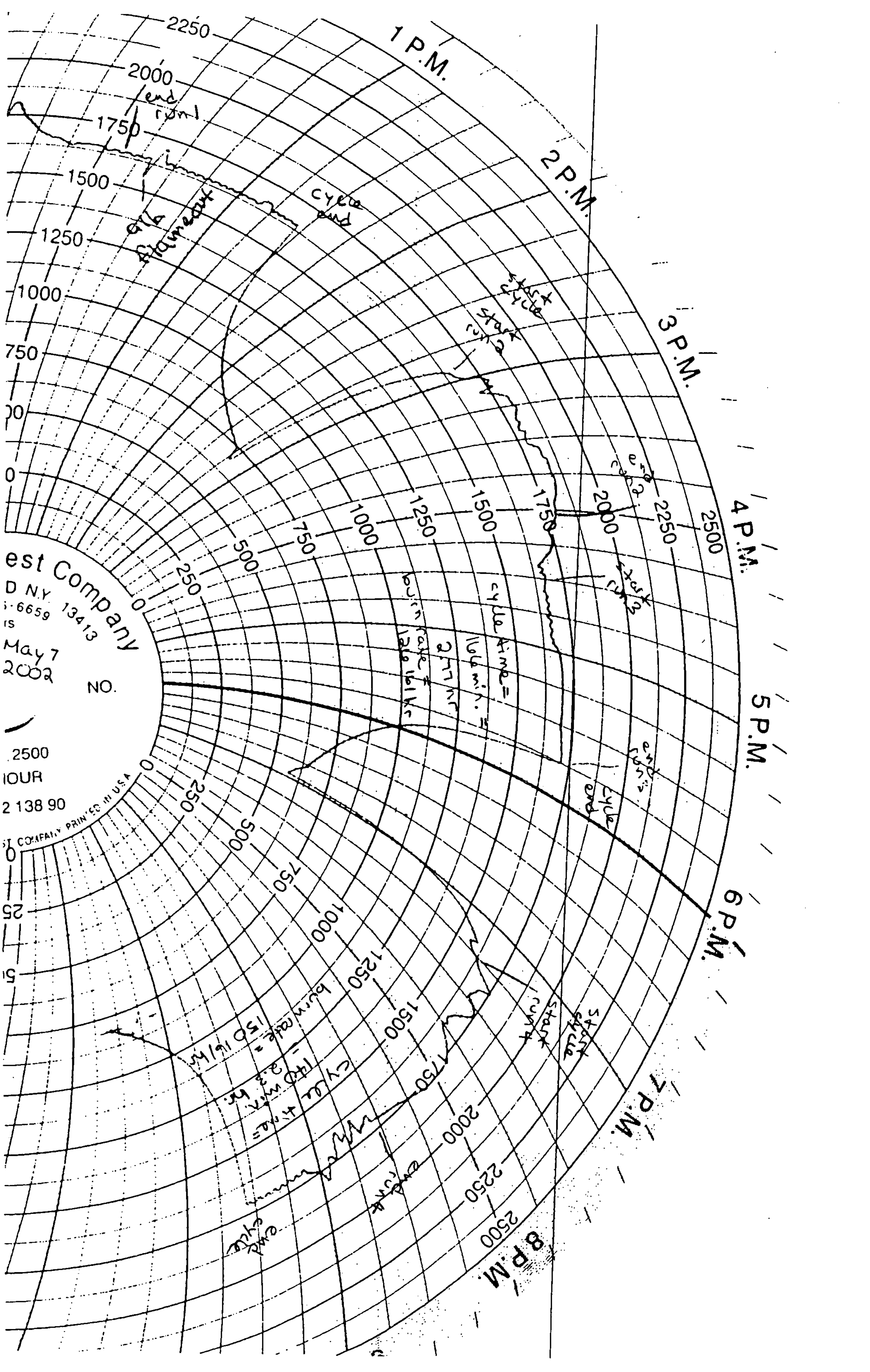
I certify that all data provided to the person conducting the test was true and correct to the best of my knowledge:

Signature: See Process Operational Data

Title:

Chart Recorder Partlow
Model 51000011
Serial No. 887709-0002




1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
8 P.M.
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
est Company
D N.Y. 13413
May 7 2002
NO.
2500
HOUR
2 138 90
end run 1
cycle end
start cycle
start run 2
end cycle
cycle time = 166 min. = 2.77 hr
burn rate = 126 lb/hr
start cycle
start run
burn rate = 150 lb/hr
cycle time = 140 min = 2.3 hr.
end run
end cycle

Reflections Pet Funeral Home Cremation Log

Date	Time	Weight Loaded	Minimum Temperature	Total Run Time	Name of Pet Cremated	ID Tag #	Operator's Initials
5-7-03	11:00 AM	350	1560°	2.5 C	Communals		
	3:00 PM	350	1652°	2.75	Communals		
	7:15 PM	350	1652°	2.25	Communals		

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

MOISTURE COLLECTED

Plant Reflections Pet Funeral Home

Unit Animal Crematory
Date 5/7/02
Run No. 2

Impinger Number	1	2	3	4	Weighed by:
Final Weight (grams):	141.0	113.0	0	260.3	TW
Initial Weight (grams):	100.0	100.0	0	254.9	TW
Difference (grams):	41.0	13.0	0	5.4	
Total Condensate (grams):				59.4	

Unit Animal Crematory
Date 5/7/02
Run No. 3

Impinger Number	1	2	3	4	Weighed by:
Final Weight (grams):	196.6	106.0	0.0	266.4	BN
Initial Weight (grams):	100.0	100.0	0.0	249.9	BN
Difference (grams):	96.6	6.0	0.0	16.5	
Total Condensate (grams):				118.5	

Unit Animal Crematory
Date 5/7/02
Run No. 4

Impinger Number	1	2	3	4	Weighed by:
Final Weight (grams):	229.0	106.0	0.0	255.1	BN
Initial Weight (grams):	100.0	100.0	0.0	247.1	BN
Difference (grams):	129.0	6.0	0.0	8.0	
Total Condensate (grams):				131.0	

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

FIELD DATA SHEET

Company: Reflections Pet Funeral Home
Source: Animal Crematory
Operator(s): TW / BN / TN

Run Number: 2
Date: 5/07/02
24 hr Time at Start: 1456
24 hr Time at End: 1554
Filter No(s).: 63210
Barometric Pressure ("Hg): 30.15
Elev Diff. Mano. To Barom. (Ft): 0
Ambient Temperature (°F): 80 @ meter

Dimensions Dia☒
LxW☐: 20"
Static Press. ("H2O): -.02
Meter Box No.: 001
Meter ΔH@: 1.584
Meter Correction Factor: 1.000
Pitot Tube Cp: 0.84
Nozzle ID: QT2
Nozzle Dia. (Inches): .601
Probe Length/Liner: 3 5 QT2

Assumptions
% Moisture: 10
Stack Temp.: 1400
Meter Temp.: 100
Md/Ms: 1.04
K Factor: 31.4

Sample Train Leak Check:
Initial: 0.006 CFM @ 15 "Hg
Final: 0.012 CFM @ 14 "Hg
Initial Pitot Tube (-): — (+): —
Final Pitot Tube (-): — (+): —

Moist. Collected:- Imp. No. 1 , Imp. No. 2 & 3 , Imp. No. 4 , Total Filter Tare Wt,

Point No.	Sample Time (min.)	Meter Vol. Vm (ft^3)	Vel. Head ΔP ("H_2O)	Orifice Diff. ΔH ("H_2O)	Stack Temp.,Ts (°F)	Meter Temp., Tm (°F)	Hot Box Temp. (°F)	Exit Temp. (°F)	Pump Vacuum ("Hg)	Other
1	0	143.567	.005	.17	1200	79	266	58	0.5	
2	2.5	144.31	.002	.06	1300	79	265	58	1.0	
3	5	144.58	.002	.06	1377	79	261	58	1.0	
4	7.5	144.89	.002	.06	1468	79	245	58	0.5	
5	10	144.98	.002	.17	1442	80	244	58	1.0	
6	12.5	145.69	.02	.63	1485	81	250	58	2.0	
7	15	146.48	.02	.63	1478	83	260	58	2.0	
8	17.5	147.71	.02	.63	1469	84	264	48	2.0	
9	20	148.92	.02	.63	1462	85	265	48	2.0	
10	22.5	150.16	.02	.63	1436	87	262	48	2.0	
11	25	151.32	.02	.63	1413	89	250	48	2.0	
12	27.5	152.59	.03	.94	1337	91	245	48	2.5	
13	30 1	154.05	.03	.94	1380	92	244	48	2.5	
14	32.5 2	155.61	.025	.78	1437	93	258	48	2.0	
15	35 3	156.99	.03	.94	1475	95	265	48	2.5	
16	37.5 4	158.43	.04	1.26	1482	97	263	48	3.0	
17	40 5	160.19	.04	1.26	1413	97	264	48	3.0	
18	42.5 6	161.97	.04	1.26	1404	99	265	48	3.0	
19	45 7	163.75	.045	1.41	1394	100	263	48	3.5	
20	47.5 8	165.59	.045	1.41	1389	101	262	48	3.5	
21	50 9	167.71	.045	1.41	1372	101	263	48	3.5	
22	52.5 10	169.78	.04	1.26	1353	102	261	48	3.5	
23	55 11	171.18	.04	1.26	1285	103	260	48	3.5	
24	57.5 12	173.59	.035	1.10	1194	103	266	48	3.5	
	60	174.739								

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

FIELD DATA SHEET

Company: Reflections Pet Funeral Home
Source: Animal Crematory
Operator(s): BN TN TW

Run Number: 3
Date: 5/07/02
24 hr Time at Start: 16:28
24 hr Time at End: 1742
Filter No(s).: 6321
Barometric Pressure ("Hg): 30.09
Elev Diff. Mano. To Barom. (Ft): 0
Ambient Temperature (°F): 80 @ meter

Dimensions Dia ☑: 20"
LxW ☐:
Static Press. ("H20): -0.01
Meter Box No.: 001
Meter ΔH@: 1.584
Meter Correction Factor: 1.000
Pitot Tube Cp: 0.84
Nozzle ID: QTZ
Nozzle Dia. (Inches): 601
Probe Length/Liner: 3/5 QTZ

Assumptions
% Moisture: 10
Stack Temp.: 1400
Meter Temp.: 100
Md/Ms: 1.04
K Factor: 31.4

Sample Train Leak Check:
Initial 0.004 CFM @ 15" Hg
Final 0.014 CFM @ 7" Hg
Initial Pitot Tube (-) L (+) L
Final Pitot Tube (-) L (+) L

Moist. Collected:- Imp. No. 1 , Imp. No. 2 & 3 , Imp. No. 4 , Total 2 Filter Tare Wt.

Point No.	Sample Time (min.)	Meter Vol. Vm (ft^3)	Vel. Head ΔP ("H_2O)	Orifice Diff. ΔH ("H_2O)	Stack Temp.,Ts (°F)	Meter Temp., Tm (°F)	Hot Box Temp. (°F)	Exit Temp. (°F)	Pump Vacuum ("Hg)	Other
1	0	175.702	.04	1.26	1269	89	225	50	3.0	
2	3	177.81	.04	1.26	1266	90	256	50	3.0	
3	6	179.99	.04	1.26	1278	90	259	50	3.0	
4	9	182.05	.04	1.26	1277	91	260	50	3.0	
5	12	183.51	.04	1.26	1282	92	261	51	3.5	
6	15	185.93	.04	1.26	1278	92	262	50	3.5	
7	18	187.90	.04	1.26	1266	92	261	50	3.5	
8	21	189.81	.04	1.26	1287	93	260	49	4.0	
9	24	191.69	.04	1.26	1290	93	260	49	3.5	
10	27	193.53	.04	1.26	1292	95	258	49	4.0	
11	30	195.45	.035	1.099	1295	97	246	49	4.5	
12	33	197.38	.035	1.099	1310	98	243	49	4.5	
13	36 1	199.28	.035	1.099	1311	98	232	49	4.5	
14	39 2	~~200~~ 201.25	.04	1.26	1292	99	230	49	6.0	
15	42 3	203.29	.04	1.26	1291	99	241	49	6.0	
16	45 4	205.32	.04	1.26	1291	100	248	49	6.0	
17	48 5	207.51	.035	1.099	1298	100	248	49	6.5	
18	51 6	209.59	.035	1.099	1304	100	256	49	6.0	
19	55 7	212.04	.04	1.26	1305	100	256	49	6.0	
20	57 8	213.41	.04	1.26	1293	100	260	49	6.5	
21	60 9	215.43	.04	1.26	1298	100	258	49	6.5	
22	1:03 10	217.43	.04	1.26	1296	101	247	49	6.5	
23	1:06 11	219.41	.035	1.099	1297	101	240	49	6.5	
24	1:09 12	221.34	.035	1.099	1301	101	241	50	6.5	
	1:12	223.256								

SOUTH[illegible]N ENVIRONMENTAL SCIENCES, INC.

