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BUREAU OF AIR REGULATION

ANIMAL CREMATORY AIR GENERAL PERMIT REGISTRATION FORM

Part II. Notification to Permitting Office

(Detach and submit to appropriate permitting office; keep copy onsite)

Instructions: To give notice to the Department of an eligible facility's intent to use this air general permit, the owner or operator of the facility must detach and complete this part of the Air General Permit Registration Form and submit it to the appropriate Department of Environmental Protection or local air pollution control program office which has permitting authority. Please type or print clearly all information, and enclose the appropriate air general permit registration processing fee pursuant to Rule 62-4.050, F.A.C. (\$100 as of the effective date of this form)

0710207-006

Registration Type

Check one:

INITIAL REGISTRATION - Notification of intent to:

- Construct and operate a proposed new facility.
Operate an existing facility not currently using an air general permit (e.g., a facility proposing to go from an air operation permit to an air general permit).

RE-REGISTRATION (for facilities currently using an air general permit) - Notification of intent to:

- Continue operating the facility after expiration of the current term of air general permit use.
Continue operating the facility after a change of ownership.
Make an equipment change requiring re-registration pursuant to Rule 62-210.310(2)(e), F.A.C., or any other change not considered an administrative correction under Rule 62-210.310(2)(d), F.A.C.

Surrender of Existing Air Operation Permit(s) - For Initial Registrations Only

If the facility currently holds one or more air operation permits, such permit(s) must be surrendered by the owner or operator upon the effective date of this air general permit. In such case, check the first box, and indicate the operation permits being surrendered. If no air operation permits are held by the facility, check the second box.

- All existing air operation permits for this facility are hereby surrendered upon the effective date of this air general permit; specifically permit number(s):
No air operation permits currently exist for this facility.

General Facility Information

Facility Owner/Company Name (Name of corporation, agency, or individual owner who or which owns, leases, operates, controls, or supervises the facility.)

Pet Angel World Services, LLC (Formerly New Horizons Pet Services of SW FL)

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

Pet Angel World Services, LLC

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

Street Address: 1941 Park Meadows Drive #8

City: Ft. Myers

County: Lee

Zip Code: 33902

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

NA

Owner/Authorized Representative

Name and Position Title: (Person who, by signing this form below, certifies that the facility is eligible to use this air general permit.)

Print Name and Title: Sharon Martinache, Director

Owner/Authorized Representative Mailing Address

Organization/Firm: Pet Angel World Services, LLC

Street Address: 1941 Park Meadows Drive #8

City: Ft. Myers

County: Lee

Zip Code: 33902

Owner/Authorized Representative Telephone Numbers

Telephone: 239-936-1732

Fax: 239-936-9622

Cell phone (optional):

Facility Contact (If different from Owner/Authorized Representative)

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

Print Name and Title: Same as Above

Facility Contact Mailing Address

Organization/Firm:

Street Address:

City:

County:

Zip Code:

Facility Contact Telephone Numbers

Telephone:

Fax:

Cell phone (optional):

Owner/Authorized Representative Statement

This statement must be signed and dated by the person named above as owner or authorized representative

I, the undersigned, am the owner or authorized representative of the owner or operator of the facility addressed in this Air General Permit Registration Form. I hereby certify, based on information and belief formed after reasonable inquiry, that the facility addressed in this registration form is eligible for use of this air general permit and that the statements made in this registration form are true, accurate and complete. Further, I agree to operate and maintain the facility described in this registration form so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof.

I will promptly notify the Department of any changes to the information contained in this registration form.

Sharon Martinache

Signature

7/21/2011

Date

Design Calculations

If this is an initial registration for a proposed new animal crematory unit, provide design calculations to confirm a sufficient volume in the secondary chamber combustion zone to provide for at least a 1.0 second gas residence time at 1800 degrees F.

- Manufacturer's design calculations attached. (Attachment 2)
- Registration is not for proposed new animal crematory unit(s).

Description of Facility

Below, or as an attachment to this form, provide a description of all crematory operations at the facility in sufficient detail to demonstrate the facility's eligibility for use of this air general permit and to provide a basis for tracking any future equipment or process changes at the facility. Describe all air pollutant-emitting processes and equipment at the facility, and identify any air pollution control measures or equipment used.

