



WALT DISNEY World Co.

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BUREAU OF
AIR REGULATION

January 19, 1998

Mr. Clair Fancy
Chief, Bureau of Air Regulation
Florida Department of Environmental Protection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

RE: Construction Permit Application
Disney's Animal Kingdom Theme Park
CB800 Incinerator

Dear Mr. Fancy:

Enclosed are three copies of the air construction permit application and three ELSA submission diskettes for the above referenced emissions unit. The fourth copy has been sent to Mr. Len Kozlov at the Central District office to facilitate the review of the application. No fee is included, since this application is for a minor Title V modification, in accordance with 62-4.050(4)(a)2, F.A.C.

Since this application will be the first construction permit that I have applied for with your office (previous air construction permit applications were processed by the Central District), I have discussed this permit application with Mr. Bruce Mitchell prior to its completion. He provided me with assistance to ensure the completeness of the application.

It is requested that this permitting action is kept separate from the Walt Disney World Title V permit at this time. We will apply to incorporate the emissions unit into the Title V permit through a separate permitting action at a later date, after construction and stack testing have been completed.


If you have any questions or need any further information, please call me at 407-827-2748.

Sincerely,

Rich Bumar
Environmental Control Representative
Environmental Control Department

Enclosure

P.O. Box 10000 / Lake Buena Vista, Florida 32830-1000

Part of the Magic of The  Company



Clair Fancy
Page 2
January 19, 1998

cc: Bob Beaver (w/o enclosure)
Bruce Mitchell
Lee Schmudde (w/o enclosure)

0950111-013-AC

EU ID.: 112

**AIR CONSTRUCTION PERMIT
APPLICATION**

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JAN 20 1998

BUREAU OF
AIR REGULATION

**WALT DISNEY WORLD CO.
FACILITY ID NUMBER 0950111**

**DISNEY'S ANIMAL KINGDOM
MODEL CB800 INCINERATOR**

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APPLICATION INFORMATION

**Department of
Environmental Protection**

**DIVISION OF AIR RESOURCES MANAGEMENT
APPLICATION FOR AIR PERMIT - LONG FORM**

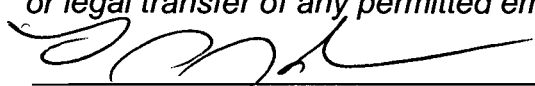
I. APPLICATION INFORMATION

Identification of Facility Addressed in This Application

1. Facility Owner/Company Name : Walt Disney World Co.	
2. Site Name : Walt Disney World Resort	
3. Facility Identification Number : 0950111	[] Unknown
4. Facility Location : This site is located in the Walt Disney World Resort at Disney's Animal Kingdom (DAK) Theme Park. Street Address or Other Locator : P.O. Box 10,000 City : Lake Buena Vista County : Orange Zip Code : 32830-1000	
5. Relocatable Facility? [] Yes [X] No	6. Existing Permitted Facility? [X] Yes [] No

I. Part 1 - 1

Owner/Authorized Representative or Responsible Official

1. Name and Title of Owner/Authorized Representative or Responsible Official :	
Name :	Lee Schmudde
Title :	Vice President, Legal
2. Owner or Authorized Representative or Responsible Official Mailing Address :	
Organization/Firm :	Walt Disney World Co.
Street Address :	P.O. Box 10,000
City :	Lake Buena Vista
State :	FL
Zip Code :	32830-1000
3. Owner/Authorized Representative or Responsible Official Telephone Numbers :	
Telephone :	(407)828-3701
Fax :	(407)828-3239
4. Owner/Authorized Representative or Responsible Official Statement :	
<p><i>I, the undersigned, am the owner or authorized representative* of the non-Title V source addressed in this Application for Air Permit or the responsible official, as defined in Rule 62-210.200, F.A.C., of the Title V source addressed in this application, whichever is applicable. 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 units.</i></p>	
 _____ Signature	<u>1-16-96</u> Date

* Attach letter of authorization if not currently on file.

Scope of Application

Emissions Unit ID	Description of Emissions Unit	Permit Type
No Id	Necropsy Building- Crawford Model CB800 Animal Crematory	AC1F

Purpose of Application and Category

Category I : All Air Operation Permit Applications Subject to Processing Under Chapter 62-213, F.A.C.

This Application for Air Permit is submitted to obtain :

Initial air operation permit under Chapter 62-213, F.A.C., for an existing facility which is classified as a Title V source.

Initial air operation permit under Chapter 62-213, F.A.C., for a facility which, upon start up of one or more newly constructed or modified emissions units addressed in this application, would become classified as a Title V source.

Current construction permit number :

Air operation permit renewal under Chapter 62-213, F.A.C., for a Title V source.

Operation permit to be renewed :

Air operation permit revision for a Title V source to address one or more newly constructed or modified emissions units addressed in this application.

Current construction permit number :

Operation permit to be revised :

Air operation permit revision or administrative correction for a Title V source to address one or more proposed new or modified emissions units and to be processed concurrently with the air construction permit application.

Operation permit to be revised/corrected :

Air operation permit revision for a Title V source for reasons other than construction or modification of an emissions unit.

Operation permit to be revised :

Reason for revision :

Category II : All Air Operation Permit Applications Subject to Processing Under Rule 62-210.300(2)(b), F.A.C.

This Application for Air Permit is submitted to obtain :

Initial 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) :

Renewal air operation permit under Rule 62-210.300(2)(b), F.A.C., for a synthetic non-Title V source.

Operation permit to be renewed :

Air operation permit revision for a synthetic non-Title V source.

Operation permit to be revised :

Reason for revision :

Category III : All Air Construction Permit Applications for All Facilities and Emissions Units

This Application for Air Permit is submitted to obtain :

Air construction permit to construct or modify one or more emissions units within a facility (including any facility classified as a Title V source).

I. Part 4 - 2

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

Current operation permit number(s), if any :

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

Current operation permit number(s) :

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

Application Processing Fee

Check one :

[] Attached - Amount : _____

[X] Not Applicable.

Construction/Modification Information

1. Description of Proposed Project or Alterations :	
<p>Disney's Animal Kingdom is a new theme park within the Walt Disney World Resort complex. The new theme park will include live animal exhibits, rides, shows, restaurants, merchandise locations, and staff support facilities. The proposed air emission source to be installed is a Crawford model CB800 animal carcass incinerator that will be used to dispose of dead animals from both the theme park and from other areas within the Walt Disney World Resort property.</p> <p>This emissions source is designated DAK-9. The emissions source is fired only with natural gas and has a total maximum heat input rating of 3.0 MMBtu/hr.</p> <p>The proposed unit will cause an overall increase in annual potential emissions from the Walt Disney World Resort complex as follows: CO: 0.18 tpy , NOx: 1.31 tpy, PM/PM10: 0.65 tpy, SO2: 0.01 tpy, VOC/TOC: 0.08 tpy</p>	
2. Projected or Actual Date of Commencement of Construction :	01-Mar-1998
3. Projected Date of Completion of Construction :	31-Mar-1998

Professional Engineer Certification

1. Professional Engineer Name : Bob Beaver Registration Number : 32528	
2. Professional Engineer Mailing Address :	
Organization/Firm : Walt Disney World Co. Street Address : P.O. Box 10,000 City : Lake Buena Vista State : FL Zip Code : 32830-1000	
3. Professional Engineer Telephone Numbers :	
Telephone : (407)828-1584	Fax : (407)934-7297

4. Professional Engineer Statement :

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

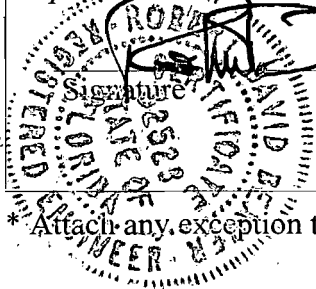
(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollutant control equipment described in this Application for Air Permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions 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 a Title V source air operation permit (check here [] if so), I further certify that each emissions unit described in this Application for Air Permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance schedule is 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 [] 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 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.



Date 1/16/98

* Attach any exception to certification statement.

Application Contact

1. Name and Title of Application Contact : Name : Richard Bumar, E.I. Title : Environmental Ctrl Represenatative
2. Application Contact Mailing Address : Organization/Firm : Walt Disney World Co. Street Address : P.O. Box 10,000 City : Lake Buena Vista State : FL Zip Code : 32830-1000
3. Application Contact Telephone Numbers : Telephone : (407)827-2748 Fax : (407)827-2774

Application Comment

No fee is submitted , since the proposed emissions unit is a minor source, in accordance with 62-4.050(4)(a)2. F.A.C.

It is requested that this permitting action be kept separate from the Walt Disney World Title V permit at this time. The emissions unit will be incorporated, in a separate permitting action at a future date, after the construction permit has been issued and construction and stack testing have been completed.

As required in 62-296.401(6)(g), the facility operators will be trained by personnel from Crawford Engineering and Equipment, Co., through their department-approved training program.