FIELD DATA SHEET

Company: Reflections Pet funeral Home
Source: Animal Crematory
Operator(s): BN, TM, TW,

Run Number: 4
Date: 5/7/02
24 hr Time at Start: 19:16
24 hr Time at End: 20:28
Filter No(s).: 6323
Barometric Pressure ("Hg): 30.08
Elev Diff. Mano. To Barom. (Ft): 0
Ambient Temperature (°F): ~80

Dimensions Dia☑
LxW☐ 20"
Static Press. ("H2O): -0.01
Meter Box No.: 001
Meter ΔH@: 1.584
Meter Correction Factor: 1.000
Pitot Tube Cp: 0.84
Nozzle ID: QT2
Nozzle Dia. (Inches): .601
Probe Length/Liner: 3'/QT2.

Assumptions

% Moisture	10	10
Stack Temp.	1400	1320
Meter Temp.	100	95
Md/Ms	1.04	1.04
K Factor	31.4	32.9

10 Sample Train Leak Check:
Initial 0.018 CFM @ 15 "Hg
Final 0.016 CFM @ 15 "Hg
Initial Pitot Tube (-) ~ (+) ~
Final Pitot Tube (-) ~ (+) ~

Moist. Collected:- Imp. No. 1 , Imp. No. 2 & 3 , Imp. No. 4 , Total Filter Tare Wt,

Point No.	Sample Time (min.)	Meter Vol. Vm (ft^3)	Vel. Head ΔP ("H_2O)	Orifice Diff. ΔH ("H_2O)	Stack Temp., Ts (°F)	Meter Temp., Tm (°F)	Hot Box Temp. (°F)	Exit Temp. (°F)	Pump Vacuum ("Hg)	Other
1	0	224.435	.04	1.26	1297	90	240	52	3	
2	3	226.62	.04	1.26	1298	90	241	52	3	
3	6	228.79	.04	1.26	1240	90	252	52	3	
4	9	230.93	.04	1.26	1290	91	253	52	3	
5	12	233.15	.04	1.26	1313	91	261	51	3	
6	15	235.18	.04	1.26	1211	91	270	51	3	
7	18	237.30	.045	1.48	1210	91	268	51	3	
8	21	239.48	.045	1.48	1197	92	266	51	3	
9	24	241.77	.045	1.48	1199	92	253	51	3.5	
10	27	243.89	.04	1.32	1191	92	249	51	3.5	
11	30	246.00	.035	1.15	1190	93	249	51	3.5	
12	33	248.15	.035	1.15	1191	94	248	51	3.5	
13	36	250.19	.035	1.15	1192	95	248	50	3.5	
14 2	39	252.05	.035	1.15	1190	96	247	50	3.5	
15 3	42	254.01	.035	1.15	1188	96	245	50	4.0	
16 4	45	256.06	.04	1.32	1187	98	246	50	4.0	
17 5	48	258.14	.04	1.32	1187	98	250	50	4.0	
18 6	51	260.25	.04	1.32	1183	99	255	50	4.5	
19 7	54	262.35	.04	1.32	1184	99	261	50	4.5	
20 8	57	264.40	.04	1.32	1187	100	266	50	5.0	
21 9	60	266.58	.04	1.32	1184	101	267	52	5.0	
22 10	1:03	268.57	.04	1.32	1176	101	263	52	5.0	
23 11	1:06	270.63	.04	1.32	1170	101	263	52	5.0	
24 12	1:09	272.70	.04	1.32	1170	102	250	53	5.0	
	1:12	274.762								

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

PARTICULATE MATTER COLLECTED

Plant: REFLECTIONS PET FUNERAL HOME
Unit No. Animal Crematory
Test Date: 5/7/02

Analyzed by: [signature]

Acetone blank container no.	2W	Filter blank no.	6322
Acetone blank volume, ml.,(Va)	200	Filter blank tare weight, g.	0.3424
Acetone blank final weight, g.	102.9572	Filter blank final weight, g.	0.3424
Acetone blank tare weight, g.	102.9572	Filter weight diff., g.	0.0000
Acetone blank weight diff.,g.,(ma)	0.0000		

Run No.	2
Filter No.	6320
Liquid lost during transport, ml.	0
Acetone wash container no.	4
Acetone wash volume, ml. (Vaw)	100
Acetone wash residue, g. (Wa)	0.0000

Container Number	WEIGHT OF PARTICULATE COLLECTED		
	Final Weight	Tare Weight	Weight Gain
1 (Filter)	0.3525	0.3382	0.0143
2 (Wash)	103.1124	103.0957	0.0167
		TOTAL	0.031
		Less acetone blank, g. (Wa)	0.0000
		Weight of particulate matter, g.	0.0310

Run No.	3
Filter No.	6321
Liquid lost during transport, ml.	0
Acetone wash container no.	401
Acetone wash volume, ml. (Vaw)	120
Acetone wash residue, g. (Wa)	0.0000

Container Number	WEIGHT OF PARTICULATE COLLECTED		
	Final Weight	Tare Weight	Weight Gain
1 (Filter)	0.3875	0.3376	0.0499
2 (Wash)	102.843	102.8363	0.0067
		TOTAL	0.0566
		Less acetone blank, g. (Wa)	0.0000
		Weight of particulate matter, g.	0.0566

Run No.	4
Filter No.	6323
Liquid lost during transport, ml.	0
Acetone wash container no.	9
Acetone wash volume, ml. (Vaw)	135
Acetone wash residue, g. (Wa)	0.0000

Container Number	WEIGHT OF PARTICULATE COLLECTED		
	Final Weight	Tare Weight	Weight Gain
1 (Filter)	0.38	0.3404	0.0396
2 (Wash)	107.1869	107.17	0.0169
		TOTAL	0.0565
		Less acetone blank, g. (Wa)	0.0000
		Weight of particulate matter, g.	0.0565

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

GAS ANALYSIS DATA FORM

Plant	Reflections Pet Funeral Home		
Unit	Animal Crematory	Test No.	2
Date	5/7/02	Sampling Location	Stack
Sampling Time (24-hr Clock)			
Sample Type: Continuous ☐	Integrated Bag ☒	Grab ☐	
Analytical Method	Orsat	Ambient Temperature	~ 85 °F
Operator	BNelson		

RUN →	1		2		3		Average Net Volume	Multiplier	Molecular Weight of Stack Gas (Dry Basis) (Md)
GAS ↓	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net			
CO_2	8.0	8.0	8.0	8.0	8.0	8.0	8.0	.44	3.52
O_2 (NET IS ACTUAL O_2 READING MINUS ACTUAL CO_2 READING)	16.4	8.4	16.4	8.4	16.4	8.4	8.4	.32	2.69
CO (NET IS ACTUAL CO READING MINUS ACTUAL O_2 READING)							83.6	.28	23.41
N_2 (NET IS 100 MINUS ACTUAL CO READING)								.28	
								TOTAL	29.62

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

GAS ANALYSIS DATA FORM

Plant Reflections Pet Funeral Home	
Unit Animal Crematory	Test No. 3
Date 5/7/02	Sampling Location Stack
Sampling Time (24-hr Clock)	
Sample Type: Continuous ☐ Integrated Bag ☒	Grab ☐
Analytical Method Orsat	Ambient Temperature ~ 90 oF
Operator PD Nelson	

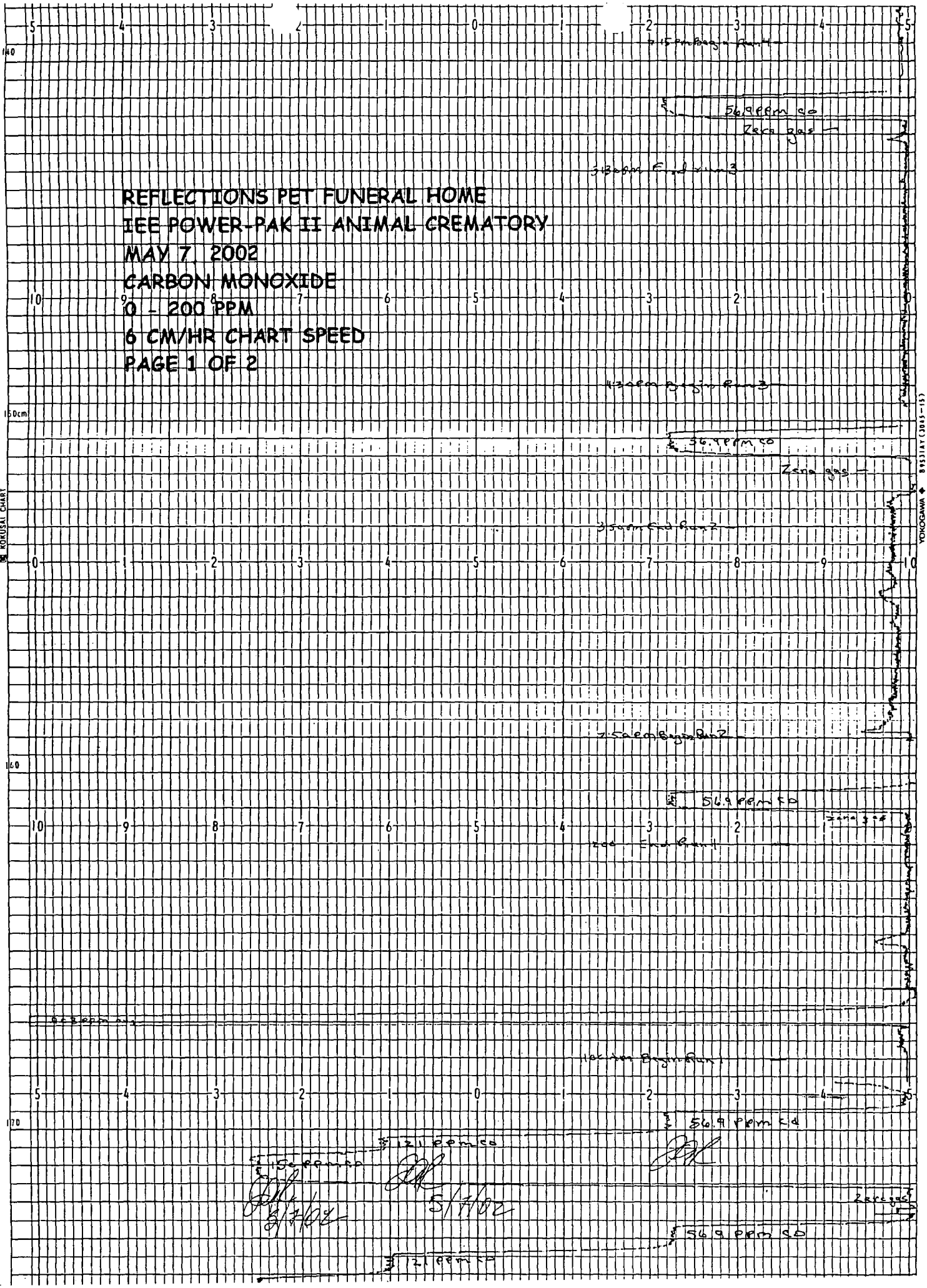
RUN →	1		2		3		Average Net Volume	Multiplier	Molecular Weight of Stack Gas (Dry Basis) (Md)
GAS ↓	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net			
CO_2	5.8	5.8	5.8	5.8	5.8	5.8	5.8	.44	2.55
O_2 (NET IS ACTUAL O_2 READING MINUS ACTUAL CO_2 READING)	16.5	10.7	16.5	10.7	16.5	10.7	10.7	.32	3.42
CO (NET IS ACTUAL CO READING MINUS ACTUAL O_2 READING)							83.5	.28	23.38
N_2 (NET IS 100 MINUS ACTUAL CO READING)								.28	
								TOTAL	29.35