New Horizon Pet Services was sold to new owners. The new facility name is Pet Angel World Services, LLC. In compliance with Rule 62-210.310(2), F.A.C, a new application for a general permit is being submitted. This source is currently regulated under source ID number: 0710207. The effective day of this change is June 28, 2011. The serial Number for the C1000S is ICS92180992ULS. Residence Time was measured on an identical in excess of 1 second. The retention time for the C1000S was measured at 1.48 seconds at 1800⁰F. The C1000S is a multi-chamber unit having an average of 400-lbs/hr cremation rate. The primary chamber burner is rated at 500,000 Btu/hr, and the secondary chamber burner is rated at 1,500,000 Btu/hr, for a total of 2,000,000 Btu/hr. Control of air pollution is achieved through the design of the C1000S crematory, including its ability to operate the secondary chamber between 1600 - 1850 degrees Fahrenheit at a residence time in excess of 1.0 second. In Attachment 2, we have included a copy of the crematory specifications. This facility fully complies with the eligibility criteria referenced on 62-210.920(2) FAC.

The facility plans to add a Crawford C500P crematory to this site serial number: 1CP8623-1286-S. This crematory is being relocated from another Pet Angel site in Florida. The retention time of the C500P is greater than 1 second at 1800F. The C500P is a multi-chamber unit having an average 75 lbs/hr animal (approximately 1,000 Btu/lb) cremation rate. The primary chamber burner is rated at 500,000 Btu/hr, and the secondary chamber burner is rated at 1,000,000 Btu/hr, for a total of 1,500,000 Btu/hr. The equipment is fired with natural gas. The design also includes fully automatic PLC based controls, independent fuel/air systems, preheated combustion air, secondary chamber temperature monitor an recorder, primary burner temperature interlock (prevents primary burner from firing prior to the secondary chamber reaching it's set point temperature), UV continuous scanning flame detectors on burners, and an opacity sensor which can temporarily suspends operation of the primary chamber burner. . In Attachment 1 we have included a compliance test report for the C500P. In Attachment 2 the C500P specifications are attached.

Emissions calculations for both units are included in Attachment 3.

Attachment 1
Compliance Test Report

**Source Test for Particulate and CO Emissions
EPA Methods 1 -5 and 10**

Report 1175-S

January 13, 2005

prepared for

**Broward Pet Cemetery
Facility ID 0112078**



Arlington Environmental Services, Inc.

Post Office Box 657 ~ Okeechobee, Florida 34973 ~ Telephone (863) 467-0555

Table of Contents

	<u>Page</u>
1.0 Introduction	1
2.0 Certification of Test Results.....	2
3.0 Allowable Emission Determination	3
4.0 Cyclonic Flow Determination.....	3
5.0 Summary of Results.....	4
6.0 Particulate Emission Results.....	5
7.0 Carbon Monoxide Emission Results.....	6
7.1 Carbon Monoxide Bias Correction and Emission Factors	7
8.0 Overview of Field and Analytical Procedures.....	8
8.1 EPA Method 1	8
8.2 EPA Method 2	8
8.3 EPA Method 3	8
8.4 EPA Method 4	9
8.5 EPA Method 5	9
8.6 EPA Method 10	10
9.0 Sampling Point Determination.....	11
9.1 Number of Sampling Points per Traverse	12
10.0 Summary of Field and Laboratory Data.....	13
Attachment A - Field Data	
Attachment B - Laboratory Data	
Attachment C - Process Data	
Attachment D - Calculations for Run 1	
Attachment E - Calibration Data	
Attachment F - Project Participants	

1.0 Introduction

Broward Pet Cemetery, Inc. operates an animal crematory located at 11455 N.W. 8th Street in Plantation, FL. On January 13, 2005, source tests for particulate (EPA Methods 1-5) and Carbon Monoxide (EPA Method 10) were conducted on the exhaust stack servicing the crematory incinerator.

The tests were performed in order to comply with the conditions set forth by the Florida Department of Environmental Protection, and to determine compliance with Florida's Animal Crematory Rule 62-296.401(6), Florida Administrative Code.

Courtney Pitters of the Broward County Division of Environmental Protection, Air Quality Division was present for a portion of the tests.

On November 11, 2004, a Visible Emission Test was conducted on the above referenced facility and submitted to Broward County Department of Environmental Protection, Air Quality Division.

During the testing period, records of the plant processing data were maintained by Sandy Ketcham, Plant Manager, and are presented in Appendix C.