FACILITY INFORMATION

II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility, Location, and Type

1. Facility UTM Coordinates : Zone : East (km) : North (km) :			
2. Facility Latitude/Longitude : Latitude (DD/MM/SS) : 28 21 59 Longitude (DD/MM/SS) : 81 35 21			
3. Governmental Facility Code : 0	4. Facility Status Code : C	5. Facility Major Group SIC Code : 79	6. Facility SIC(s) :
7. Facility Comment : Facility SIC is 79-96			

Facility Contact

1. Name and Title of Facility Contact : Armando Rodriguez Director of Environmental Affairs			
2. Facility Contact Mailing Address : Organization/Firm : Walt Disney World Co. Street Address : P.O. Box 10,000 City : Lake Buena Vista State : FL Zip Code : 32830-1000			
3. Facility Contact Telephone Numbers : Telephone : (407)827-2730 Fax : (407)827-2774			

Facility Regulatory Classifications

1. Small Business Stationary Source?	N
2. Title V Source?	Y
3. Synthetic Non-Title V Source?	N
4. Major Source of Pollutants Other than Hazardous Air Pollutants (HAPs)?	Y
5. Synthetic Minor Source of Pollutants Other than HAPs?	N
6. Major Source of Hazardous Air Pollutants (HAPs)?	Y
7. Synthetic Minor Source of HAPs?	N
8. One or More Emissions Units Subject to NSPS?	N
9. One or More Emission Units Subject to NESHAP?	Y
10. Title V Source by EPA Designation?	Y
11. Facility Regulatory Classifications Comment :	

B. FACILITY REGULATIONS

Rule Applicability Analysis

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B. FACILITY REGULATIONS

List of Applicable Regulations

II. Part 3b - 1

DEP Form No. 62-210.900(1) - Form
Effective : 3-21-96

C. FACILITY POLLUTANTS

Facility Pollutant Information

1. Pollutant Emitted	2. Pollutant Classification

D. FACILITY POLLUTANT DETAIL INFORMATION

Pollutant _____

II. Part 4b - 1

Effective : 3-21-96

D. FACILITY SUPPLEMENTAL INFORMATION

Supplemental Requirements for All Applications

1. Area Map Showing Facility Location :	Attachment A
2. Facility Plot Plan :	Attachment B
3. Process Flow Diagram(s) :	Attachment C
4. Precautions to Prevent Emissions of Unconfined Particulate Matter :	NA
5. Fugitive Emissions Identification :	NA
6. Supplemental Information for Construction Permit Application :	NA

Additional Supplemental Requirements for Category I Applications Only

7. List of Proposed Exempt Activities :	NA
8. List of Equipment/Activities Regulated under Title VI :	NA
9. Alternative Methods of Operation :	NA
10. Alternative Modes of Operation (Emissions Trading) :	NA
11. Identification of Additional Applicable Requirements :	NA
12. Compliance Assurance Monitoring Plan :	NA
13. Risk Management Plan Verification :	NA
14. Compliance Report and Plan :	NA
15. Compliance Certification (Hard-copy Required) :	

EMISSIONS UNIT INFORMATION

III. EMISSIONS UNIT INFORMATION

A. TYPE OF EMISSIONS UNIT (Regulated and Unregulated Emissions Units)

Emissions Unit Information Section 1

Necropsy Building- Crawford Model CB800 Animal Crematory

Type of Emissions Unit Addressed in This Section

1. Regulated or Unregulated Emissions Unit? Check one :

- [X] The emissions unit addressed in this Emissions Unit Information Section is a regulated emissions unit.
- [] The emissions unit addressed in this Emissions Unit Information Section is an unregulated emissions unit.

2. Single Process, Group of Processes, or Fugitive Only? 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.

III. Part 1 - 1

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

Emissions Unit Information Section 1

**B. GENERAL EMISSIONS UNIT INFORMATION
(Regulated and Unregulated Emissions Units)**

Emissions Unit Description and Status

1. Description of Emissions Unit Addressed in This Section : Necropsy Building- Crawford Model CB800 Animal Crematory		
2. Emissions Unit Identification Number : [X] No Corresponding ID [] Unknown		
3. Emissions Unit Status Code : C	4. Acid Rain Unit? [] Yes [X] No	5. Emissions Unit Major Group SIC Code : 79
6. Emissions Unit Comment : This emissions unit is a Crawford Model CB-800 Animal Crematory and will be used to incinerate animal carcasses. The unit has the capacity to process an 800 pound load every four hours. Secondary chamber residence time calculations: Secondary chamber volume (SCV)= 85.15 ft ³ , Air flow rate (Q) = 4500 acfm, residence time = SCV/Q = (85.15 ÷ 4500) x (60 sec/min) = 1.14 sec, which is greater than the required 1 sec. minimum residence time.		

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Emissions Unit Control Equipment 1

1. Description : No control equipment will be installed.
2. Control Device or Method Code :

**C. EMISSIONS UNIT DETAIL INFORMATION
(Regulated Emissions Units Only)**

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Emissions Unit Details

1. Initial Startup Date :	30-May-1998	
2. Long-term Reserve Shutdown Date :		
3. Package Unit :		
Manufacturer : Crawford	Model Number : CB800	
4. Generator Nameplate Rating :	MW	
5. Incinerator Information :		
Dwell Temperature :	1,800	Degrees Fahrenheit
Dwell Time :	1.10	Seconds
Incinerator Afterburner Temperature :	Degrees Fahrenheit	

Emissions Unit Operating Capacity

1. Maximum Heat Input Rate :	2	mmBtu/hr	
2. Maximum Incinerator Rate :	200.00	lb/hr	tons/day
3. Maximum Process or Throughput Rate :	800		lb/4 hours
4. Maximum Production Rate :			
5. Operating Capacity Comment :	Maximum heat input rate = 3.0 mmBtu/hr		

Emissions Unit Operating Schedule

Requested Maximum Operating Schedule :		
	24 hours/day	7 days/week
	52 weeks/year	8,760 hours/year

**D. EMISSIONS UNIT REGULATIONS
(Regulated Emissions Units Only)**

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Rule Applicability Analysis

Rule Applicability Analysis is not required for this permit application.

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

List of Applicable Regulations

- 62-4.030, F.A.C.: Plant can only operate with a permit
- 62-4.050(1), F.A.C.: Proper application forms must be used
- 62-4.050(2) F.A.C.: Quadruplicate submittals required
- 62-4.050(3), F.A.C.: P.E. must certify the application
- 62-4.050(4)(a)2., F.A.C.: no application fee required
- 62-4.130, F.A.C.: Notification to DEP if plant has operational problems
- 62-103.150, F.A.C.: Public notice provisions for applicants
- 62-210.300, F.A.C.: Stationary source general requirements- units requiring permits
- 62-210.350(1), F.A.C.: Public notice provisions for permit types
- 62-210.700, F.A.C.: Excess emissions
- 62-212.300, F.A.C.: Preconstruction review
- 62-275, F.A.C.: Air quality areas
- 62-296.320(2), F.A.C.: Objectionable odor prohibited
- 62-296.401(6), F.A.C.: Emissions standards for Animal Crematories

III. Part 6b - 1

DEP Form No. 62-210.900(1) - Form
Effective : 3-21-96

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

List of Applicable Regulations

62-297.310, F.A.C.: General compliance test requirements

62-297.401(3), F.A.C.: Adopts EPA method 3 for oxygen tests

62-297.401(9), F.A.C.: Adopts EPA method 5 for particulate emissions tests

62-297.401(9), F.A.C.: Adopts EPA method 5 for particulate emissions tests

62-297.401(10), F.A.C.: Adopts EPA method 10 for carbon monoxide tests

E. EMISSION POINT (STACK/VENT) INFORMATION

Emissions Unit Information Section 1

Necropsy Building- Crawford Model CB800 Animal Crematory

Emission Point Description and Type :

1. Identification of Point on Plot Plan or Flow Diagram :	DAK-9
2. Emission Point Type Code :	1
3. Descriptions of Emission Points Comprising this Emissions Unit for VE Tracking : (limit to 100 characters per point) Not applicable	
4. ID Numbers or Descriptions of Emission Units with this Emission Point in Common : Not applicable	
5. Discharge Type Code :	W
6. Stack Height :	19 feet
7. Exit Diameter :	2.0 feet
8. Exit Temperature :	1800 °F
9. Actual Volumetric Flow Rate :	4500 acfm
10. Percent Water Vapor :	%
11. Maximum Dry Standard Flow Rate :	dscfm
12. Nonstack Emission Point Height :	feet
13. Emission Point UTM Coordinates :	
Zone :	East (km) :
	North (km) :
14. Emission Point Comment :	
Refer to Attachment D for unit specifications.	

III. Part 7a - 1

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

F. SEGMENT (PROCESS/FUEL) INFORMATION

Emissions Unit Information Section 1

Necropsy Building- Crawford Model CB800 Animal Crematory

Segment Description and Rate : Segment 1

1. Segment Description (Process/Fuel Type and Associated Operating Method/Mode) : Natural gas fired animal crematory	
2. Source Classification Code (SCC) : 3-15-021-01	
3. SCC Units : tons incinerated	
4. Maximum Hourly Rate : 0.10	5. Maximum Annual Rate : 876.00
6. Estimated Annual Activity Factor : 0.00	
7. Maximum Percent Sulfur :	8. Maximum Percent Ash :
9. Million Btu per SCC Unit :	
10. Segment Comment : Maximum Hourly Rate= 200 pounds incinerated SCC code chosen for the closest description of the proposed activity Tons incinerated is presented as the SCC unit, instead of "bodies", since the sizes of animal carcasses are highly variable.	

III. Part 8 - 1

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

**G. EMISSIONS UNIT POLLUTANTS
(Regulated and Unregulated Emissions Units)**

Emissions Unit Information Section 1

Necropsy Building- Crawford Model CB800 Animal Crematory

1. Pollutant Emitted	2. Primary Control Device Code	3. Secondary Control Device Code	4. Pollutant Regulatory Code
1 - CO			EL
2 - PM10			EL
3 - NOX			
4 - SO2			
5 - VOC			

III. Part 9a - 1

DEP Form No. 62-210.900(1) - Form

Effective : 3-21-96

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1
 Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Potential/Estimated Emissions : Pollutant 1

1. Pollutant Emitted : CO			
2. Total Percent Efficiency of Control :	0.00	%	
3. Potential Emissions :	0.04	lb/hour	0.16 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5. Range of Estimated Fugitive/Other Emissions:		to	tons/year
6. Emissions Factor : Reference : stack test			
7. Emissions Method Code : 1			
8. Calculations of Emissions : See Attachment E for emissions calculations. Emissions factor is provided by manufacturer as 25 ppm, which has been corrected for O2 content. Actual emissions factor = 8.8 ppm, which represents actual expected emissions at actual stack conditions.			
9. Pollutant Potential/Estimated Emissions Comment : Potential hourly emissions= 0.0372 lb/hr Potential annual emissions= 0.16 tons/year Emissions factor = 8.8 ppm			

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Potential/Estimated Emissions : Pollutant 2

1. Pollutant Emitted : PM10			
2. Total Percent Efficiency of Control :	0.00	%	
3. Potential Emissions :	0.15	lb/hour	0.65 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5. Range of Estimated Fugitive/Other Emissions: <div style="text-align: right;">to tons/year</div>			
6. Emissions Factor : Reference : Stack testing			
7. Emissions Method Code : 1			
8. Calculations of Emissions : See Attachment E for emissions calculations. Emissions factor is provided by manufacturer as .05 gr/DSCF, which has been corrected for O2 content. Actual emissions factor = 0.0176 gr/SCF, which represents actual expected emissions at standard conditions, uncorrected for moisture content.			
9. Pollutant Potential/Estimated Emissions Comment : Potential hourly emissions= 0.1485 lb/hr Potential annual emissions= 0.65 tons/year Assuming all PM emissions are PM10 Emissions factor = .0176 gr/DSCF			