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

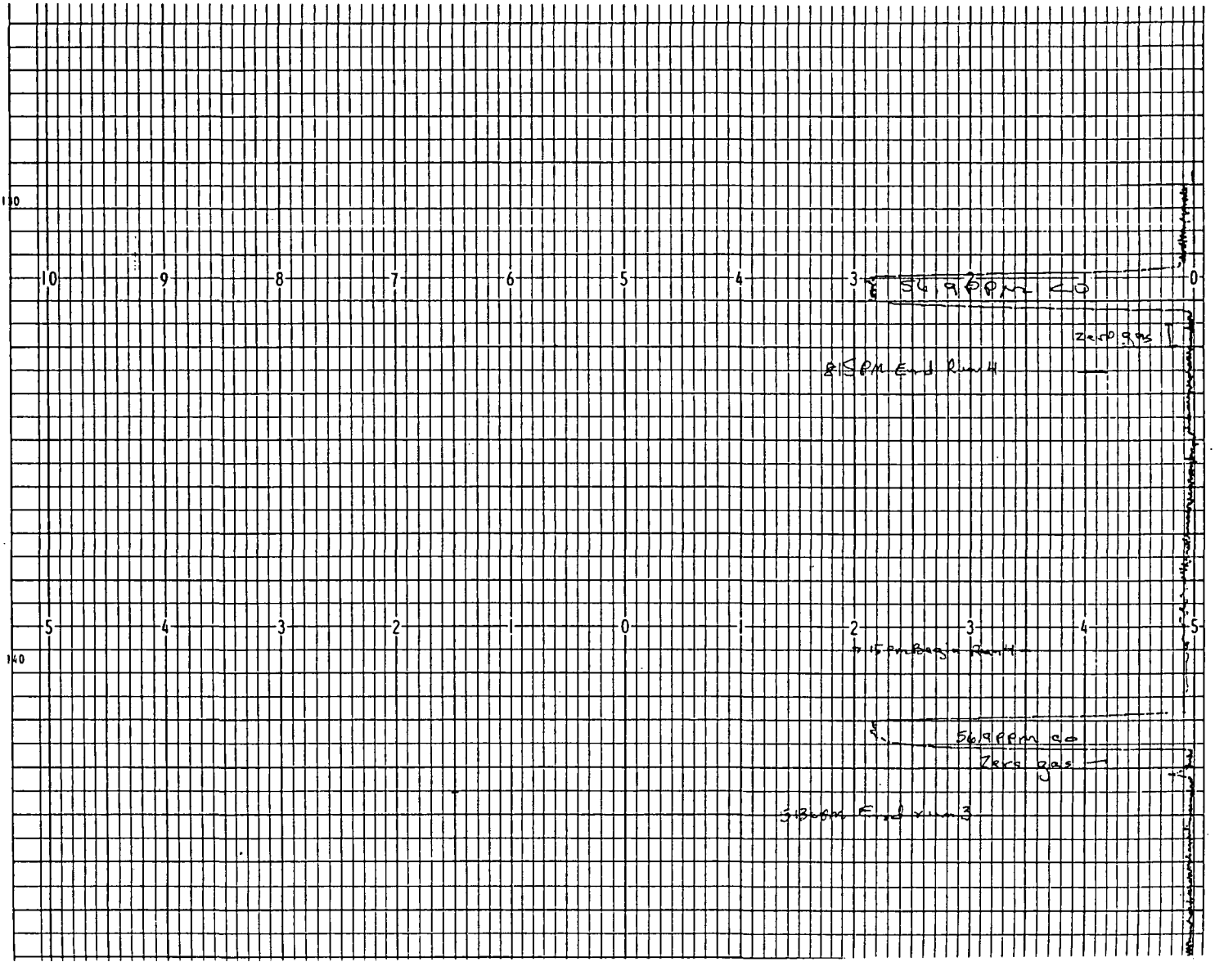
GAS ANALYSIS DATA FORM

Plant	Reflections Pet Funeral Home		
Unit	Animal Crematory	Test No.	4
Date	5/7/02	Sampling Location	stack
Sampling Time (24-hr Clock)			
Sample Type: Continuous ☐	Integrated Bag ☒	Grab ☐	
Analytical Method	Orsat	Ambient Temperature	~ 80 °F
Operator	BD Nation		

RUN →	1		2		3		Average Net Volume	Multiplier	Molecular Weight of Stack Gas (Dry Basis) (Md)
GAS ↓	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net			
CO_2	6.5	6.5	6.5	6.5	6.5	6.5	6.5	.44	2.86
O_2 (NET IS ACTUAL O_2 READING MINUS ACTUAL CO_2 READING)	16.5	10.0	16.5	10.0	16.1	10.1	10.0	.32	3.20
CO (NET IS ACTUAL CO READING MINUS ACTUAL O_2 READING)							83.5	.28	23.38
N_2 (NET IS 100 MINUS ACTUAL CO READING)								.28	
								TOTAL	29.44


REFLECTIONS PET FUNERAL HOME
IEE POWER-PAK II ANIMAL CREMATORY
MAY 7, 2002
CARBON MONOXIDE
0 - 200 PPM
6 CM/HR CHART SPEED
PAGE 1 OF 2
56.9 PPM CO
ZERO GAS
56.9 PPM CO
ZERO GAS
56.9 PPM CO
ZERO GAS
121 PPM CO
121 PPM CO
56.9 PPM CO
ZERO GAS
KOKUSAI CHART
YOKOGAWA

REFLECTIONS PET FUNERAL HOME
IEE POWER-PAK II ANIMAL CREMATORY
MAY 7, 2002
CARBON MONOXIDE
0 - 200 PPM
6 CM/HR CHART SPEED



SOUTHERN ENVIRONMENTAL SCIENCES, INC.

DRY GAS METER CALIBRATION

Meter Box Number: 001 Barometric Pressure: 30.06
Date: 05/29/2001 Wet Test Meter No.: P-576

Orifice Manometer Setting (Delta H) in. H2O	Gas Volume		Temperature		Time (THETA) Min	Yi	Delta H@i in. H2O
	Wet Test Meter (Vw) ft.^3	Dry Gas Meter (Vd) ft.^3	Wet Test Meter (Tw) Deg F	Dry Gas Meter (Td) Deg F			
0.50	5.000	5.054	86.5	93.5	11.5	1.001	1.505
1.00	5.000	5.056	87.0	95.0	8.22	1.001	1.537
1.50	10.000	10.103	87.0	95.0	13.60	1.001	1.577
2.00	10.000	10.141	87.0	96.0	12.03	0.997	1.643
3.00	10.000	10.159	87.0	99.0	9.77	0.999	1.616
4.00	10.000	10.162	87.0	101.0	8.50	0.999	1.625
						1.000	1.584

Delta H@ Acceptable Range 1.784 to 1.384
Yi Acceptable Range 1.020 to 0.980

$$Yi = \frac{Vw\ Pb\ (Td + 460)}{Vd\ (Pb + DeltaH/13.6)\ (Tw + 460)}$$

$$Delta\ H@ = \frac{.0317\ (DeltaH)}{Pb\ (Td + 460)} \left[\frac{(Tw + 460)\ (Theta)}{Vw}\right]^2$$

Where:

Vw = Gas Volume passing through the wet test meter, ft.^3.
Vd = Gas Volume passing through the dry gas meter, ft.^3.
Tw = Temperature of the gas in the wet test meter, deg F.
Tdi = Average temperature of the gas in the dry gas meter, deg F.
Delta H = Pressure differential across orifice. in. H20.
Yi = Ratio of accuracy of wet test meter to dry gas meter for each run.
Y = Average ratio of accuracy of wet test meter to dry gas meter for all three runs; tolerance = pretest Y =/- 0.05Y.
Pb = Barometric pressure, in. Hg
Theta = Time of calibration run, min.

SOUTHERN ENVIRONMENTAL SCIENCES, INC.
NOZZLE CALIBRATION

Date: 5/7/02 by: B. Nelson

Nozzle ID	Run No.	D_1 (INCHES)	D_2 (INCHES)	D_3 (INCHES)	ΔD (INCHES)	D_{AVG} (INCHES)
Qtz	ALL	.600	.601	.601	.001	.601

where: D_1, D_2, D_3 = Nozzle diameter measured on a different diameter (inches). Tolerance = 0.001 inches

ΔD = Maximum difference in any two measurements (inches). Tolerance = 0.004 inches

D_{avg} = Average of D_1,D_2,D_3

****

SAMPLE POINT LOCATIONS

Company: Reflections Pet Funeral Home

Source: IEE PowerPak II

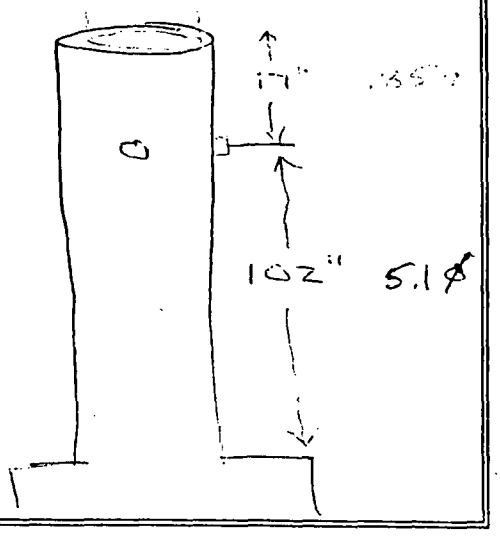
Date: ~~4/7~~ 5/7/02

Stack/Duct Dimensions: 20" diam

Port Length: 6 1/2"

Points corrected for port length?
Yes ☐ No ☐

Sketch of Stack/Duct



Point No.	Distance from Duct Wall (inches)
1	7.0
2	7.8
3	8.9
4	10.0
5	11.5
6	13.6
7	19.4
8	21.5
9	23.0
10	24.1
11	25.2
12	26.8

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

TYPE S PITOT TUBE INSPECTION FORM

PITOT TUBE ID NUMBER	003	
INSPECTION DATE	04/01/02	
INSPECTED BY	M. Gierke	
PITOT TUBE ASSEMBLY LEVEL ?	YES	NO
PITOT TUBE OPENINGS DAMAGED ?	YES (explain please)	NO

ANGLE	MEASUREMENT	LIMITS
$\alpha 1$	4°	<10°
a2	2°	<10°
b1	2°	<5°
b2	3°	<5°
Y	2°	
θ	2°	
A	0.660 inches	
z = A sin Y	.000 inches	< 1/8 inch
w = A sin θ	.018 inches	< 1/32 inch
Pa	.330 inches	
Pb	.330 inches	
Dt	.390 inches	

COMMENTS:

CALIBRATION REQUIRED	YES	NO

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

POSTTEST DRY GAS METER CALIBRATION FORM

Meter Box Number:	001	Wet Test Meter No.:	P-576
Date:	05/17/2002	Pretest Y:	1.00
Barometric Pressure:	30.1	Calibrated by:	K. ROBERTS

Orifice Manometer Setting (Delta H) in. H2O	Gas Volume		Temperature		Time (THETA) Min	Vacuum Setting in. Hg	Yi
	Wet Test Meter (Vw) ft.^3	Dry Gas Meter (Vd) ft.^3	Wet Test Meter (Tw) Deg F	Dry Gas Meter (Td) Deg F			
2.00	10.000	10.014	76.50	79.00	11.45	10.00	0.998
2.00	10.000	10.165	76.00	85.00	11.30	10.00	0.995
2.00	10.000	10.199	75.50	88.00	11.40	10.00	0.998
						Average	0.997
					Acceptable Limits	0.950 to	1.050

$$Yi = \frac{Vw\ Pb\ (Td + 460)}{Vd\ (Pb + DeltaH/13.6)\ (Tw + 460)}$$

Where:

Vw = Gas volume passing through the wet test meter, ft.^3.
Vd = Gas volume passing through the dry gas meter, ft.^3.
Tw = Temperature of the gas in the wet test meter, deg F.
Tdi = Temperature of the inlet gas of the dry gas meter, deg F.
Tdo = Temperature of the outlet gas of the dry gas meter, deg F.
Delta H = Pressure differential across orifice. in. H20.
Yi = Ratio of accuracy of wet test meter to dry gas meter for each run.
Y = Average ratio of accuracy of wet test meter to dry gas meter for all three runs; tolerance = pretest Y =/- 0.05Y.
Pb = Barometric pressure, in. Hg
Theta = Time of calibration run, min.