The average particulate emission rate, as determined by EPA Method 5, was 0.0392 gr/dscf. The allowable particulate emission rate is 0.080 gr./dscf.

The average carbon monoxide emission rate as determined by EPA Method 10, was 3.86 ppm. The allowable carbon monoxide emission rate is 100 ppm.

The results of this test verify compliance with the Florida Department of Environmental Protection, and the Code of Federal Regulations, part 60.92.

2.0 Certification of Test Results

Facility Tested: Broward Pet Cemetery, Inc.
11455 N.W. 8th Street
Plantation, FL 33325

Type Process - Dead Animal Crematory Incinerator, Crawford C500 P

Abatement Device - Afterburner

Rated Capacity - 75 lbs./hr.

Report 1175-S

January 13, 2005

Run Numbers 1, 2 and 3

Actual Particulate Emissions - 0.0392 gr/dscf (corrected to 7% O₂)

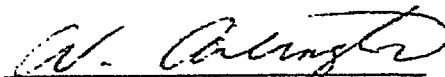
Allowable Particulate Emissions - 0.0800 gr./dscf (corrected to 7% O₂)

Actual Carbon Monoxide Emissions - 3.86 ppm (corrected to 7% O₂)

Allowable Carbon Monoxide Emissions - 100 ppm (corrected to 7% O₂)

All testing and analysis were performed in accordance with the Florida Department of Environmental Protection and the Code of Federal Regulations, 40, part 60.

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



William D. Arlington
Project Director

3.0 Allowable Emission Determination

The allowable emissions were determined in accordance with 62.296.401(6) F.A.C. Substantiating data and calculations are presented in the Appendix D.

4.0 Cyclonic Flow Determination

Due to the configuration of the system, cyclonic flow was considered to be non-existent at the sampling site.

5.0 Summary of Results
 Broward Pet Cemetery, Inc.
 Crematory
 Report 1175-S

	Run 1	Run 2	Run 3	Average
Date	1/13/2005	1/13/2005	1/13/2005	
Start Time	8:33	10:19	12:49	
Stop Time	9:38	11:23	13:51	
Process Rate (lbs/hr.)	74.0	74.0	76.5	74.8
Particulate Emission Rate (gr./dscf @ 7% O ₂)	0.0442	0.0377	0.0357	0.0392
Allowable Particulate Emission Rate (gr./dscf @ 7% O ₂)	0.080	0.080	0.080	0.080
Carbon Monoxide Emission Rate (ppm @ 7% O ₂)	5.14	3.83	2.62	3.86
Allowable Carbon Monoxide Emission Rate (ppm @ 7% O ₂)	100	100	100	100

6.0 Particulate Emission Results
 Broward Pet Cemetery, Inc.
 Crematory
 Report 1175-S

	Run 1	Run 2	Run 3
Area (square feet)	0.92	0.92	0.92
Stack Pressure (inches Hg)	30.09	30.09	30.09
Meter Pressure (inches Hg)	30.20	30.22	30.22
Sample Volume (Std. Cu. Ft.)	38.249	41.074	41.013
Water Vapor (Cubic Feet)	1.97	2.58	3.14
Sample Moisture (percent)	4.89	5.90	7.12
Saturation Moisture (percent)	100.00	100.00	100.00
Molecular Weight (lbs/lb Mole wet)	28.32	28.19	28.04
Velocity (fpm)	2606	3107	3143
Volumetric Flow Rate (acfm)	2402	2864	2897
Volumetric Flow Rate (scfm)	1185	1276	1264
Concentration (gr/dscf)	0.0089	0.0095	0.0098
Concentration@7% O2 (gr/dscf)	0.0442	0.0377	0.0357
Mass Emission Rate (lbs./hr.)	0.09	0.10	0.11
Percent Isokinetic	102.19	101.89	102.69

7.0 Carbon Monoxide Emission Results

Broward Pet Cemetery, Inc.

Crematory

Report 1175-S

	Run 1	Run 2	Run 3	Average
Date	1/13/2005	1/13/2005	1/13/2005	
Start Time	8:33	10:18	12:50	
Stop Time	9:33	11:18	13:50	
Percent Oxygen	18.1	17.3	17.1	
Carbon Monoxide (PPM)	1.03	0.99	0.72	
Carbon Monoxide Emissions (PPM @ 7% O ₂)	5.14	3.83	2.62	3.86
Carbon Monoxide Allowable (PPM@ 7% O ₂)	100	100	100	100

7.1 Carbon Monoxide Bias Correction and Emission Factors

Broward Pet Cemetery, Inc.