III. Part 9b - 2

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Potential/Estimated Emissions : Pollutant 3

1. Pollutant Emitted : NOX			
2. Total Percent Efficiency of Control :	0.00	%	
3. Potential Emissions :	0.30	lb/hour	1.31 tons/year
4. Synthetically Limited? [] Yes [X] No			
5. Range of Estimated Fugitive/Other Emissions:			
		to	tons/year
6. Emissions Factor :			
Reference :	AP-42, Oct. 1996		
7. Emissions Method Code : 3			
8. Calculations of Emissions :			
See Attachment E for emissions calculations and AP-42 emissions factor. Emissions factor selected for commercial boilers, .3-10 mmBtu/hr heat input.			
9. Pollutant Potential/Estimated Emissions Comment :			
Hourly emissions= 0.30 lb/hr Annual emissions= 1.31 tpy Emissions factor = 100 lb/MMft ³ gas burned			

H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)

Emissions Unit Information Section 1
 Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Potential/Estimated Emissions : Pollutant 4

1. Pollutant Emitted : SO ₂			
2. Total Percent Efficiency of Control :	0.00	%	
3. Potential Emissions :	0.00	lb/hour	0.01 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5. Range of Estimated Fugitive/Other Emissions:		to	tons/year
6. Emissions Factor : Reference : AP-42, Oct. 1996			
7. Emissions Method Code : 3			
8. Calculations of Emissions : See Attachment E for emissions calculations and AP-42 emissions factors. Emissions factor selected for commercial boilers, .3-10 mmBtu/hr heat input.			
9. Pollutant Potential/Estimated Emissions Comment : Hourly emissions = .0018 lb/hr Annual emissions = .0079 tpy Emissions factor = 0.6 lb/MMft ³			

**H. EMISSIONS UNIT POLLUTANT DETAIL INFORMATION
(Regulated Emissions Units Only - Emissions Limited Pollutants Only)**

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Potential/Estimated Emissions : Pollutant 5

1. Pollutant Emitted : VOC			
2. Total Percent Efficiency of Control :	0.00	%	
3. Potential Emissions :	0.02	lb/hour	0.08 tons/year
4. Synthetically Limited? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
5. Range of Estimated Fugitive/Other Emissions:		to	tons/year
6. Emissions Factor : Reference : AP-42, Oct. 1996			
7. Emissions Method Code : 3			
8. Calculations of Emissions : See Attachment E for emissions calculations and AP-42 emissions factors. Emissions factor selected for commercial boilers, .3-10 mmBtu/hr heat input.			
9. Pollutant Potential/Estimated Emissions Comment : Hourly emissions = .0174 lb/hr Annual emissions = .076 tpy Emissions factor = 5.8 lb/MMft ³ gas burned			

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Information Section 1

Allowable Emissions 1

1. Basis for Allowable Emissions Code :	RULE
2. Future Effective Date of Allowable Emissions :	
3. Requested Allowable Emissions and Units :	100.00 ppm, DSCF 7% O2
4. Equivalent Allowable Emissions :	lb/hour tons/year
5. Method of Compliance :	EPA Method 10
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Allowable emissions for CO.

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Information Section 2

Allowable Emissions 1

1. Basis for Allowable Emissions Code :	RULE		
2. Future Effective Date of Allowable Emissions :			
3. Requested Allowable Emissions and Units :	0.08	gr/DSCF @ 7% O2	
4. Equivalent Allowable Emissions :	0.24	lb/hour	1.04 tons/year
5. Method of Compliance :	EPA Method 5		
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :	Allowable emissions for PM/PM10.		

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Information Section 3

Allowable Emissions 1

1. Basis for Allowable Emissions Code :		OTHER	
2. Future Effective Date of Allowable Emissions :			
3. Requested Allowable Emissions and Units :		1.31	tons/year
4. Equivalent Allowable Emissions :			
	0.30	lb/hour	1.31 tons/year
5. Method of Compliance :			
Materials balance based on fuel usage.			
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :			
Allowable emissions are equal to potential emissions for NOx.			

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Information Section 5

Allowable Emissions 1

1. Basis for Allowable Emissions Code :		OTHER	
2. Future Effective Date of Allowable Emissions :			
3. Requested Allowable Emissions and Units :		0.02	tons/yr
4. Equivalent Allowable Emissions :			
	0.01	lb/hour	0.02 tons/year
5. Method of Compliance :			
Materials balance based on fuel usage.			
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :			
Allowable emissions are equal to potential emissions for VOC/TOC. Requested allowable emissions = .022 tpy			

Emissions Unit Information Section 1
Necropsy Building- Crawford Model CB800 Animal Crematory

Pollutant Information Section 4

Allowable Emissions 1

1. Basis for Allowable Emissions Code :		OTHER			
2. Future Effective Date of Allowable Emissions :					
3. Requested Allowable Emissions and Units :		0.01	tons/yr		
4. Equivalent Allowable Emissions :		0.00	lb/hour	0.01	tons/year
5. Method of Compliance :					
Materials balance based on fuel usage.					
6. Pollutant Allowable Emissions Comment (Desc. of Related Operating Method/Mode) :					
Allowable emissions are equal to potential emissions for SO2. Requested allowable emissions = .008 tpy					

I. VISIBLE EMISSIONS INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section 1

Necropsy Building- Crawford Model CB800 Animal Crematory

Visible Emissions Limitation : Visible Emissions Limitation 1

1. Visible Emissions Subtype : 20									
2. Basis for Allowable Opacity : RULE									
3. Requested Allowable Opacity : <table style="margin-left: auto; margin-right: auto; border: none;"><tr><td style="padding: 0 20px;">Normal Conditions :</td><td style="padding: 0 10px;">20</td><td style="padding: 0 10px;">%</td></tr><tr><td style="padding: 0 20px;">Exceptional Conditions :</td><td style="padding: 0 10px;">27</td><td style="padding: 0 10px;">%</td></tr><tr><td style="padding: 0 20px;">Maximum Period of Excess Opacity Allowed :</td><td style="padding: 0 10px;">6</td><td style="padding: 0 10px;">min/hour</td></tr></table>	Normal Conditions :	20	%	Exceptional Conditions :	27	%	Maximum Period of Excess Opacity Allowed :	6	min/hour
Normal Conditions :	20	%							
Exceptional Conditions :	27	%							
Maximum Period of Excess Opacity Allowed :	6	min/hour							
4. Method of Compliance : EPA method 9, 30 minute test									
5. Visible Emissions Comment :									

J. CONTINUOUS MONITOR INFORMATION
(Regulated Emissions Units Only)

Emissions Unit Information Section _____

Continuous Monitoring System : Continuous Monitor _____

1. Parameter Code :	2. Pollutant :
3. CMS Requirement :	
4. Monitor Information : Manufacturer : Model Number : Serial Number :	
5. Installation Date :	
6. Performance Specification Test Date :	
7. Continuous Monitor Comment :	

K. PREVENTION OF SIGNIFICANT DETERIORATION (PSD) INCREMENT TRACKING INFORMATION

Emissions Unit Information Section 1

Necropsy Building- Crawford Model CB800 Animal Crematory

PSD Increment Consumption Determination

1. Increment Consuming for Particulate Matter or Sulfur Dioxide?

- The emissions unit is undergoing PSD review as part of this application, or has undergone PSD review previously, for particulate matter or sulfur dioxide. If so, emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after January 6, 1975. If so, baseline emissions are zero, and emissions unit consumes increment.
- The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after January 6, 1975, but before December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- For any facility, the emissions unit began (or will begin) initial operation after December 27, 1977. If so, baseline emissions are zero, and emissions unit consumes increment.
- None of the above apply. If so, the baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

III. Part 12 - 1

DEP Form No. 62-210.900(1) - Form
Effective : 3-21-96

2. Increment Consuming for Nitrogen Dioxide?

-] The emissions unit addressed in this section is undergoing PSD review as part of this application, or has undergone PSD review previously, for nitrogen dioxide. If so, emissions unit consumes increment.
-] The facility addressed in this application is classified as an EPA major source pursuant to paragraph (c) of the definition of "major source of air pollution" in Chapter 62-213, F.A.C., and the emissions unit addressed in this section commenced (or will commence) construction after February 8, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
-] The facility addressed in this application is classified as an EPA major source, and the emissions unit began initial operation after February 8, 1988, but before March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
-] For any facility, the emissions unit began (or will begin) initial operation after March 28, 1988. If so, baseline emissions are zero, and emissions unit consumes increment.
-] None of the above apply. If so, baseline emissions of the emissions unit are nonzero. In such case, additional analysis, beyond the scope of this application, is needed to determine whether changes in emissions have occurred (or will occur) after the baseline date that may consume or expand increment.

3. Increment Consuming/Expanding Code :		
PM : C	SO2 : C	NO2 : C
4. Baseline Emissions :		
PM :	lb/hour	tons/year
SO2 :	lb/hour	tons/year
NO2 :		tons/year
5. PSD Comment :		

L. EMISSIONS UNIT SUPPLEMENTAL INFORMATION

Emissions Unit Information Section 1

Necropsy Building- Crawford Model CB800 Animal Crematory

Supplemental Requirements for All Applications

1. Process Flow Diagram :	Attachment C
2. Fuel Analysis or Specification :	NA
3. Detailed Description of Control Equipment :	NA
4. Description of Stack Sampling Facilities :	NA
5. Compliance Test Report :	NA
6. Procedures for Startup and Shutdown :	NA
7. Operation and Maintenance Plan :	NA
8. Supplemental Information for Construction Permit Application :	Attachment D
9. Other Information Required by Rule or Statue :	EMISSI~1.XLS Attachment E