THERMOMETER CALIBRATIONS

Ref	Wet Test Meter		Dry Gas Meter	
Deg F	Inlet Deg F	Outlet Deg F	Inlet Deg F	Outlet Deg F
76.0	n/a	76.0	n/a	76.5
Difference	n/a	0.0	n/a	-0.5

Quality Control Limits = +/- 5 Deg F

SOUTHERN ENVIRONMENTAL SCIENCES, INC.
THERMOMETER CALIBRATIONS

Calibrated By/Date: M. GIERKE 4/1/02

ALL TEMPERATURES ARE DEGREES RANKIN

ID No.	Type	Range	ICE BATH			TEPID WATER			BOILING WATER			HOT OIL		
			STD Therm	Temp	Deg or Diff	STD Therm	Temp	Deg or Diff	STD Therm	Temp	Deg or Diff	STD Therm	Temp	Deg or Diff
T1	PT	2000° F	495	496	0.2%	539	537	0.4%	672	670	0.3%	860	861	0.1%
T2	PT	2000° F	495	497	0.4%	539	537	0.4%	673	672	0.1%	870	872	0.2%
T3	PT	2000° F	495	497	0.4%	539	538	0.2%	673	671	0.3%	870	872	0.2%
T4	PT	2000° F	494	496	0.4%	539	538	0.2%	674	672	0.3%	863	864	0.1%
T5	PT	2000° F	494	496	0.4%	539	538	0.2%	672	670	0.3%	860	862	0.2%
T6	PT	2000° F	494	496	0.4%	539	537	0.4%	672	674	0.3%	852	854	0.2%
T7	PT	2000° F	495	497	0.4%	539	538	0.2%	673	671	0.3%	853	854	0.1%
T8	PT	2000° F	495	496	0.2%	539	537	0.4%	674	672	0.3%	864	865	0.1%
T9	PT	2000° F	495	497	0.4%	539	538	0.2%	673	671	0.3%	854	856	0.2%
Lab I4	BM	212° F	494	495	1°	536	535	1°	672	673	1°	-	-	-
I5	BM	250° F	494	495	1°	536	535	1°	672	672	1°	-	-	-
I6	BM	220° F	494	496	2°	536	536	0°	672	672	0°	-	-	-
SS110	BM	220° F	494	496	2°	540	539	2°	670	672	2°	-	-	-
SS300	PT	2000 °F	495	497	0.4%	540	538	0.4%	674	672	0.3%	850	852	0.2%
SS301	PT	2000° F	495	497	0.4%	540	538	0.4%	672	670	0.3%	856	858	0.2%
SS306	PT	2000° F	495	496	0.2%	540	538	0.4%	672	670	0.3%	856	858	0.2%
2.5'PA	PT	2000° F	495	496	0.2%	541	538	0.55%	673	672	0.1%	852	854	0.2%
2.5'PB	PT	2000° F	495	497	0.4%	541	538	0.55%	672	674	0.3%	856	858	0.2%
3'P	PT	2000° F	495	497	0.4%	541	539	0.4%	673	675	0.3%	858	860	0.2%
3'INC	PT	2000° F	494	496	0.4%	540	538	0.4%	676	678	0.3%	852	854	0.2%
5'PA	PT	2000° F	494	496	0.4%	540	539	0.2%	672	674	0.3%	856	858	0.2%
5'PB	PT	2000° F	495	497	0.4%	540	538	0.4%	674	672	0.3%	856	858	0.2%
5'PC	PT	2000° F	495	497	0.4%	540	538	0.4%	674	672	0.3%	856	858	0.2%
5'VP	PT	2000° F	495	497	0.4%	541	540	0.2%	676	678	0.3%	856	858	0.2%
5'INC	PT	2000° F	494	496	0.4%	542	540	0.4%	674	676	0.3%	850	852	0.2%
8'PA	PT	2000° F	494	496	0.4%	541	538	0.55%	676	678	0.3%	856	858	0.2%
8'PB	PT	2000° F	494	495	0.2%	541	539	0.4%	676	678	0.3%	856	858	0.2%
10'P	PT	2000° F	494	495	0.2%	541	539	0.4%	674	676	0.3%	854	856	0.2%

Quality Control Limits: Impinger Thermometers± 2°F, Bimetalic Thermometers(Bm)± 5°F,Pyrometers/Thermocouples(PT)± 1.5%

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

1204 North Wheeler Street St. Plant City, Florida 33566 (813) 752-5014

INSTRUMENT CALIBRATION

TEST DATA	
DATE	04/23/2002
COMPANY	REFLECTIONS PET FUNERAL HOME
SOURCE	IEE POWER-PAK II ANIMAL CREMATORY
PARAMETER	**CARBON MONOXIDE**
TECHNICIAN	K. ROBERTS

INSTRUMENT DATA		
	MONITOR	RECORDER
MANUFACTURER	TECO	YOKOGAWA
MODEL NO.	48	
SERIAL NO.	48-27158-228	
RANGE (PPM)	1000	6 CM/HR

CALIBRATION GASES			
SUPPLIER	Air Products	Air Products	Air Products
CYLINDER #	SG112589	SG9175193	SG9170323
CONC. (%)	150	121	56.9
EXPIRATION DATE	06/06/2003	12/17/2002	04/25/2004

POINT	OBSERVED CONC.	ACTUAL CONC.	PERCENT DIFF.
1	0	0	0.00
2	56	56.9	-0.09
3	121.5	121	0.05
4	150	150	0.00

Regression Output:

Constant		-0.3555
Std Err of Y Est		0.6666
R Squared		0.9999
No. of Observations		4
Degrees of Freedom		2
X Coefficient(s)	1.0031	
Std Err of Coef	0.0057	

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

Air Products and Chemicals, Inc. * Rural Route #1, Tamaqua, PA 18252

ISO CERTIFICATION: 9002

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
AIR PRODUCTS & CHEMICALS, INC.
112 WADE ROAD
LATHAM NY 12110-

Order No: SRP-341060-01
Batch No: 255-9781E
PO:
Release:

Cylinder No: SG9175193BAL
Bar Code No: DMN402
Cylinder Pressure*: 2000 psig
Certification Date: 12/17/1999
Expiration Date: 12/17/2002

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
CARBON MONOXIDE	121±2.38 PPM	SG9159519BAL	NTRM 82636	244.7 PPM	Hewlett Packar	2518A052	12/08/99	GC-FID
NITROGEN	Balance Gas							

*** STANDARD SHOULD NOT BE USED BELOW 150 PSIG**

Analyst: Patricia J. Williams
Patricia J. Williams

Approved By: Bruce Andersen
Bruce Andersen

(16921)

Pub. No. 320-9702

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

Air Products and Chemicals, Inc. * 12722 S. Wentworth Avenue, Chicago, IL 60628

ISO CERTIFICATION: 9002

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer: 851 -1
APCI-LARGO
7900 118TH AVENUE NORTH
LARGO FL 33773-

Order No: CSS704108-01
Batch No: 86181785
PO:
Release:

Cylinder No: SG9170323BAL
Bar Code No: FHK790
Cylinder Pressure*: 2000 psig
Certification Date: 04/25/2001
Expiration Date: 04/25/2004

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
CARBON MONOXIDE	56.9±.60 PPM	SG9161497BAL	NTRM 81679	99.90 PPM	HORIBA VIA-510	405079	04/01/01	NON DISPERSIVE INFRARED

NITROGEN Balance Gas

*** STANDARD SHOULD NOT BE USED BELOW 150 PSIG**

EPA PROTOCOL GAS MIXTURE : CARBON MONOXIDE IN NITROGEN
To reorder this mixture please use Mix ID: 27578

Analyst: Suzanne Hauter
SUZANNE HAUTER

Approved By: James Laas
James Laas

(16921)

Pub. No. 320-9702

For Technical Information Call
1-800-752-1597

AIR PRODUCTS

Air Products and Chemicals, Inc. * 12722 S. Wentworth Avenue, Chicago, IL 60628

ISO CERTIFICATION: 9002

CERTIFICATE OF ANALYSIS: EPA PROTOCOL GAS STANDARD

PERFORMED ACCORDING TO EPA TRACEABILITY PROTOCOL FOR ASSAY AND CERTIFICATION OF GASEOUS CALIBRATION STANDARDS (PROCEDURE #G1)

Customer:
APCI-LARGO
7900 118TH AVENUE NORTH
LARGO FL 34643-

Order No: CSS-468280-01
Batch No: 861-70147
PO:
Release:

Cylinder No: SG112589BAL
Bar Code No: DXD944
Cylinder Pressure*: 2000 psig
Certification Date: 06/06/2000
Expiration Date: 06/06/2003

CERTIFIED CONCENTRATION		REFERENCE STANDARDS			ANALYTICAL INSTRUMENTATION			
Component	Certified Concentration	Cylinder Number	Standard Type	Standard Concentration	Instrument Make/Model	Serial Number	Last Calibration	Measurement Principal
CARBON MONOXIDE	150±.98 PPM	SG9162920BAL	NTRM	244.7 PPM	HORIBA VIA-510	405079	05/25/00	NON DISPERSIVE INFRARED

NITROGEN Balance Gas

* STANDARD SHOULD NOT BE USED BELOW 150 PSIG

Analyst: Bryan Baker
Bryan Baker

Approved By:
James Laas

(16921)

Pub. No. 320-9702

AIR PRODUCTS AND CHEMICALS, INC.
7900 118TH AVENUE NORTH
LARGO, FL 33773
TELEPHONE (727) 541-3666

DATE: 17 JUL 2001
TIME: 17:27
PAGE: 1

CERTIFICATE OF GAS ANALYSIS

SOUTHERN ENVIRONMENTAL SCIENCES INC
MR. BYRON NELSON
1204 NORTH WHEELER STREET
PLANT CITY FL 33566-

CUSTOMER ACCOUNT : U9107-1
CUSTOMER ORDER NO : 0735
CUST ORD LINE/REL :
ORDER NO : CSS777971-01
SHIPPER NUMBER : 851C36405

PRODUCT : AIR
GRADE : UHP/ZERO
CYLINDER TYPE : STEEL A
VALVE DESCRIPTION : 590HW BR .75T PACK WS NYL "A"W/DT
CYLINDER PRESSURE : 2640 psig (at 70 degrees F)

REMARKS : The information provided on this Certificate of Analysis conforms to the requirements of the Purchase Order listed above. In accordance with our internal work instruction A-3, products below are traceable to NIST.