Crematory

Report 1175-S

Run	Cal Gas Value	Pre Run		Post Run		Average		Run Average	Corrected Value
		Bias	Zero	Bias	Zero	Bias	Zero		
1	327	337.34	0.41	335.70	-1.51	336.52	-0.55	0.52	1.03
2	327	335.70	-1.51	327.27	0.49	331.49	-0.51	0.50	0.99
3	327	327.27	0.49	325.83	0.51	326.55	0.50	1.22	0.72

8.0 Overview of Field and Analytical Procedures

8.1 EPA Method 1 – Sample and Velocity Traverses for Stationary Sources

Principle – To aid in the representative measurement of pollutant emissions and/or total volumetric flow rate from a stationary source, a measurement site where the effluent stream is flowing in a known direction is selected and the cross-section of the stack is divided into a number of equal areas. A traverse point is then located within each of these equal areas. See Sampling Point Determination.

Applicability – This method is applicable to flowing gas streams in ducts, stacks and flues. This method cannot be used when: 1) flow is cyclonic or swirling 2) a stack is smaller than about 12 inches in diameter, or 0.071 cross-sectional area or 3) the measurement site is less than two stack or duct diameters downstream or less than a half diameters upstream from a flow disturbance. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

8.2 EPA Method 2 – Determination of Stack Gas Velocity and Volumetric Flow Rate

Principle - Type S Pitot Tube – The average gas velocity in a stack is determined from the gas density and from measurement of the average velocity head with a Type S pitot tube.

Applicability – This method is applicable for measurement of the average velocity of a gas stream and for quantifying gas flow.

This procedure is not applicable at measurement sites which fail to meet the criteria of Method 1. This method cannot be used for direct measurement in cyclonic or swirling gas streams. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

8.3 Method 3 – Gas Analysis for the EPA Determination of Dry Molecular Weight

Principle – A gas sample is extracted from a stack by one of the following methods 1) Single-point grab sampling 2) single-point, integrated sampling or 3) multi-point, integrated sampling, the gas sample is analyzed for percent CO₂, percent O₂, and if necessary for CO. For dry molecular weight determination, either an Orsat or a Fyrite analyzer may be used for the analysis.

Applicability – This method is applicable for determining carbon dioxide and oxygen concentrations and dry molecular weight of a sample from a gas stream of a fossil fuel combustion process. The method may also be applicable to other processes where it has been determined that compounds other than CO₂, O₂, CO, and nitrogen are not present in concentrations sufficient to affect the results. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

8.4 EPA Method 4 - Determination of Moisture Content in Stack Gases

Principle - A gas sample is extracted at a constant rate from the source; moisture is removed from the sample stream and determined either volumetrically or gravimetrically.

Applicability - This method is applicable for determining the moisture content of stack gas. There are two procedures given to determine the moisture. The procedure for the reference method to determine the moisture content was used to calculate the emission data. The reference method was conducted simultaneously with the pollutant emission measurement run, calculation of percent isokinetic, pollutant emission rate, etc. for the run is based upon the results of the reference method or its equivalent. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

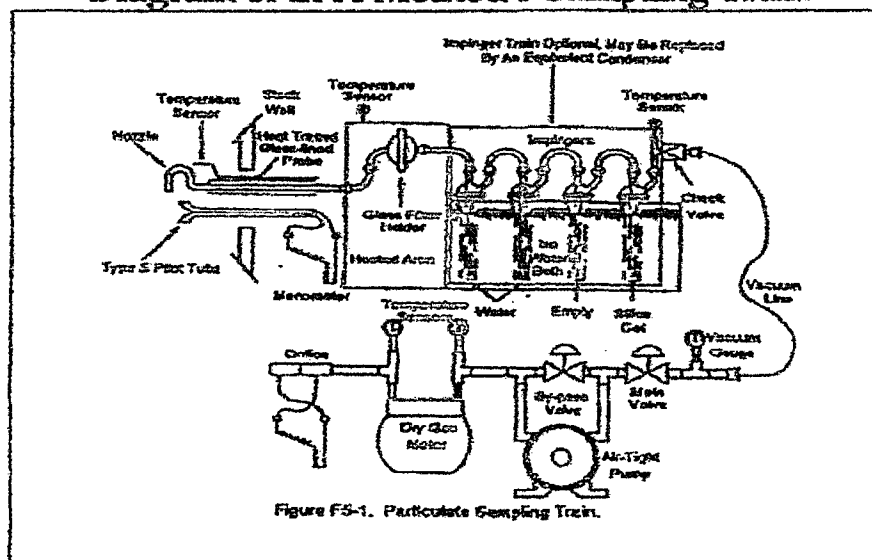
8.5 EPA Method 5 - Determination of Particulate Emissions from Stationary Sources