Additional Supplemental Requirements for Category I Applications Only

10. Alternative Methods of Operations :	NA
11. Alternative Modes of Operation (Emissions Trading) :	NA

III. Part 13 - 1

DEP Form No. 62-210.900(1) - Form

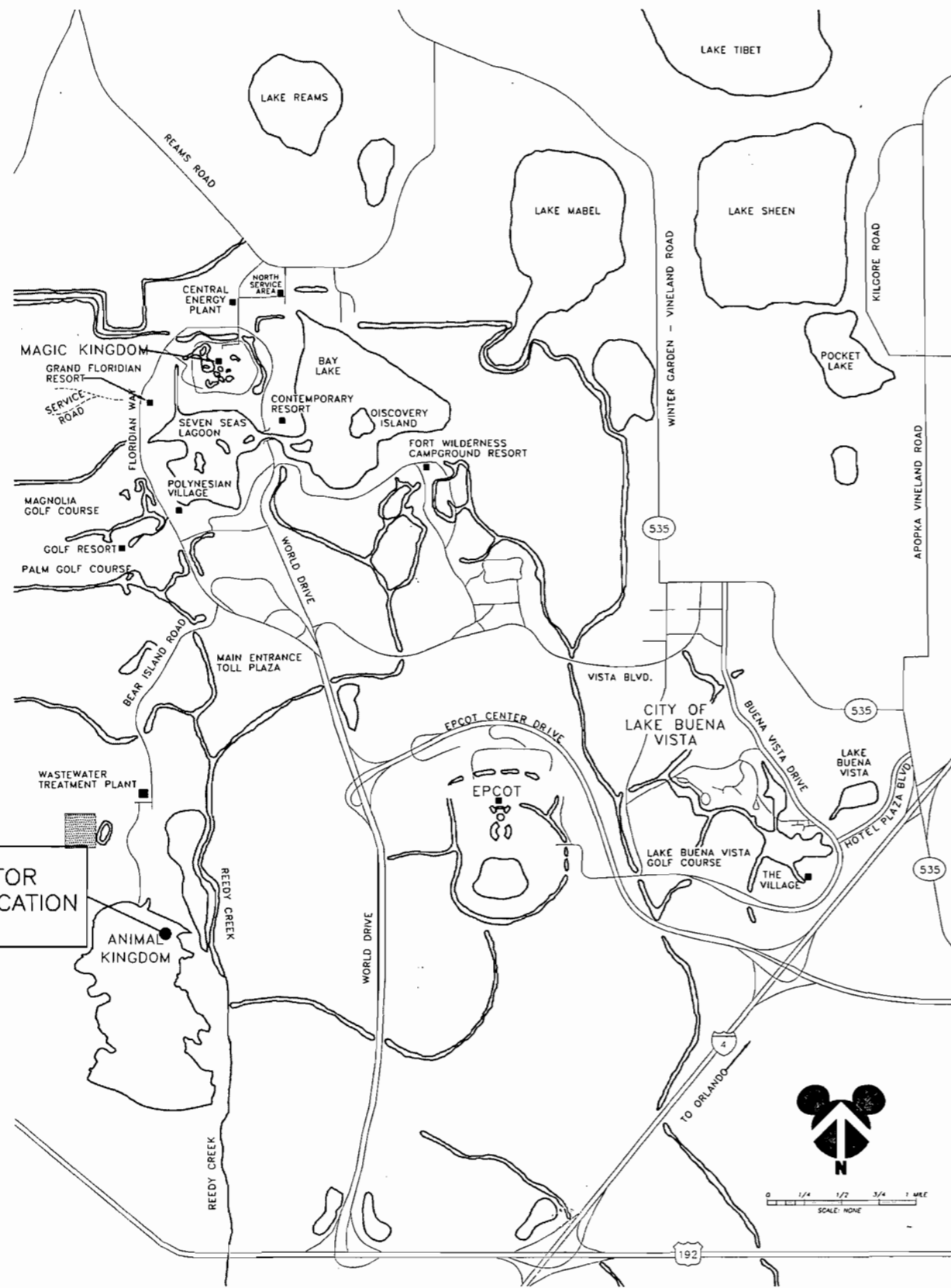
Effective : 3-21-96

12. Identification of Additional Applicable Requirements :	NA
13. Compliance Assurance Monitoring Plan :	NA
14. Acid Rain Application (Hard-copy Required) :	
NA	Acid Rain Part - Phase II (Form No. 62-210.900(1)(a))
NA	Repowering Extension Plan (Form No. 62-210.900(1)(a)1.)
NA	New Unit Exemption (Form No. 62-210.900(1)(a)2.)
NA	Retired Unit Exemption (Form No. 62-210.900(1)(a)3.)