BAR CODE	CYLINDER NO	ACTUAL VOLUME	IMPURITY	APCI SPECIFICATION	UNIT OF MEASURE	ANAL FREQ*		ANALYTICAL RESULT	UNIT OF MEASURE	PHASE CODE	LAB MET
— BATCH NO. 85401051		Analysis Date 13 JUN 2001	Expiration Date 12 JUN 2006	Jacksonville, FL							
DBV805	SG4853197	311.00 CF	Oxygen	23.5	%V	I		21.7	%V	V	20
			Total Hydrocarbons	0.5	PPMV	B	<	0.1	PPMV	V	08
			Water	3.5	PPMV	B	<	0.15	PPMV	V	07C
DJU634	SG9704594A	311.00 CF	Oxygen	23.5	%V	I		21.7	%V	V	20
			Total Hydrocarbons	0.5	PPMV	B	<	0.1	PPMV	V	08
			Water	3.5	PPMV	B	<	0.15	PPMV	V	07C
* ANAL FREQ: I = CONTAMINANT INDIVIDUALLY TESTED B = CONTAMINANT BATCH TESTED S = SOURCE ANALYSIS. BATCH TEST PERFORMED ON CYLINDER: DUT991 SG13082A											
-- BATCH NO. 85401065		Analysis Date 21 JUN 2001	Expiration Date 20 JUN 2006	Jacksonville, FL							
FJU373	SG057647A	311.00 CF	Oxygen	23.5	%V	I		21.8	%V	V	20
			Total Hydrocarbons	0.5	PPMV	B	<	0.1	PPMV	V	08
			Water	3.5	PPMV	B	<	0.15	PPMV	V	07C
* ANAL FREQ: I = CONTAMINANT INDIVIDUALLY TESTED B = CONTAMINANT BATCH TESTED S = SOURCE ANALYSIS. BATCH TEST PERFORMED ON CYLINDER: DUU541 SG618687											

(CONTINUED)

CO EMISSION TEST CALCULATIONS

COMPANY: **REFLECTIONS PET FUNERAL HOME**
SOURCE: **IEE POWER PAK II ANIMAL CREMATORY**
TEST DATE: **05/07/2002**
Data analyst: **Ken Roberts**

Run No.	Average CO (ppm)	Average O2 (%)	Average CO @ 7% O2 (ppm)	Stack Flowrate (dscfm)	Emissions mg/m3	Emissions lbs/ft3	Emissions lbs/hr
1	4.10	8.4	4.6	604	4.8	2.98E-007	0.011
2	1.00	10.7	1.4	717	1.2	7.27E-008	0.003
3	1.20	10.0	1.5	741	1.4	8.72E-008	0.004
Averages	2.10	9.7	2.5	687	2.4	1.53E-007	0.006

FORMULAS: CO @ 7% O2 = Actual CO x (14/(21-%02)

mg/m3 = ppm x .041573 x molecular wt.

$$lb/ft3 = \frac{mg/m3}{35.31\ ft^3/m^3 \times 1000 mg/g \times 453.59\ g/lb}$$

lb/hr = lb/ft3 x flowrate x 60 min/hr

where: Pstd = 29.92 "Hg
Tstd = 528 deg R

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

EMISSIONS TEST CALCULATIONS

Plant: REFLECTIONS PET FUNERAL HOME
Unit: Animal Crematory
Run No: 3

Test Date: 5/7/02
Data Input By: KRabon

Pbar = (Pbar at barom.) - (Elev. diff. barom. to manom., ft.) x (.1/100)

= 30.09 - 0 x (0.1/100) = **30.09**

$$Pm = \frac{Pbar + Delta\ H}{13.6} = \frac{30.09 + 1.213}{13.6} = \mathbf{30.18}$$

$$Vm(std) = (Vm) \times (Y) \times \frac{(Tstd,deg\ R) \times (Pm)}{(Tm,deg\ R) \times (Pstd)}$$

$$= 47.554 \times 1 \times \frac{528}{556.3} \times \frac{30.18}{29.92} = \mathbf{45.527}$$

Vw(std) = Vlc x (.04715) = 118.5 x 0.04715 = **5.587**

$$Bws = \frac{Vw(std)}{Vw(std) + Vm(std)} = \frac{5.587}{5.587 + 45.527} = \mathbf{0.109}$$

Bws @ saturation = **0.99**

1 - Bws = **0.891** USE LOWER BWS

Md = 0.44(%CO2) + .32(%O2) + .28(%N2+%CO)

= .44 x 5.8 + .32 x 10.7 + 0.28 78

= **assume** **29.356**

Ms = Md(1-Bws) + 18(Bws) = 29.356 * 0.891 + 18 * 0.109

= **28.11**

$$Ps = Pbar + \frac{(Pg,\ in.\ H2O)}{13.6} = 30.09 + \frac{-0.01}{13.6} = \mathbf{30.09}$$

Vs = 85.49 x (Cp) x (avg sqrt delta P) x sqrt[(Ts,~R)/(Ps)(Ms)]

= 85.49 x 0.84 x 0.196 x sqrt 1751.1 / 30.09 x 28.11

= **20.27**

$$An = \frac{[(Nozzle\ diam,\ in./12)^2 \times 3.14159]}{4} = \frac{[(0.601/12)^2 \times 3.14159]}{4} = \mathbf{0.00197}$$

$$\%I = \frac{(.09450) \times (Ts,deg\ R) \times (Vm(std)}{(Ps) \times (Vs) \times (An) \times (Sample\ Time) \times (1-Bws)}$$

$$= \frac{0.0945 \times 1751.1 \times 45.527}{30.09 \times 20.27 \times 0.00197 \times 72 \times 0.891}$$

= **97.7**

Southern Environmental Sciences, Inc.

1204 North Wheeler Street ☐ Plant City, Florida 33566-2354 ☐ (813) 752-5014

NOMENCLATURE USED IN STACK SAMPLING CALCULATIONS

A_n = Cross-sectional area of nozzle, ft^2

A_s = Cross-sectional area of stack, ft^2

B_{ws} = Water vapor in gas stream, proportion by volume

C_p = Pitot coefficient

C_s = Pollutant concentration, gr/DSCF

F_d = Ratio of gas generated to heat value of fuel, DSCF/mm BTU

ΔH = Average pressure differential across orifice, in. H_2O

%I = Isokinetic variation, %

M_d = Molecular weight of dry gas

M_n = Total amount of pollutant collected, mg

M_s = Molecular weight of stack gas

N = Normality of barium perchlorate titrant

$\overline{\sqrt{\Delta P_{avg}}}$ = Average of the square roots of the velocity heads

P_{bar} = Barometric pressure at the sampling site, in. Hg

P_g = Stack gas static pressure, in. H_2O

P_m = Absolute pressure at the dry gas meter, in. Hg

P_s = Absolute stack pressure, in. Hg

PMR = Pollutant mass rate, lb/hr

P_{std} = Standard absolute pressure, 29.92 in. Hg

θ = Total sampling time, minutes

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

EMISSIONS TEST CALCULATIONS

Plant: REFLECTIONS PET FUNERAL HOME
Unit: Animal Crematory
Run No: 3

Test Date: 5/7/02
Data Input By: [signature]

As = (Stack Diam., ft.)^2 x 3.14 / 4 = (1.666667)^2 x 3.14 / 4 = **2.18**

As.eff = As x (total No. pts.-No. neg. pts.) / (Total No. pts.) = 2.181662 x (24) - (0) / (24) = **2.18**

Q = 60(As,eff)(Vs) = 60 x 2.18 x 20.27 = **2,654**

Qstd = (Q) x (Tstd) x (Ps) x (1-Bws) / (Ts,degR) x (Pstd) = 2653.936 x 528 x 30.08926 x 0.89069 / 1751.125 x 29.92

= **717**

Cs = (.01543) x (mn, mg) / Vm(std) = 0.01543 x 10.7 / 45.52652 = **0.00363**

PMR = (Cs)(Qstd)(60) / 7000 = 0.0036 x 716.77617 x 60 / 7000 = **0.00**

Emissions calculations in emissions test summary may differ slightly from example calculations due to rounding of some numbers in example.

Southern Environmental Sciences, Inc.
1204 North Wheeler Street ☐ Plant City, Florida 33566-2354 ☐ (813) 752-5014

NOMENCLATURE USED IN STACK SAMPLING CALCULATIONS (Continued)

Q = Stack gas flowrate, ACFM

Q_{std} = Stack gas flowrate, DSCFM

T_m = Absolute average meter temperature, °R

T_s = Absolute average stack gas temperature, °R

T_{std} = Standard absolute temperature, 528 °R

V_a = Volume of sample aliquot titrated, ml

V_{lc} = Liquid collected in impingers and silica gel, grams

V_m = Sample volume at meter conditions, DCF

$V_{m(std)}$ = Sample volume at standard conditions, DSCF

V_s = Stack gas velocity, ft/sec

V_{soln} = Total volume of solution, ml

V_t = Volume of barium perchlorate titrant used for the sample, ml

V_{tb} = Volume of barium perchlorate titrant used for the blank, ml

$V_{w(std)}$ = Volume of water vapor in sample corrected to standard conditions, SCF

Y = Dry gas meter calibration factor

13.6 = Specific gravity of mercury

SOUT' 'RN ENVIRONMENTAL SCIEI ES, INC.

FIELD DATA SHEET

Company: Reflections Pet Funeral Home ~~S.E. Cemetery / Family Funeral Care~~
Source: Animal Crematory
Operator(s): BN / TW / TN

Run Number: 1
Date: 5/07/02
24 hr Time at Start: 1102
24 hr Time at End: 1204
Filter No(s).: 6319
Barometric Pressure ("Hg): 30.17
Elev Diff. Mano. To Barom. (Ft): 0
Ambient Temperature (°F): ~80

Dimensions Dia☒
LxW☐: 20"
Static Press. ("H2O): -.01
Meter Box No.: 001
Meter ΔH@: 1.584
Meter Correction Factor: 1.000
Pitot Tube Cp: 0.84
Nozzle ID: QTZ
Nozzle Dia. (Inches): .601
Probe Length/Liner: 3' SS QTZ

Assumptions
% Moisture: 14
Stack Temp.: 1100
Meter Temp.: 90
Md/Ms: 1.055
K Factor: 34.1

Sample Train Leak Check:
Initial: .001 CFM @ 15 "Hg
Final: 0.000 CFM @ 3 "Hg
Initial Pitot Tube (-): ✓ (+): ✓
Final Pitot Tube (-): ✓ (+): ✓

Moist. Collected:- Imp. No. 1 , Imp. No. 2 & 3 , Imp. No. 4 , Total Filter Tare Wt,

Point No.	Sample Time (min.)	Meter Vol. Vm (ft^3)	Vel. Head ΔP ("H_2O)	Orifice Diff. ΔH ("H_2O)	Stack Temp.,Ts (°F)	Meter Temp., Tm (°F)	Hot Box Temp. (°F)	Exit Temp. (°F)	Pump Vacuum ("Hg)	Other
1	0	126.018	.005	.17	1224	77	263	60	1.0	
2	2.5	126.65	.001	.03	1863	77	259	60	1.0	
3	5	127.19	.01	.34	1750	78	251	60	1.5	
4	7.5	127.78	.009	.30	1438	79	246	54	1.5	
5	10	128.56	.01	.34	1543	79	244	52	1.5	
6	12.5	129.51	.009	.30	1517	80	248	52	1.5	
7	15	130.36	.005	.17	1507	81	253	52	1.0	
8	17.5	131.23	.001	.03	1448	82	251	52	0.5	
9	20	131.32	.005	.17	1417	84	243	57	1.0	
10	22.5	131.68	.004	.14	1400	85	252	56	1.0	
11	25	132.28	.003	.10	1147	85	253	56	1.0	
12	27.5	132.78	.003	.10	1180	87	265	56	1.0	
13	30 1	133.29	.005	.17	1430	88	260	56	1.0	
14	32.5 2	133.98	.009	.30	1446	89	243	56	1.5	
15	35 3	134.79	.009	.30	1452	90	246	55	1.5	
16	37.5 4	135.67	.01	.34	1453	91	255	55	2.0	
17	40 5	136.61	.009	.30	1467	92	268	55	2.0	
18	42.5 6	137.51	.008	.27	1454	93	265	55	1.5	
19	45 7	138.32	.008	.27	1460	93	259	55	1.5	
20	47.5 8	139.14	.007	.24	1457	95	248	57	1.5	
21	50 9	139.92	.005	.17	1432	95	246	57	1.0	
22	52.5 10	140.57	.005	.17	1384	95	246	57	1.0	
23	55 11	141.22	.005	.17	1306	95	252	57	1.0	
24	57.5 12	141.89	.006	.20	1308	96	262	57	1.5	
	60	142.623								