Principle - Particulate matter is withdrawn isokinetically from the source and collected on a glass fiber filter maintained at a temperature in the range of 120 - 248° For such other temperature as specified by an applicable subpart of the standards or approved by the Administrator, U.S. Environmental Protection Agency, for a particular application.

The particulate mass which includes any material that condenses at or above the filtration temperature, is determined gravimetrically after removal of uncombined water.

Applicability - This method is applicable for the determination of particulate emissions from stationary sources. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

Diagram of EPA Method 5 Sampling Train

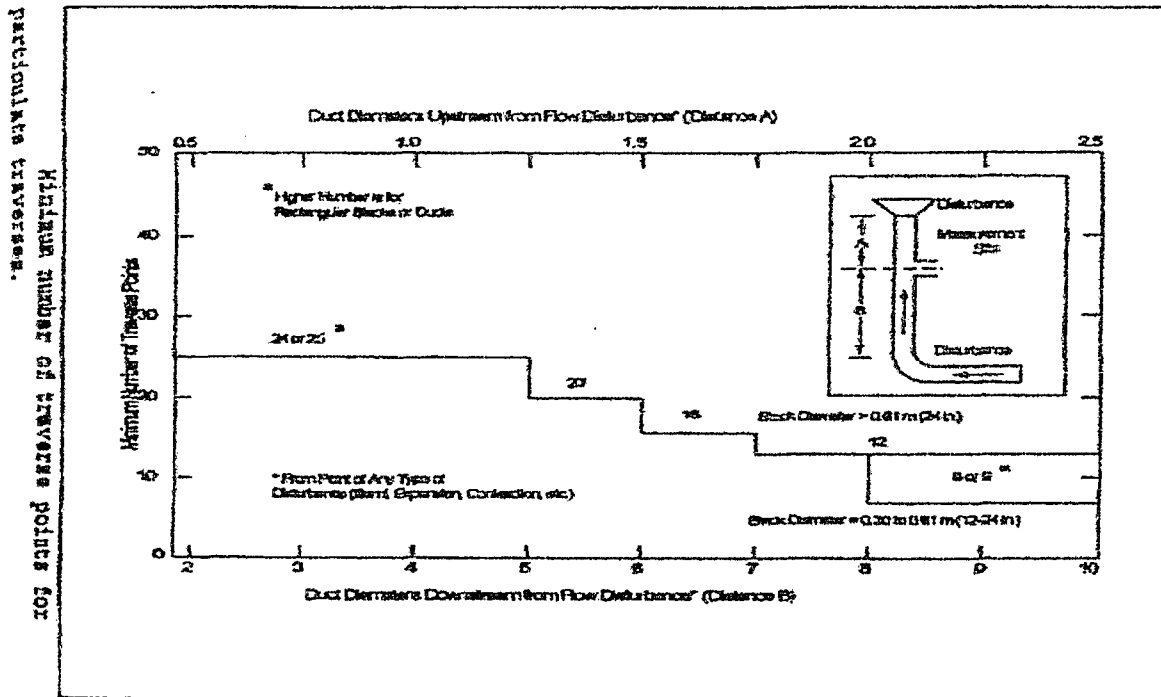


8.6 EPA Method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources

Principle – An integrated or continuous gas sample is extracted from a sampling point and analyzed for carbon monoxide (CO) content using a Luft-type nondispersive infrared analyzer or equivalent.

Applicability – This method is applicable for the determination of carbon monoxide emissions from stationary sources only when specified by the test procedures for determining compliance with new source performance standards. The procedures in this method were utilized in its entirety according to the procedures outlined in 40 CFR Part 60, Appendix A.

9.0 Minimum Number of Sampling Points Minimum Number of Sampling Points Per Particulate Traverse



Circular Stacks

The number of sampling points is selected according to the above diagram, with the number of points equaling the next higher multiple of four.