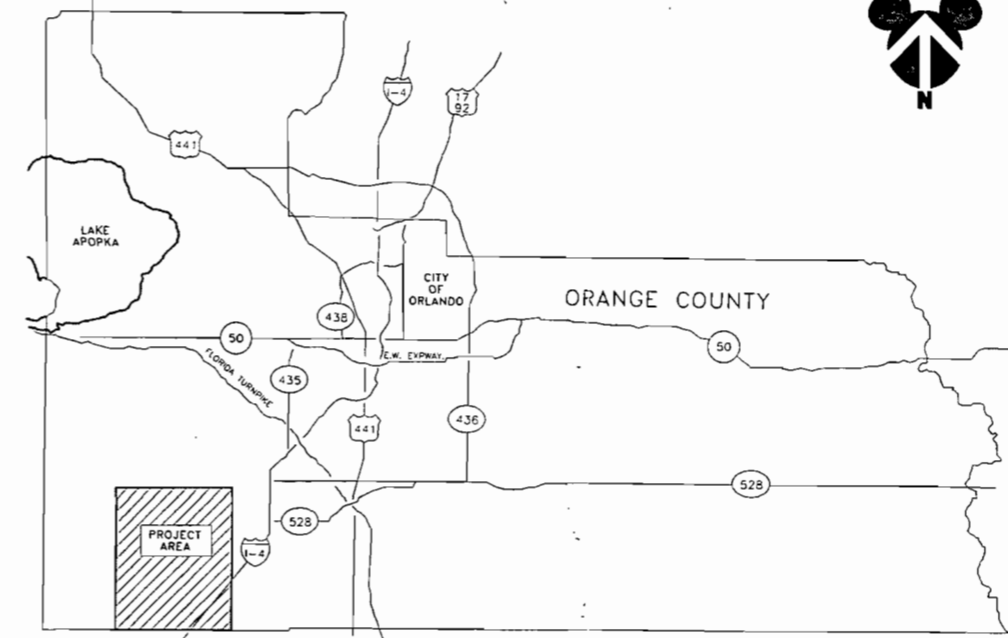
SUPPLEMENTAL INFORMATION

ATTACHMENT A

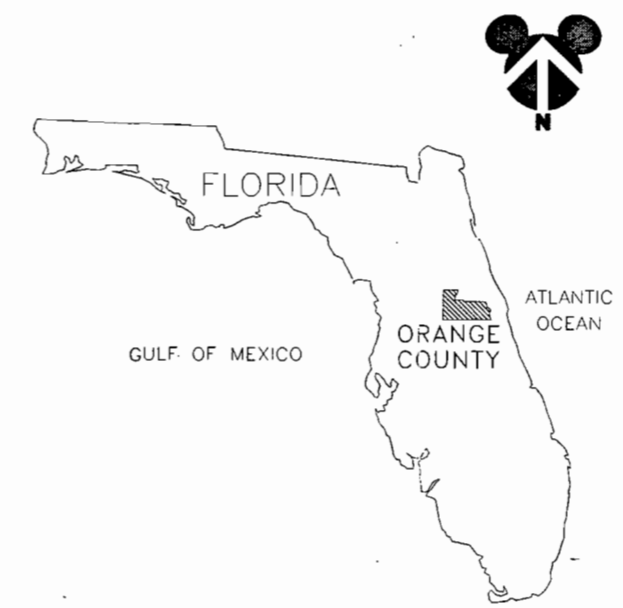
AREA MAP SHOWING FACILITY LOCATION



SITE LOCATION MAP



VICINITY MAP

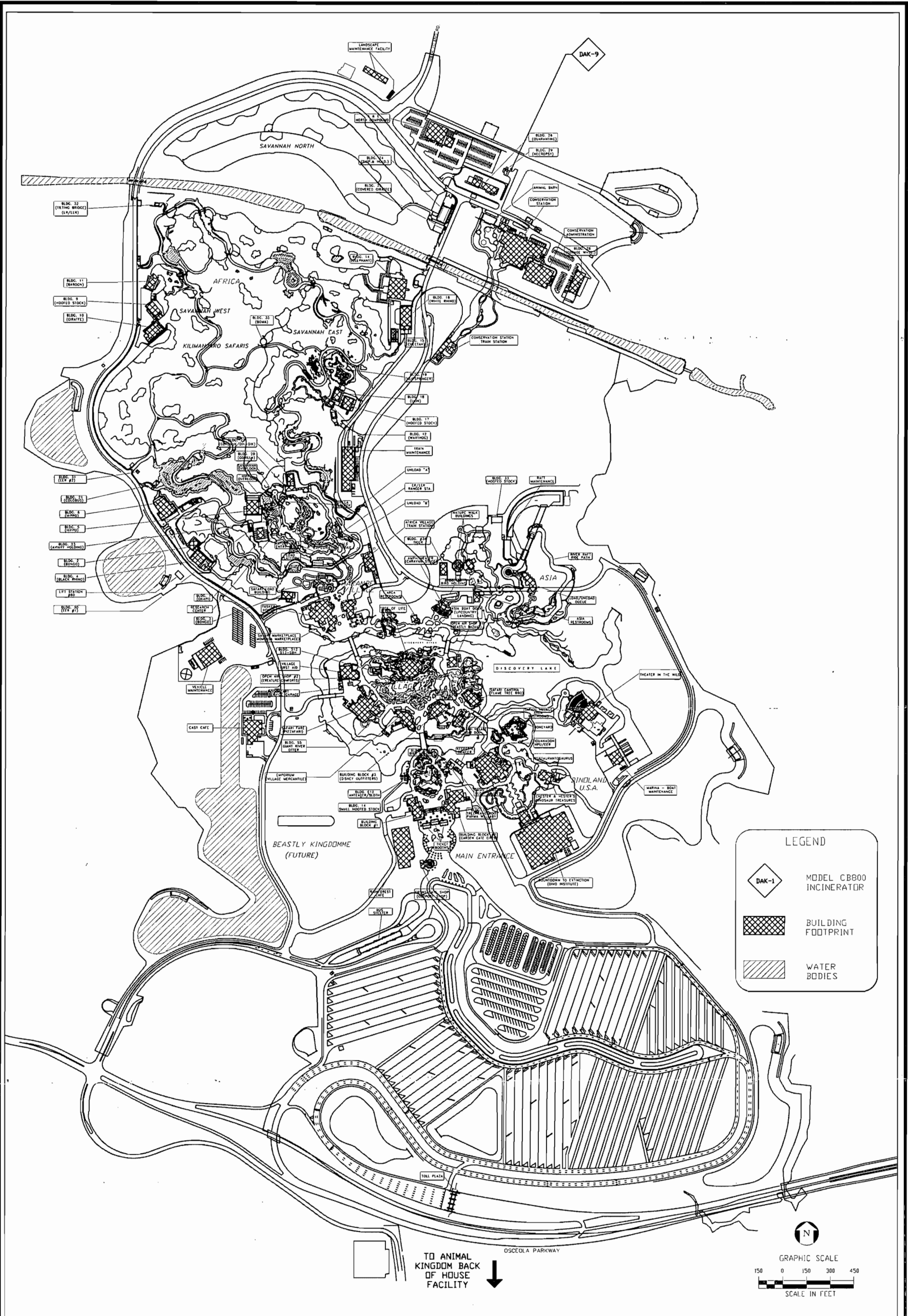


LOCATION MAP

ATTACHMENT A
 AREA MAP SHOWING FACILITY LOCATION
 ANIMAL KINGDOM - ANIMAL CARCASS ICINERATOR



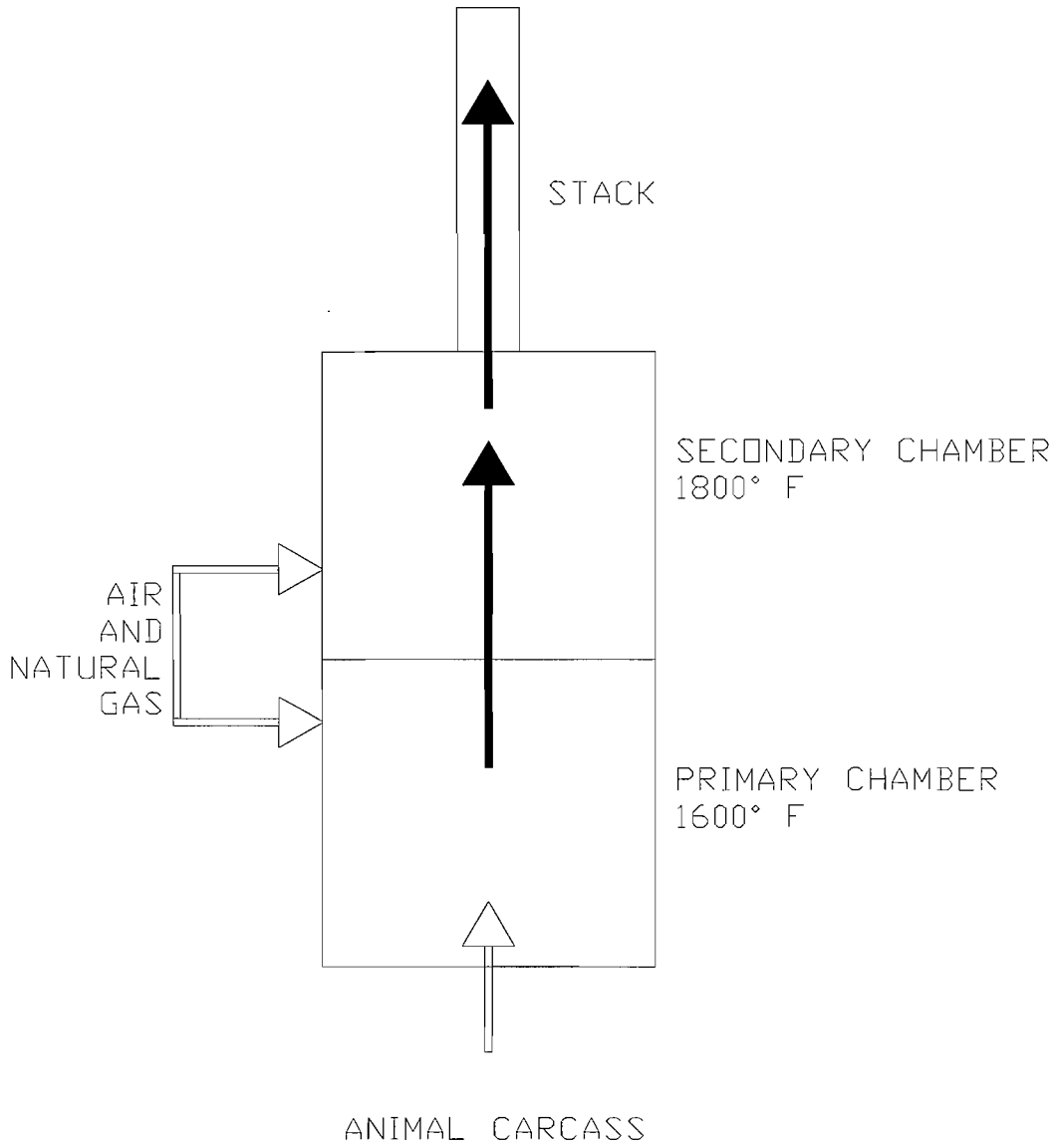
ATTACHMENT B
FACILITY PLOT PLAN



ATTACHMENT B
 FACILITY PLOT PLAN
 DISNEY'S ANIMAL KINGDOM- ANIMAL CARCASS INCINERATOR



ATTACHMENT C
PROCESS FLOW DIAGRAM

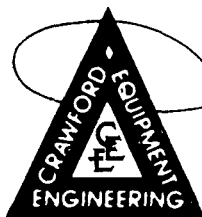


ATTACHMENT C
PROCESS FLOW DIAGRAM
DISNEY'S ANIMAL KINGDOM- ANIMAL
CARCASS INCINERATOR

Walt Disney World Co.

ATTACHMENT D

MODEL CB800 INCINERATOR SPECIFICATIONS



Crawford EQUIPMENT & ENGINEERING CO.

P. O. BOX 593243 • 436 W. LANDSTREET ROAD • ORLANDO, FLA. 32859 • (407) 851-0993

JIM CRAWFORD
PRESIDENT

October 20, 1997

Mr. Rich Bumar
Walt Disney World
Environmental Affairs
P.O. Box 10000
Lake Buena Vista, FL 32830-1000

Re: Model CB800 Incinerator Permit - Wild Animal Kingdom

Dear Mr. Bumar:

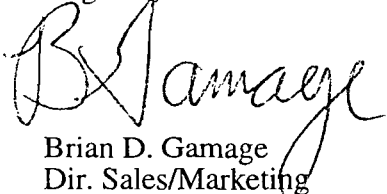
I have been instructed by Mr. Armando Rodrigez to provide you with the enclosed information so that you may complete and submit the required environmental permit application to the state.

In addition to the enclosed product specification, the information presented below will also assist you in the completion of the application.

Primary Chamber Burners:	Quantity 1 1,500,000 BTU/HR Max. 750,000 BTU/HR Average Usage
Secondary Chamber Burners:	Quantity 1 1,500,000 BTU/HR Max. 1,250,000 BTU/HR Average Usage
Flow Rate:	4500 ACFM @ 1800°F
Retention Time:	1 plus seconds @ 1800°F
Expected Emissions:	TSP = .05 gr/DSCF corrected to 7% Oxygen CO = 25 PPM Opacity = 0%

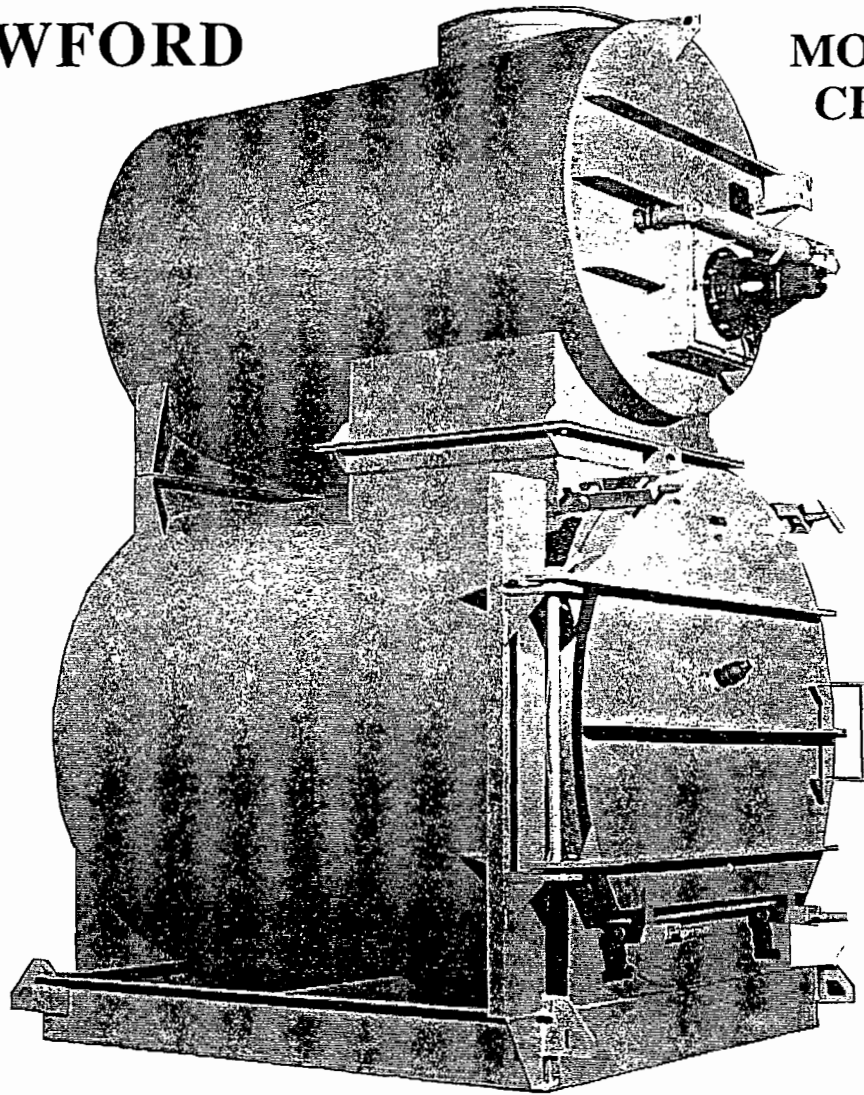
Should you require additional information, please contact Mr. Steve Atkinson at 407-851-0993 ext. 229 or I can be reached at the same number, ext. 228.