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

MOISTURE COLLECTED

Plant Reflections Pet Funeral Home

Unit Animal Crematory
Date 5/7/02
Run No. (1)

Impinger Number	1	2	3	4	Weighed by:
Final Weight (grams):	120.0	108.0	0	260.8	TW
Initial Weight (grams):	100.0	100.0	0	257.4	TW
Difference (grams):	20.0	8.0	0	3.4	
Total Condensate (grams):				31.4	

Unit _____
Date _____
Run No. _____

Impinger Number	1	2	3	4	Weighed by:
Final Weight (grams):					
Initial Weight (grams):					
Difference (grams):					
Total Condensate (grams):					

Unit _____
Date _____
Run No. _____

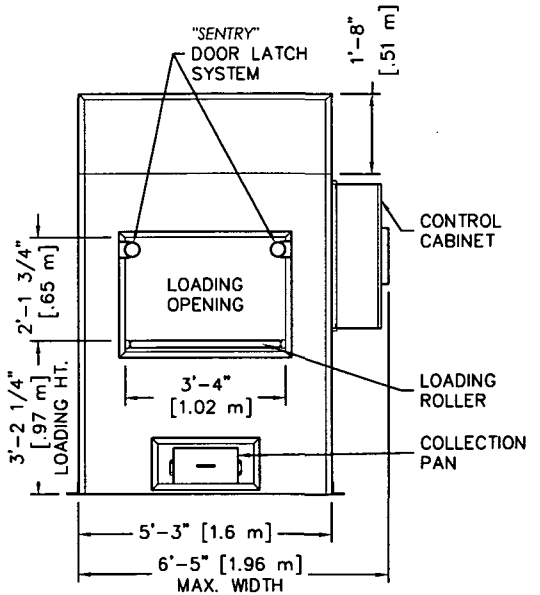
Impinger Number	1	2	3	4	Weighed by:
Final Weight (grams):					
Initial Weight (grams):					
Difference (grams):					
Total Condensate (grams):					

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

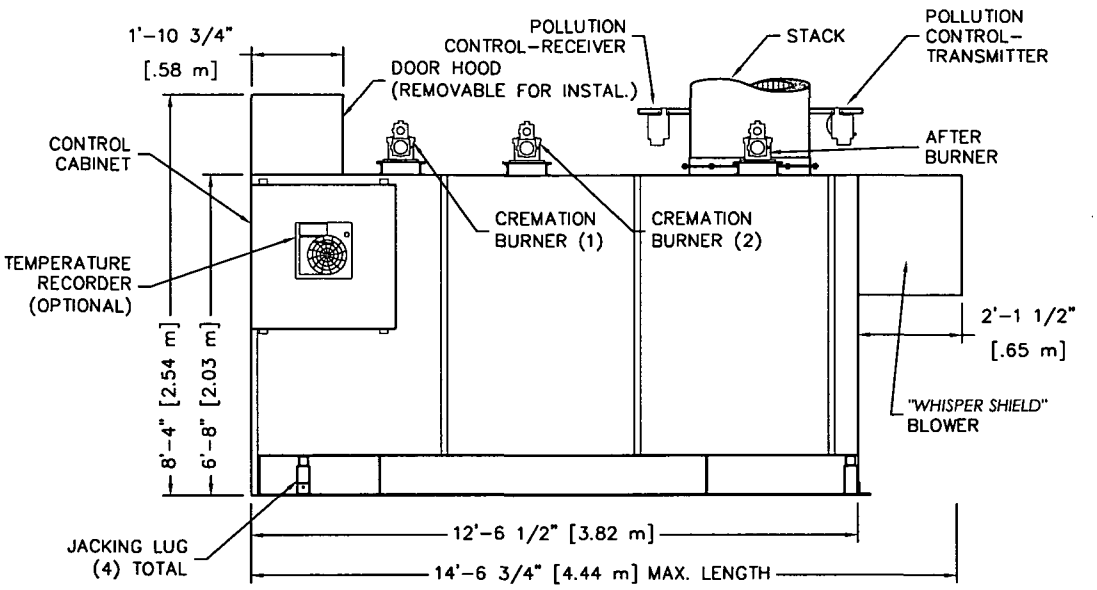
GAS ANALYSIS DATA FORM

Plant Reflections Pet Funeral Home	
Unit Animal Crematory	Test No. 1
Date 5/7/02	Sampling Location Stack
Sampling Time (24-hr Clock)	
Sample Type: Continuous ☐ Integrated Bag ☒	Grab ☐
Analytical Method Orsat	Ambient Temperature ~ 80°F
Operator RD, Nelson	

RUN →	1		2		3		Average Net Volume	Multiplier	Molecular Weight of Stack Gas (Dry Basis) (Md)
GAS ↓	Actual Reading	Net	Actual Reading	Net	Actual Reading	Net			
CO_2	8.6	8.6	8.6	8.6	8.6	8.6	8.6	.44	3.78
O_2 (NET IS ACTUAL O_2 READING MINUS ACTUAL CO_2 READING)	16.7	8.1	16.7	8.1	16.7	8.1	8.1	.32	2.59
CO (NET IS ACTUAL CO READING MINUS ACTUAL O_2 READING)							83.3	.28	23.32
N_2 (NET IS 100 MINUS ACTUAL CO READING)								.28	
								TOTAL	29.69



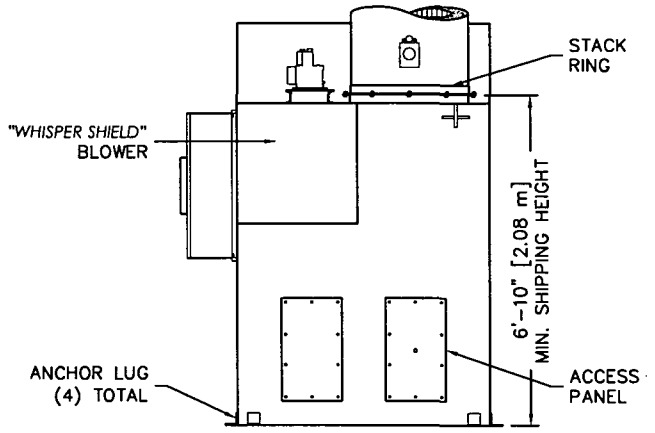
FRONT
ELEVATION



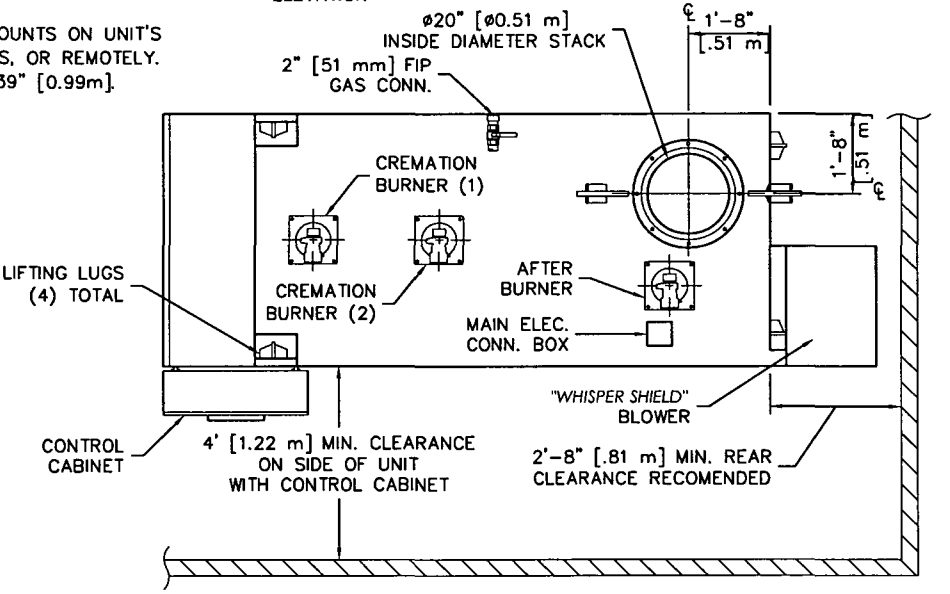
RIGHT SIDE
ELEVATION

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 (PET)

PLAN & ELEVATIONS INCL: CLEARANCES, REQUIREMENTS & RECOMENDATIONS

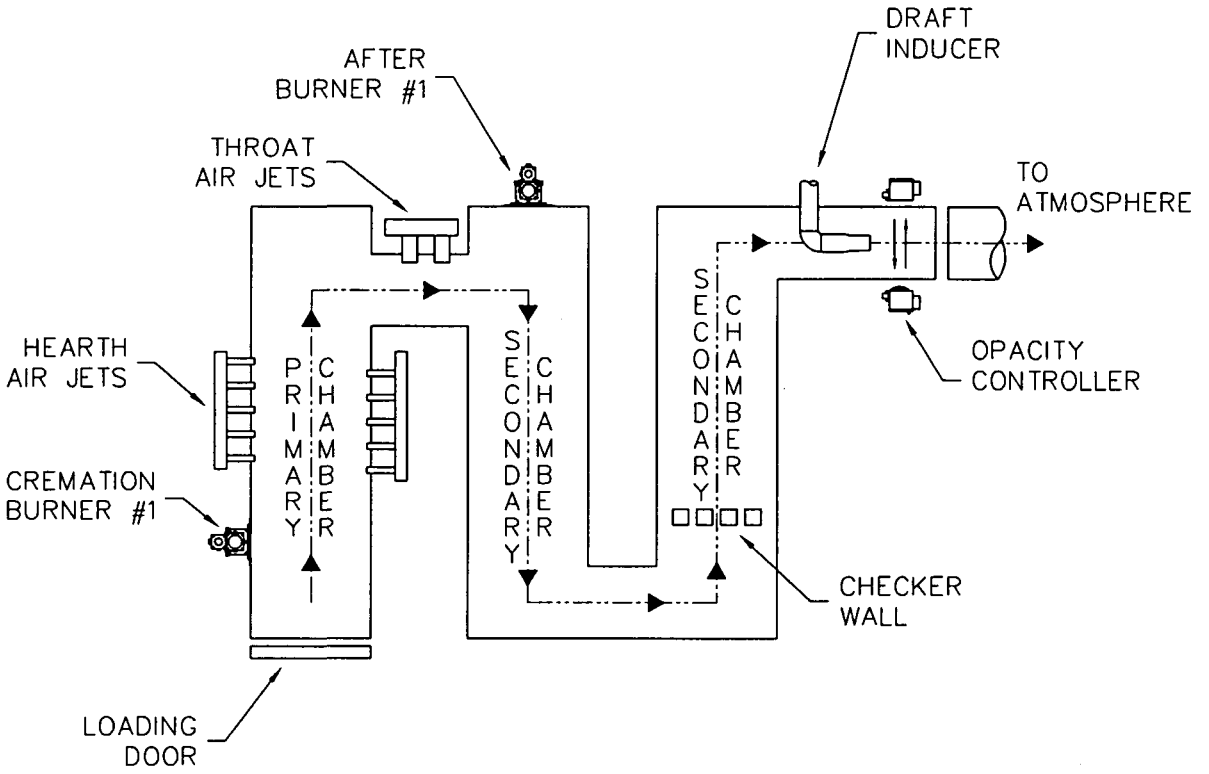
DATE:	02-09-05	SCALE:	1/4"=1'
DRAWN:	JG	PLOT SCALE:	1:48
APRVD:		SHEET:	1 OF: 1
DWG FILE:	PPII-Pet-MarketingPlanElevS1R1		
DWG #:	0000139		

LEGEND OF SYMBOLS

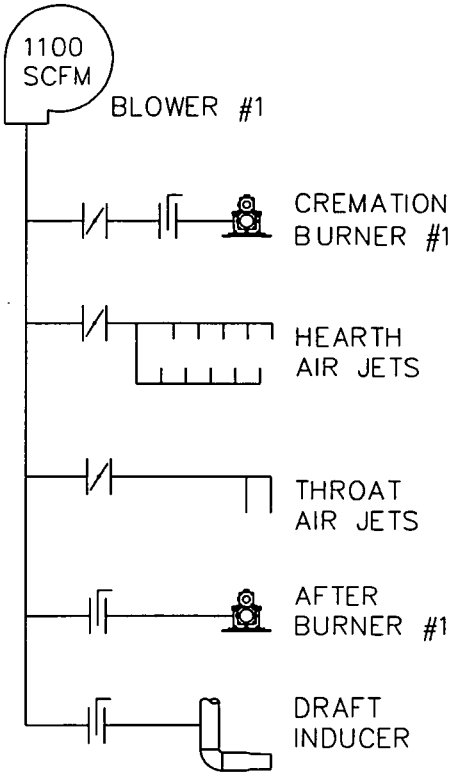
BUTTERFLY VALVE (ON/OFF)

FIXED BLADE BUTTERFLY DAMPER

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	

(F)

CREMATOR MASS BALANCE

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

7-Mar-06

THESE CALCULATIONS HAVE BEEN PREPARED TO EVALUATE THE COMBUSTION PROCESS IN THE POWER-PAK II CREMATORY INCINERATOR

Firing Rate 150 lb/hr = 75 % of 200 lbs/hr Rated Capacity)
Excess Air 100 %

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)	0.8	149.3

SPECIFICATIONS		
PRIMARY CREMATION BURNER FUEL CONSUMPTION	0.7	(MMBTU/HR)
SECONDARY CREMATION BURNER FUEL CONSUMPTION	0.5	(MMBTU/HR)
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)	233	
HEARTH AIR (SCFM)	133	
SEC. CHAMBER OPERATING TEMPERATURE (°F)	**1600**	
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

$$1150000 \text{ BTU/HR} \times \frac{0.045 \text{ LBS/CF}}{1000 \text{ BTU/CF}} = 52 \text{ LBS/HR}$$

B. COMBUSTION AIR FOR PRIMARY BURNERS (100 % Excess Air)

$$\frac{1150000 \text{ BTU/HR}}{100 \text{ BTU/SCF AIR}} \times 2 \times 0.075 \text{ LB/CF AIR} = 1725 \text{ LBS/HR}$$

$$= 383.3 \text{ SCFM}$$

C. SECONDARY BURNER NATURAL GAS USAGE

$$1200000 \text{ BTU/HR} \times \frac{0.045 \text{ LBS/CF}}{1000 \text{ BTU/CF}} = 54 \text{ LBS/HOUR}$$

D. COMBUSTION AIR FOR SECONDARY BURNER (100 % Excess Air)

$$\frac{1200000 \text{ BTU/HR}}{100 \text{ BTU/SCF AIR}} \times 2 \times 0.075 \text{ LB/CF AIR} = 1800 \text{ LBS/HOUR}$$
$$= 400 \text{ SCFM}$$

E. PRODUCTS FROM TYPE 0 WASTE (CONTAINER)

0.95 LBS/LB BURNED x 1 LB/HR BURN RATE = 1 LBS/HOUR

F. PRODUCTS FROM TYPE 4 WASTE (TISSUE)

0.95 LBS/LB WASTE x 149 LB/HR BURN RATE = 142 LBS/HOUR

G. ADDITIONAL COMBUSTION AIR (THROAT & HEARTH AIR)

13980 SCF/HR x 0.075 LB/CF AIR = 1049 LBS/HOUR
7980 SCF/HR x 0.075 LB/CF AIR = 599 LBS/HOUR
= 824 LBS/HR/CREMAT

H. TOTAL FLUE PRODUCTS = 4597 LBS/HOUR

2. VELOCITY AND TIME CALCULATIONS

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

$$4597 \text{ LBS/HR} \times \frac{13.35 \text{ STD. CU. FT/LB}}{60 \text{ MIN/HR}} = 1023 \text{ SCFM}$$

B. TOTAL PRODUCTS ACFM @ 1600 °F

$$\frac{2060 \text{ °RANKINE}}{530 \text{ °RANKINE}} \times 1023 \text{ CFM} = 3975 \text{ ACFM}$$

C. RETENTION TIME

$$\frac{74 \text{ CU. FT}}{3975 \text{ ACFM}} \times \frac{60 \text{ SECONDS}}{1 \text{ MINUTE}} = \mathbf{1.12\ SECONDS}$$

D. VELOCITY IN FLAME PORT

$$\frac{3975 \text{ ACFM}}{2.8 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 23.7 \text{ FEET/SECOND}$$

E. VELOCITY AT MIXING BAFFLES

$$\frac{3975 \text{ ACFM}}{1.4 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 47.3 \text{ FEET/SECOND}$$

F. VELOCITY IN SECONDARY CHAMBER

$$\frac{3975 \text{ ACFM}}{2.7 \text{ SQ. FT}} \times \frac{1 \text{ MINUTE}}{60 \text{ SECONDS}} = 24.5 \text{ FEET/SECOND}$$

CALCULATION OF EMISSIONS
INDUSTRIAL EQUIPMENT & ENGINEERING COMPANY
POWER-PAK II Animal

3/7/06

The flue gas flow rate for the Power-Pak II was chosen to give the highest emission expected rate.

The emission concentrations are from a test for a larger unit of similar design- the Ener-Tek cremator.

NITROGEN OXIDE (as nitrogen dioxide)

Highest emission concentration from test of the Ener-Tek unit: = 164 ppmv
The emission concentration is assumed to be the same for the Power-Pak II.

Estimated emission rate for Power-Pak II =

$$\frac{164 \text{ ppmv} \times 1.88 \text{ mg/m}^3\text{/ppmv} \times 0.0283 \text{ m}^3\text{/ft}^3 \times 750 \text{ dscfm} \times 60 \text{ min/hr}}{453{,}600 \text{ mg/lb}} = 0.88 \text{ lb/hr}$$

HYDROCARBONS (VOC) (as methane)

Highest emission concentration from test of the Ener-Tek unit: = 5 ppmv
The emission concentration is assumed to be the same for the Power-Pak II.

Estimated emission rate for Power-Pak II =

$$\frac{5 \text{ ppmv} \times 0.65 \text{ mg/m}^3\text{/ppmv} \times 0.0283 \text{ m}^3\text{/ft}^3 \times 750 \text{ dscfm} \times 60 \text{ min/hr}}{453{,}600 \text{ mg/lb}} = 0.01 \text{ lb/hr}$$

SULFUR DIOXIDE

Highest emission concentration from test of the Ener-Tek unit: = 16 ppmv
The emission concentration is assumed to be the same for the Power-Pak II.

Estimated emission rate for Power-Pak II =

$$\frac{16 \text{ ppmv} \times 2.61 \text{ mg/m}^3\text{/ppmv} \times 0.0283 \text{ m}^3\text{/ft}^3 \times 657 \text{ dscfm} \times 60 \text{ min/hr}}{453{,}600 \text{ mg/lb}} = 0.11 \text{ lb/hr}$$

NOTES:

Conversion factors were taken from AP-42, Appendix A.

SPECIFICATIONS- Power-Pak II Pet

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

2. Dimensions
   A. Maximum Length ..... 14' - 6½"
   B. Maximum Width ..... 6' -5"
   C. Maximum Height ..... 8' - 4"
   D. Chamber Loading Opening ..... 25¾" H x 39" W (into chamber)

3. Weight ..... 24,000 lbs.

4. Utility/Air Requirements
   A. Gross Gas Input, Natural or LP Gas ..... 2,500,000 BTU/hr. max.
      Running Gas Pressure, Natural Gas ..... 7 inches w.c. or greater
      Running Gas Pressure, LP Gas ..... 11 inches w.c. or greater
   B. Electrical Supply ..... 230 volt, 3Ø or 1Ø, 60 hz (other available)
   C. Air Supply ..... 2,500 cfm

5. Incineration Capacity
   A. Type 4 Material ..... 150 lbs./hr.

6. Typical Loading Capacity of Material
   A. Type 4 Material ..... 400 to 800 lbs.

7. Construction and Safety Standards ..... Incineration Institute of America, Underwriters Laboratories, Canadian Standards Association

8. Steel Structure Construction
   A. Frame ..... 2" square tubing
   B. Front/Rear Plates ..... 3/8" plate
   C. Floor Plates ..... 3/16" plate
   D. Outer Side Casing ..... 12 gauge plate
   E. Inner Side Casing ..... 12 gauge plate

9. Stack Construction
   A. Inner Wall ..... 4 ½" insulating firebrick or castable
   B. Outer Wall ..... 12 gauge plate, type 304 s.s., welded seams

10. Draft Nozzle Construction ..... Schedule 40 type 316 s.s. pipe

11. Main Chamber Door Construction
   A. Steel Shell ..... 3/16" steel, welded with reinforcement
   B. Outer Refractory ..... 1" insulating block
   C. Inner Refractory ..... 4½" insulating firebrick

12. Primary Chamber Wall Construction
   A. Outer Casing Wall ..... 12 gauge plate
   B. Inner Frame/Air Compartment ..... 2" air compartment

SPECIFICATIONS- Power-Pak II Pet

C. Inner Casing Wall ..... 12 gauge plate
D. Outer Refractory Wall ..... 5" insulating block
E. Inner Refractory Wall ..... 4½" firebrick

13. Secondary Chamber Wall Construction
A. Outer Casing Wall ..... 12 gauge plate
B. Inner Frame/Air Compartment ..... 2" air compartment
C. Inner Casing Wall ..... 12 gauge plate
D. Outer Refractory Wall ..... 6" insulating block
E. Inner Refractory Wall ..... 4½" firebrick

14. Refractory Temperature Ratings
A. Standard Firebrick ..... 3,100° F.
B. Insulating Firebrick ..... 2,600° F.
C. Castable Refractory (Hearth) ..... 2,800° F.
D. Castable Refractory ..... 2,550° F.
E. Insulating Block ..... 1,900° F.
F. Bonding Mortar ..... 3,200° F.

15. Chamber Volumes (not including external flues, stacks or chimneys)
A. Primary Chamber ..... 69 cubic feet
B. Secondary Chamber ..... 71 cubic feet

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.
B. Secondary Chamber ..... 1,400° F. - 1,800° F. (as required)

18. Secondary Chamber Retention Time
A. Type 4 Material ..... > 1 second

19. Ash Removal ..... Door functions as a heat shield. Sweep out through front door into a hopper that fills a 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

SPECIFICATIONS- Power-Pak II Pet

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 Burners On ..... Included
    - F. Low Fire Cremation Burner On ..... Included
    - G. Afterburner (Secondary Burner) Reset ..... Included
    - H. Cremation Burners 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 Burners ..... 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

(G)

Florida Department of
Environmental Protection

Lawton Chiles
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

Virginia B. Wetherell
Secretary

May 25, 1994

Mr. Paul F. Rahill, Vice President
Industrial Equipment & Engineering Co.
PO Box 547796
Orlando, FL 32854-7796

Re: Approval of Training Program for Operators of Human or Animal Crematories; Rule 17-296.401, F.A.C.

Dear Mr. Rahill:

On the basis of the trainers' credentials submitted on May 25, 1993 and May 25, 1994; and the content of the training programs submitted on August 4, 1992 and October 27, 1993; the Department has determined your training programs to be in the group of programs approved for the purpose of training cremation equipment operators statewide. The training programs shall consist of no less than eight hours of classroom instruction and on-site, hands-on training including start-up, operation of at least one cremation, shut-down of the equipment and one full cycle of preventive maintenance actions, using the actual equipment that the trainees will be operating at their facility.

Upon successful completion of your training course, each operator shall be issued a certificate of completion signed by the trainer. A copy of the training certificate for each operator having satisfactorily completed the training course must be submitted to the Department or approved Local Program Office within 15 days of training. For construction permit applications, a copy of this letter of authorization must be included with the application and the operator training must be performed at the time of startup.