Regards,


Brian D. Gamage
Dir. Sales/Marketing

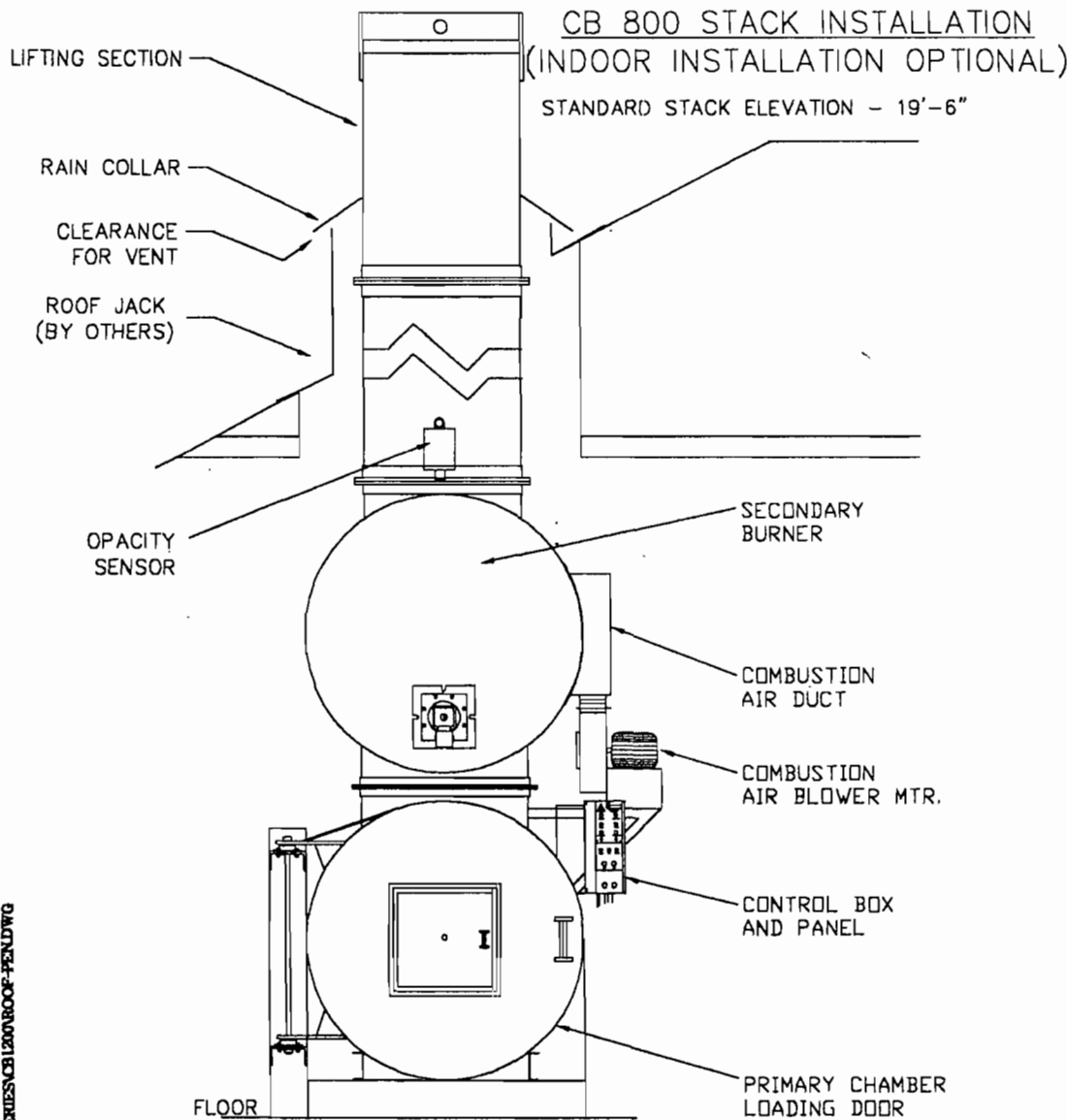
CRAWFORD

MODEL CB800



OVERVIEW: The Crawford model CB800 is a "batch" loading incineration system designed to process pathological (animal carcasses) as well as the plastics and various materials found in "redbag" veterinary/medical waste streams, while complying with today's most stringent standards imposed by local, state and federal environmental agencies. Utilizing a unique multiple chamber, negative pressure and controlled excess-air design, the CB800 will accept and completely process a 800 lb. load in a four hour cycle, which allows for multiple burn cycles each day. With over 81 cubic ft. of primary chamber volume the most practical application of the CB800 is to perform communal or mass disposals, however individual or private cremations can also be easily accomplished in this system.

FUEL:	Type: Natural or Propane Pressure: 7" - 9" W.C. 9" - 11" W.C. Flow: 4,000,000 BTU/HR
ELECTRICAL:	One 230/460 V, 30 / 15 AMP, 3Ø (1Ø available) One 115V, 10 AMP, 1Ø
PLACEMENT:	Outside or Inside
DIMENSIONS:	7'6" wide, 9'7" long, 11'6" tall (nominal)
PAD SIZE:	12'0" wide x 18'0" long (recommended)
FEATURES:	In excess of 1 second secondary chamber residence time @ 1800°F Refractory lined, high temperature exhaust stack (rise to 18'6" from floor) Fully automatic, PLC based controls, Low loading threshold



FRONT VIEW

SLAB - NONCOMBUSTABLE - LOAD BEARING TO SUPPORT 20,000 LBS.

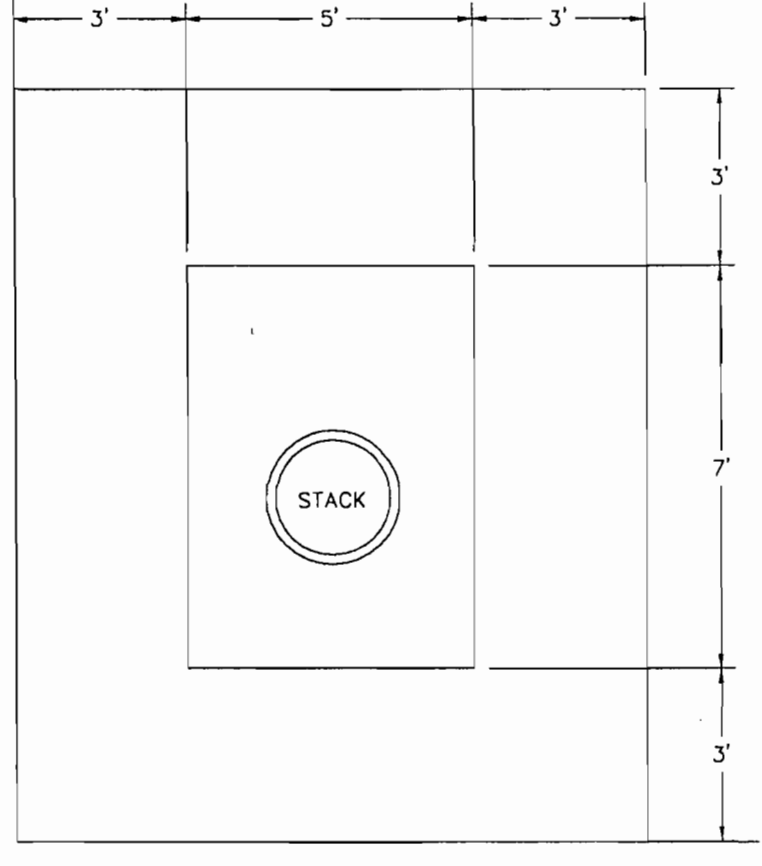
CONSULT LOCAL BUILDING CODES AND ORDINANCES FOR ANY RESTRICTIONS WHICH MAY APPLY.

THIS INFORMATION SHALL NOT BE REPRODUCED, COPIED, OR TRANSMITTED TO ANY PARTY WITHOUT THE WRITTEN CONSENT OF CRAWFORD EQUIPMENT & ENGINEERING. ALL DRAWINGS AND ANY INFORMATION CONTAINED HEREIN REMAIN THE PROPERTY OF CRAWFORD EQUIPMENT & ENGINEERING CO., INC.

CRAWFORD BURNERS' SERIES CB 1200 ROOF PEN DWG

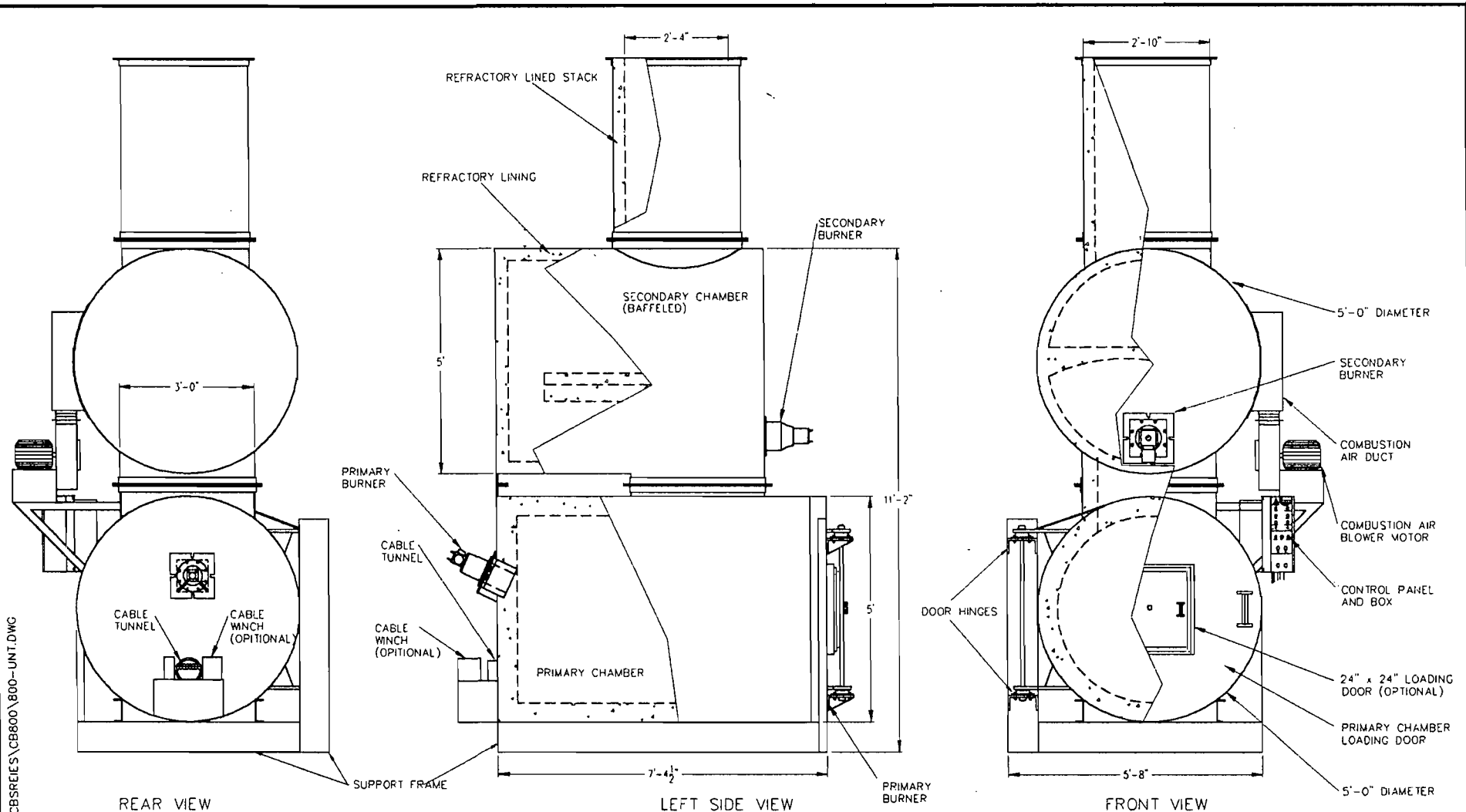
MANUFACTURERS RECOMMENDED CLEARANCES:

SIDES.....36"
 REAR.....36"
 TOP.....18"
 STACK.....8"



	DWTM. DATE T. JONES 11-29-06	CRAWFORD EQUIPMENT & ENGINEERING CO. <small>38 W. LANCASTER ROAD, ORLANDO, FL 32801 (407) 851-2991</small>			
	CHECKED DATE M.S. 11-29-06	CRAWFORD MODEL CB-800 BATCH BURN INCINERATOR SYSTEM			
THIS DRAWING IS THE PROPERTY OF CRAWFORD REPRESENTATIONS AND IS RELEASED ONLY FOR OPERATOR, MANUFACTURER OR PURCHASING PURPOSES ONLY. RELEASE OF THIS DRAWING TO OTHERS DOES NOT ALLOW COPYING IN ANY WAY.	DWG NAME ROOF PENE.	JOB NAME CB 800	SCALE N.T.S.	DWG. NO. 2	SHEET 1 OF 2


C:\P13\DWGS\BURNERS\CBSREIES\CB800-UNT.DWG



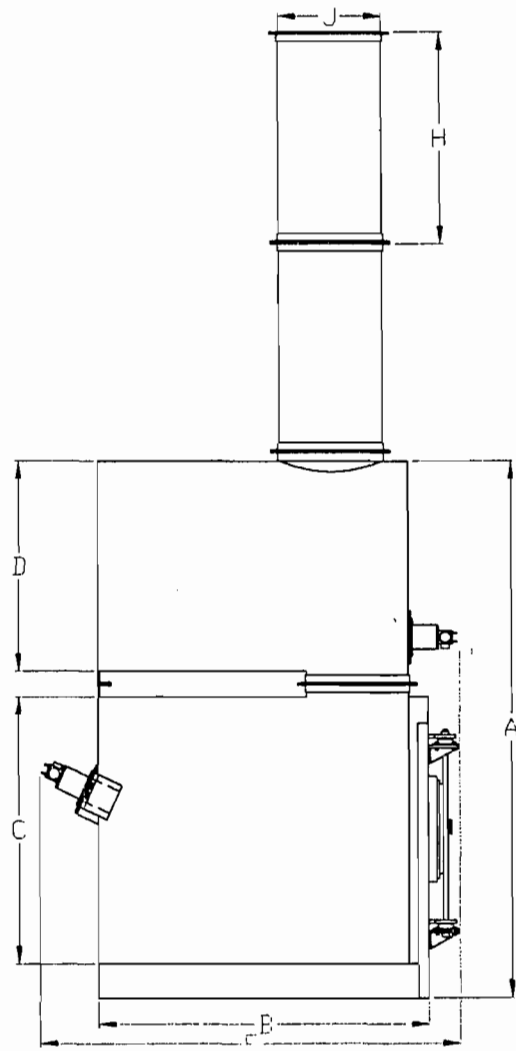
REAR VIEW

NOTES:
 WEIGHT: APPROX 20,000 LBS
 STACK: TWO (2) 4' SECTIONS @ 900 Lbs. EACH
 UTILITIES: ONE (1) 2" LINE 2.5 MM BTU/HR FLOW
 7"-9" N.C. PRESSURE
 9"-11" L.P. PRESSURE
 ONE (1) 115 V 1Ø OR 3Ø 15 AMPS
 ONE (1) 230/460 V 3Ø/15 AMPS
 PRIMARY CHAMBER: 81.76 CU FT
 SECONDARY CHAMBER: 85.15 CU FT

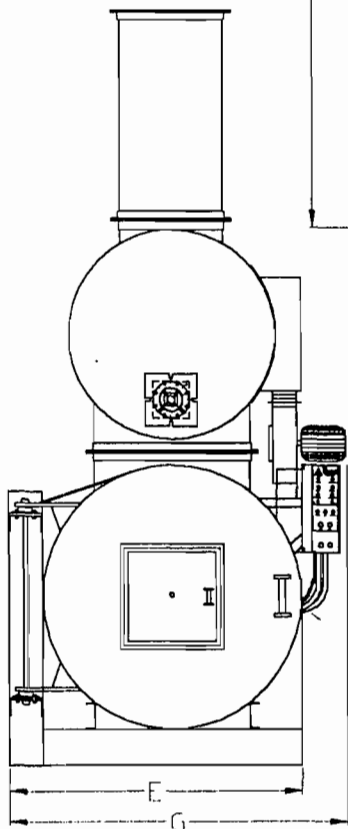
DIMENSIONS GIVEN DO NOT INCLUDE EXTERIOR COMPONENTS (BURNERS, MOTORS, ETC)

	DRFTM. 1. JONES	DATE 11-25-96	CRAWFORD EQUIPMENT & ENGINEERING CO. <small>281 W. LAVERGNE ROAD ORLANDO, FL 32801 (407) 851-0888</small>
	CHECKED M.S.	DATE 11-26-96	
<small>THIS DRAWING IS THE PROPERTY OF CRAWFORD. REPRODUCTIONS ARE RELEASED SOLELY FOR QUOTATION, MANUFACTURING OR PURCHASING PURPOSES ONLY. RELEASE OF DRAWINGS TO OTHERS DOES NOT ALLOW CRAWFORD TO BE HELD RESPONSIBLE.</small>			CRAWFORD MODEL CB-800 BATCH BURN INCINERATOR SYSTEM
DWG NAME MULT-VIEW	JOB NAME	SCALE N.T.S.	DWG. NO. SHEET 1 OF 2

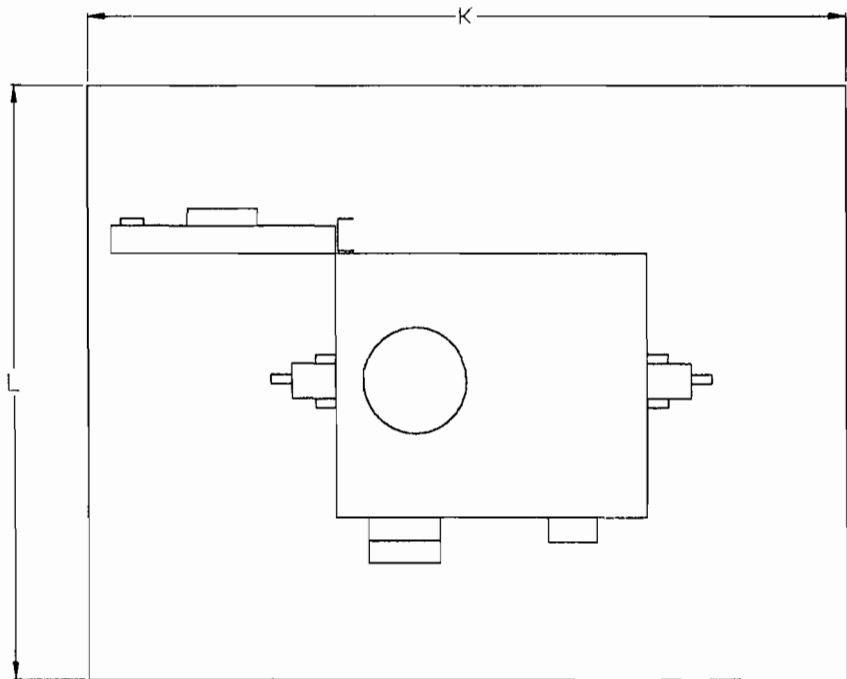
C:\NOTES\DWG\125\ACB\125\ACB400\125\ACB400-UNIT.DWG



LEFT SIDE VIEW




FRONT VIEW



SLAB DIMENSIONS

DIMENSIONS	MODELS			
	CB 200	CB 400	CB 800	CB 1200
A	9'-0"	10'-0"	11'-0"	11'-0"
B	5'-0"	6'-0"	7'-0"	10'-0"
C	4'-0"	5'-0"	5'-0"	5'-0"
D	4'-0"	4'-0"	5'-0"	5'-0"
E	4'-10"	5'-10"	5'-10"	5'-10"
F	8'-0"	9'-0"	10'-0"	13'-0"
G	6'-6"	7'-6"	7'-6"	7'-6"
H	4'-0"	4'-0"	4'-0"	4'-0"
J	2'-0"	2'-0"	2'-0"	2'-0"
K SLAB	15'-0"	17'-0"	18'-0"	21'-0"
L SLAB	12'-6"	13'-6"	13'-6"	13'-6"
CHAMBER VOLUME	32 CF.	69 CF.	82 CF.	122 CF.
UNIT WEIGHT	10,000	14,000	20,000	24,000



CRAWFORD

DRW. BY T. JONES	DATE 5-5-97
CHECKED M.S.	DATE 5-5-97

CRAWFORD
EQUIPMENT & ENGINEERING CO.
436 W. LANDSTREET ROAD ORLANDO, FL 32855 (407) 851-0993

CRAWFORD CB-SERIES
BATCH BURN INCINERATOR SYSTEM

DWG. NAME DIMEN. IN-0	JOB NAME CB 400	SCALE N.P.S.	DWG. NO. 1	SHEET 1 OF 1	REV.
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ATTACHMENT E
EMISSIONS CALCULATIONS