This letter serves as certification of Ken Robinson, Rick Thomas, Roger Elliott, Billie Nunn, Dave Gifford, Steve Sidelinger, Tony Lombardi, and you, Paul Rahill, as trainers for operators of IE&E Power-Pak Junior, Power-Pak, Power-Pak II, Super Power-Pak, Ener-Tek II; Crawford series C-1000; All Crematory series L-1701; and B&L Systems series N20AA cremation incinerators using one of the training programs you submitted to the Department on August 4, 1992 or October 27, 1993. Approval must be obtained from the Department prior to any modification an approved training program.

(G)

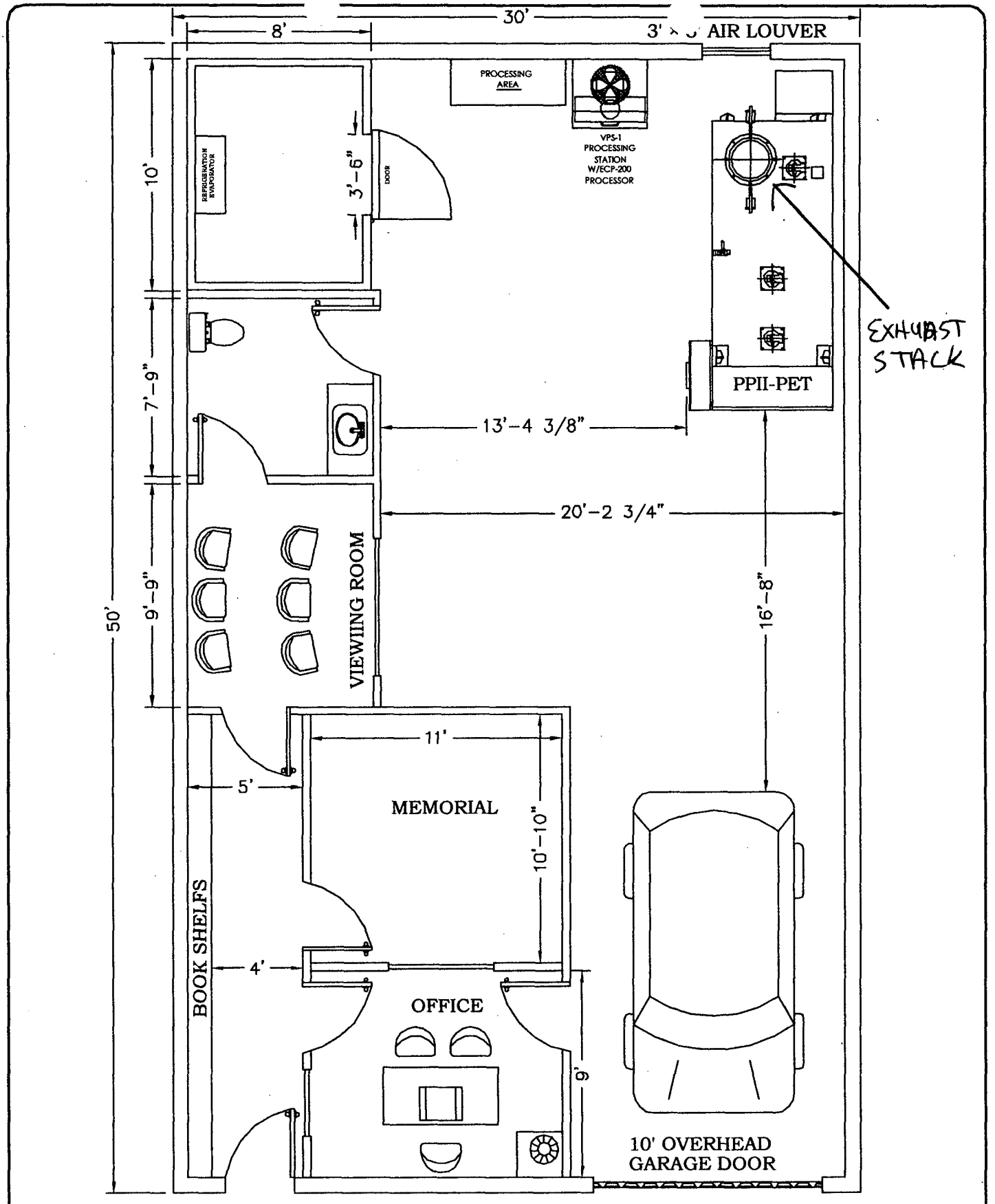
Should you have any questions regarding this certification or need additional information, please contact Ms. Cindy Phillips at the above address, or call 904/921-9534.

Sincerely,

C. H. Fancy, P.E.
Chief
Bureau of Air Regulation

CHF/CLP

cc: Ed Middleswart, NWD
Chris Kirts, NED
Chuck Collins, CD
Bill Thomas, SWD
Isadore Goldman, SED
David Knowles, SD



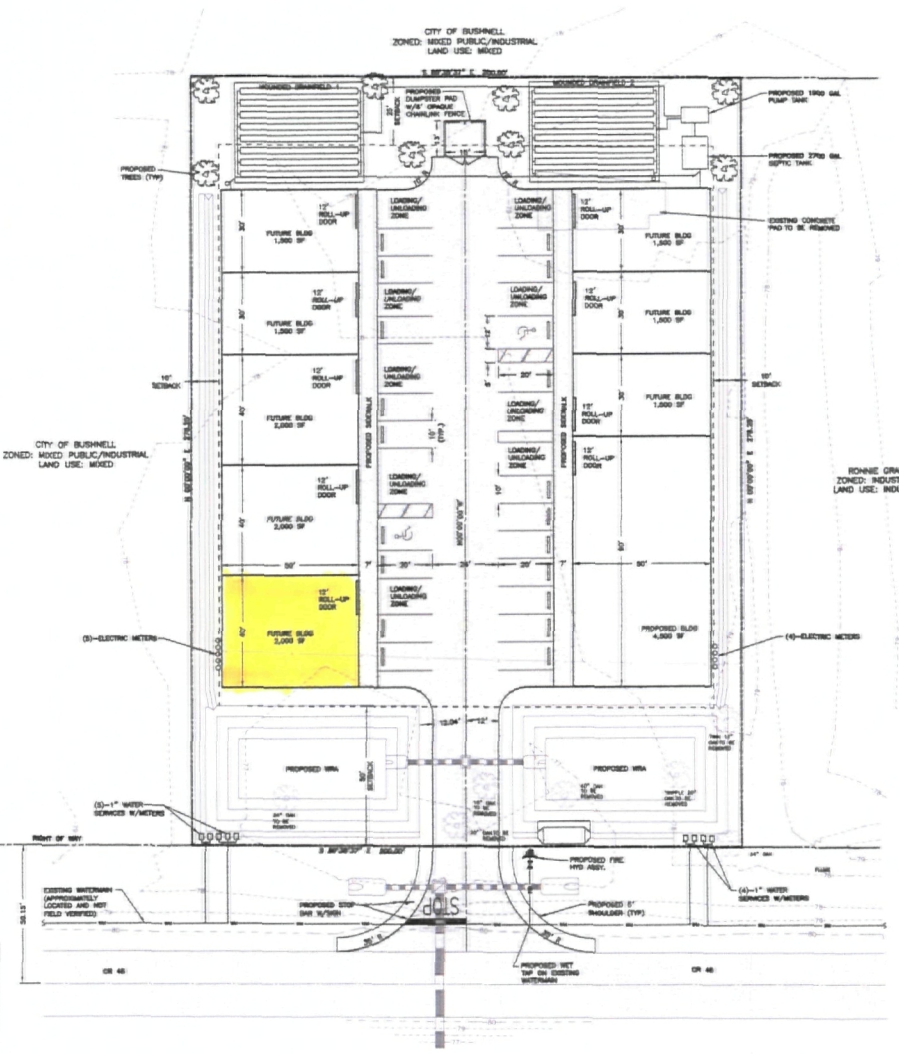
Matthews CREMATORY DIVISION
2045 Sprint Boulevard
Apopka, Florida 32703
USA

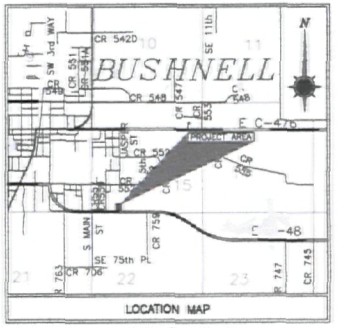
PROSTHETICS RESEARCH SPECIALISTS

PROPOSED 30' x 50' BUILDING
WITH TWO POWER PAK II PET MACHINES
LAYOUT OPTION C

DATE:	03-28-06	SCALE:	3/16"=1'
DRAWN:	JG	PLOT SCALE:	1:64
APRVD:		SHEET: 1	OF: 1
DWG FILE:			PRSLayout
DWG #:			0000627

yellow shaded area is where Crematory will be constructed





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DESCRIPTION	SHEET
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POST DEV DRAINAGE PLAN	4
WATER & SEWER DETAILS	5
DRAINAGE DETAILS	6
TYPICAL SECTIONS & DETAILS	7
GENERAL NOTES	8

LEGAL DESCRIPTION:
COMMENCE CORNER OF SW 1/4 OF SE 1/4 OF SW 1/4 RUN S 333.08 FEET W 313.12 FEET W 330.06 FEET TO POINT OF BEGINNING S 170.25 FEET TO N R/W LINE OF CR 48 W 330 FEET N 278.25 FEET E 300 FEET TO POINT OF BEGINNING

OWNER: RONNIE N. GRAVES AND LINDA R. GRAVES
730 SOUTHLAND AVENUE
BUSHNELL, FLORIDA 33513

ENGINEER/SURVEYOR: SPRINGSTEAD ENGINEERING, INC.
DAVID SPRINGSTEAD
727 SOUTH 14th STREET
LEESBURG, FLORIDA 34748
(352) 787-1414

CONTRACTOR: M.C. OF FLORIDA
DAVID MOFFIT
P.O. BOX 389
BUSHNELL, FLORIDA 33513
(352) 793-5310

NOTES/CLARIFICATIONS:
1. 1" WATER METERS-(9)
2. 3 PHASE ELECTRICAL METERS-(9)
3. DUMPSTER PAD-(1)
4. TREES TO BE REMOVED GREATER THAN 18" DIA.-(7)
5. TREES TO BE PLANTED-(0)
6. MAXIMUM HEIGHT OF STRUCTURES-30'
7. PROPOSED METAL BUILDING-18,000 SF
8. AVERAGE DAILY TRAFFIC-30 TRIPS/DAY
9. AVERAGE DAILY WATER USAGE-5,000 GPD
10. PEAK DAILY WATER USAGE-8,000 GPD
11. ZONED-INDUSTRIAL
12. LAND USE-COMMERCIAL INDUSTRIAL

AREA CALCULATIONS:
TOTAL POND 0.16 AC/12,505
TOTAL PERVIOUS 0.39 AC/16,995
TOTAL IMPERVIOUS 0.74 AC/32,815
TOTAL PROJECT 1.29 AC/100,005

PARKING CALCULATIONS:
TOTAL REQUIRED SPACES: TOTAL SF 18,000/1,000 SF = 18 SPACES
REQUIRED HANDICAPPED SPACES: 1 TO 25 TOTAL SPACES REQUIRED 1 H.C.
PROPOSED REGULAR SPACES: 18
PROPOSED HANDICAPPED SPACES: 2
TOTAL PARKING SPACES PROVIDED: 20

LEGEND
PROPERTY BOUNDARY
EXISTING CENTER LINE
EXISTING EDGE OF PAVEMENT
EXISTING RIGHT OF WAY
EXISTING FENCE

CLIENT: M.C. OF FLORIDA
PROJECT: RONNIE GRAVES COMMERCIAL WAREHOUSE
DRAWING: SITE PLAN
1 of 8

Springstead Engineering, Inc.
Consulting Engineers
Architects, Planners
Surveyors
727 South 14th Street
Leesburg, FL 34748
(352) 787-1414

SCALE:	FILE:	DATE:
AS SHOWN	GRAVES	4/06
DESIGN: PAL	DRAWN: GJY	CHECKED: DLS

DRAWING: SITE PLAN
CLIENT: M.C. OF FLORIDA
JOB NO.: 0110001.001
SHEET: 1 OF 8