Attachment E

Input Values

Standard Temperature, C	25 °C
Standard Temperature (T _{std}) =	298 K
Actual Temperature, F	1800 °F
Actual Temperature, K (T):	1255 K
Actual flue gas O ₂ content**	16%
Ambient air O ₂ content	21%

$$7\% \text{ Oxygen content correction factor (OCF)} = \frac{\text{ambient air O}_2 \text{ content} - \text{corrected value (7\%)}}{\text{ambient air O}_2 \text{ content} - \text{measured stack O}_2 \text{ content}}$$

$$7\% \text{ Oxygen content correction factor (OCF)} = \frac{20.9 - 7}{20.9 - 16} = 2.83673$$

This factor is used to determine actual pollutant mass flow rate:

Oxygen content correction factor (OCF) = (20.9-7)/(20.9-16) =	2.837
Flue gas moisture content, by volume** (MC):	8%
actual air flow rate (V) :	4500 acfm
Hours/year	8760 hours
Maximum heat input (HI):	3 MMBtu/hr
Fuel heat value (HV):	1000 Btu/ft ³
Incinerator fuel usage = HI • 1,000,000 ÷ HV :	0.003 MM ft ³ /hr

CO Emissions

$$PV = nRT, \text{ rearranging, } \frac{n}{V} = \frac{P}{RT}, \text{ and, } n = \frac{\text{Mass pollutant, } M}{\text{Molecular weight, MW}}$$

$$\text{substituting, } \frac{M}{V \cdot MW} = \frac{P}{RT}, \text{ so, } \frac{M}{V} = \frac{P \cdot MW}{RT},$$

$$\text{allowing for concentration in ppm, } \frac{M}{V} = \frac{P \cdot MW \cdot \text{ppm}}{RT \cdot 10^6}, \text{ and}$$

$$\text{Pollutant mass flow rate} = M = \frac{P \cdot MW \cdot \text{ppm} \cdot V}{RT \cdot 10^6}$$

molar weight of CO (MW):	28 lb/lb-mol
Ideal gas constant (R):	1.314 atm-ft ³ /lbmol-K
Pressure (P):	1 atm
Reported CO concentration* =	25 ppm, DSCF @ 7% O ₂
Measured pollutant concentration at stack at actual conditions (ppm) = 25*/OCF =	8.8 ppm
Allowable pollutant concentration @ 7% Oxygen , ref 62-296.401(6), F.A.C.:	100 ppm, DSCF @ 7% O ₂
Flow corrected for moisture (MCF) = V • (1-MC) = 4500 • (1-0.08) =	4140 ft ³ /min
Moisture corrected flow to standard temp = MCF • (T _{std} /T) = 4140 • (298/1255) =	983 DSCFM

Allowable pollutant mass flow = P • MW • ppm • V / (R • T • 10 ⁶) = 1 • 28 • 100 • 983 / (1.314 • 298 • 10 ⁶) =	0.00703 lb/min
Allowable pollutant mass flow corrected to measured exhaust oxygen level = .00703 / 2.837 =	0.002 lb/min
Oxygen corrected Allowable pollutant mass flow, in lb/hr = 0.00248 • 60 =	0.149 lb/hr
Annual allowable emissions = 0.149 • 8760 / 2000 =	0.651 tons/yr

Potential pollutant mass flow = P • MW • ppm • V / (R • T • 10 ⁶) = 1 • 28 • 8.8 • 983 / (1.314 • 298 • 10 ⁶) =	0.00062 lb/min
potential pollutant mass flow rate, in lb/hr = .00062 • 60 =	0.0372 lb/hr
Potential annual emissions = 0.0404 lb/hr • 8760 hr/yr • 60 min/hour =	326 lb/yr
Potential annual emissions, in tpy = 354 lb/yr • 1 ton/2000 lb =	0.16 tpy

**Reported by manufacturer

Attachment E

PM/PM10 Emissions

Allowable pollutant concentration @ 7% Oxygen, ref 62-296.401(6), F.A.C.:	0.08 gr/DSCF
Measured pollutant concentration @ 7% Oxygen = .05*/OCF	0.0176 gr/SCF
Flow corrected for moisture (MCF) = V • (1-MC)	4140 ft ³ /min
Moisture corrected flow to standard temp = MCF • (T _{std} /T) =	983 DSCFM
Allowable pollutant mass flow = .08 • 983 ÷ 7000 gr/lb =	0.0112 lb/min
Allowable pollutant mass flow corrected for oxygen = .0112/2.837 =	0.004 lb/min
Oxygen corrected Allowable pollutant mass flow = .004 • 60 =	0.238 lb/hr
Annual allowable emissions = 0.238 • 8760/2000 =	1.041 tons/yr
potential pollutant mass flow rate = .0176 • 983 ÷ 7000gr/lb =	0.0025 lb/min
potential pollutant mass flow rate = .0025 • 60 =	0.1485 lb/hr
Potential annual emissions = 1.485 • 8760 =	1301 lb/yr
Potential annual emissions = 1.485 • 8760/2000 =	0.65 tons/yr

*These values are reported in the cover letter from Crawford Equipment & Engineering Co. and can be found in Attachment D.

NOx Emissions

AP-42 Emissions factor	100 lb /MM ft ³ burned
Hourly emissions = emissions factor • fuel usage =	0.30 lb/hr
Annual emissions = hourly emissions • annual hours ÷ 2000 lb/ton =	1.31 tons/yr

SO2 Emissions

AP-42 Emissions factor	0.6 lb /MM ft ³ burned
Hourly emissions = emissions factor • fuel usage =	0.00180 lb/hr
Annual emissions = hourly emissions • annual hours ÷ 2000 lb/ton =	0.00788 tons/yr

TOC Emissions

AP-42 Emissions factor	5.8 lb /MM ft ³ burned
Hourly emissions = emissions factor • fuel usage =	0.0174 lb/hr
Annual emissions = hourly emissions • annual hours ÷ 2000 lb/ton =	0.076 tons/yr

Table 1.4-1. EMISSION FACTORS FOR SULFUR DIOXIDE (SO₂), NITROGEN OXIDES (NO_x), AND CARBON MONOXIDE (CO) FROM NATURAL GAS COMBUSTION^a

Combustor Type (Size, 10 ⁶ Btu/hr He Input) (SCC)	SO ₂ ^b		NO _x ^c		CO ^d		N ₂ O ^e	
	Emission Factor (lb/10 ⁶ ft ³)	EMISSION FACTOR RATING	Emission Factor (lb/10 ⁶ ft ³)	EMISSION FACTOR RATING	Emission Factor (lb/10 ⁶ ft ³)	EMISSION FACTOR RATING	Emission Factor (lb/10 ⁶ ft ³)	EMISSION FACTOR RATING
Utility/large Industrial Boilers (>100) (1-01-006-01, 1-01-006-04)								
Uncontrolled	0.6	A	550 ^f	A	40	A	2.2	C
Controlled - Low NO _x burners	0.6	A	79	D	ND	NA	0.64	E
Controlled - Flue gas recirculation	0.6	A	53	D	ND	NA	NA	NA
Small Industrial Boilers (10 - 100) (1-02-006-02)								
Uncontrolled	0.6	A	140	A	35	A	2.2 ^g	E
Controlled - Low NO _x burners	0.6	A	83	D	61	D	0.64 ^g	E
Controlled - Flue gas recirculation	0.6	A	30	C	34	C	NA	NA
Commercial Boilers (0.3 - <10) (1-03-006-03)								
Uncontrolled	0.6	A	100	X	21	C	2.2 ^g	E
Controlled - Low NO _x burners	0.6	A	17	C	15	C	0.64 ^g	E
Controlled - Flue gas recirculation	0.6	A	36	D	ND	NA	NA	NA
Residential Furnaces (<0.3) (No SCC)								
Uncontrolled	0.6	A	94	X	40	X	NA	NA

^a Units are lb of pollutant/10⁶ cubic feet natural gas fired. To convert from lb/10⁶ ft³ to kg/10⁶ m³, multiply by 16.0. Based on an average natural gas fired higher heating value of 1000 Btu/scf. The emission factors in this table may be converted to other natural gas heating values by multiplying the given emission factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

^b References 13-14. Based on average sulfur content of natural gas, 2000 gr/10⁶ scf.

^c References 12-13,15-19. Expressed as NO₂.

^d References 5,12-13,17-18,20-21.

^e References 6-7.

^f For tangentially fired units, use 275 lb/10⁶ ft³. Note: This number was originally developed for AP-42 based on limited data. No additional data are available to refine this number.

^g No data; based on the factors for utility boilers.

Table 1.4-3. EMISSION FACTORS FOR CARBON DIOXIDE (CO₂) AND TOTAL ORGANIC COMPOUNDS (TOC) FROM NATURAL GAS COMBUSTION^a

Combustor Type (Size, 10 ⁶ Btu/hr Heat Input) (SCC)	CO ₂ ^b		TOC ^c	
	Emission Factor (lb/10 ⁶ ft ³)	EMISSION FACTOR RATING	Emission Factor (lb/10 ⁶ ft ³)	EMISSION FACTOR RATING
Utility/large industrial boilers (>100) (1-01-006-01, 1-01-006-04)	1.2 E+05	X	1.7 ^d	C
Small industrial boilers (10 - 100) (1-02-006-02)	1.2 E+05	X	5.8 ^e	C
Commercial boilers (0.3 - <10) (1-03-006-03)	1.2 E+05	X	5.8	C
Residential furnaces (No SCC)	1.2 E+05	X	11	D

^aAll factors represent uncontrolled emissions. Units are lb of pollutant/10⁶ cubic feet. To convert from lb/10⁶ ft³ to kg/10⁶ m³, multiply by 16.0. Based on an average natural gas higher heating value of 1000 Btu/scf. The emission factors in this table may be converted to other natural gas heating values by multiplying the given factor by the ratio of the specified heating value to this average heating value. SCC = Source Classification Code. ND = no data. NA = not applicable.

^bReferences 8,15,27-29.

^cReferences 5,13,15,30.

^dReference 30: methane comprises 17% of organic compounds.

^eReference 30: methane comprises 52% of organic compounds.