Rectangular Stacks

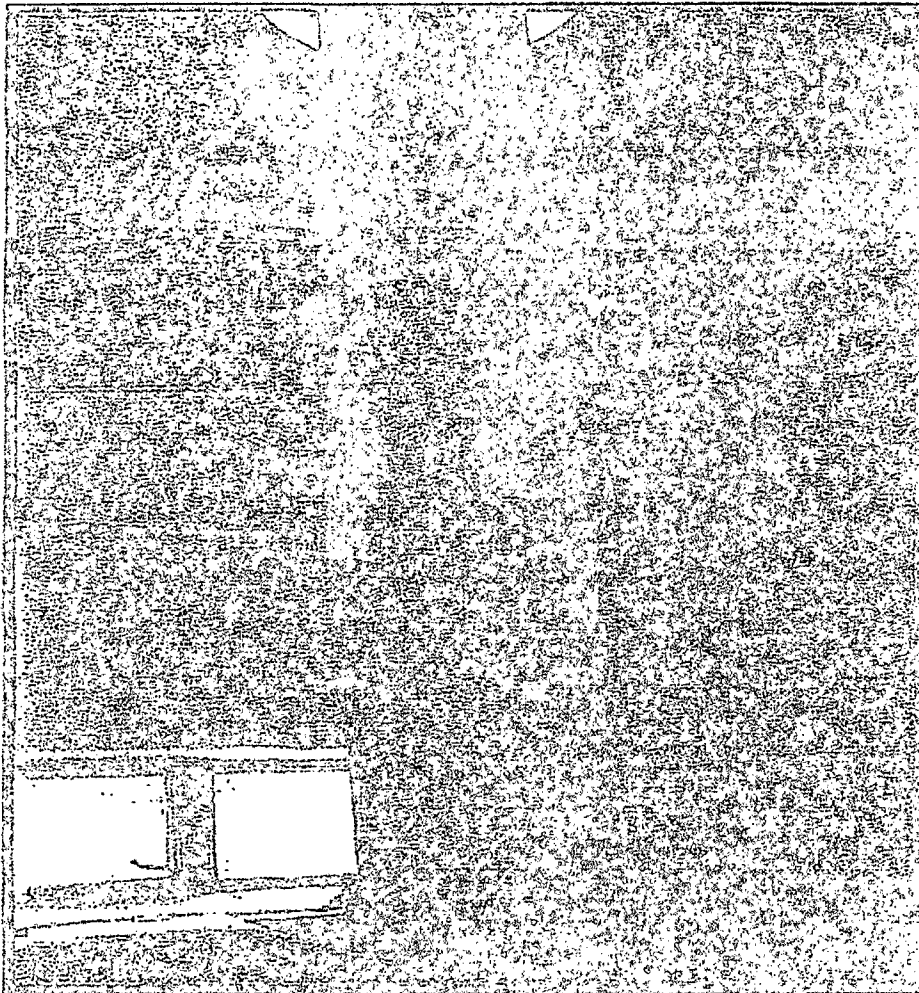
The number of sampling points is determined using the matrix below.

Number of Traverse Points	Subarea Layout Matrix
9	3 x 3
12	4 x 3
16	4 x 4
20	5 x 4
25	5 x 5
30	6 x 5
36	6 x 6
42	7 x 6
49	7 x 7

9.1 Sampling Points per Traverse
 Broward Pet Cemetery, Inc.
 Crematory
 Report 1175-S

Stack Configuration	Circular
Diameter (inches)	13
Distance A - Ports to Downstream Disturbance (inches)	88
Distance A - Ports to Downstream Disturbance (diameters)	6.8
Distance B - Ports to Upstream Disturbance (inches)	32
Distance B - Ports to Upstream Disturbance (diameters)	2.5
Number of Test Ports	2
Number of Sampling Points per Traverse	12
Number of Points Sampled	24

Photograph of Stack



Traverse Point Location	
Traverse Point No.	Inches to Stack Wall
1	0.5
2	0.9
3	1.5
4	2.3
5	3.3
6	4.6
7	8.4
8	9.8
9	10.7
10	11.5
11	12.1
12	12.5

10.0 Summary of Field and Laboratory Data

Broward Pet Cemetery, Inc.

Crematory

Report 1175-S

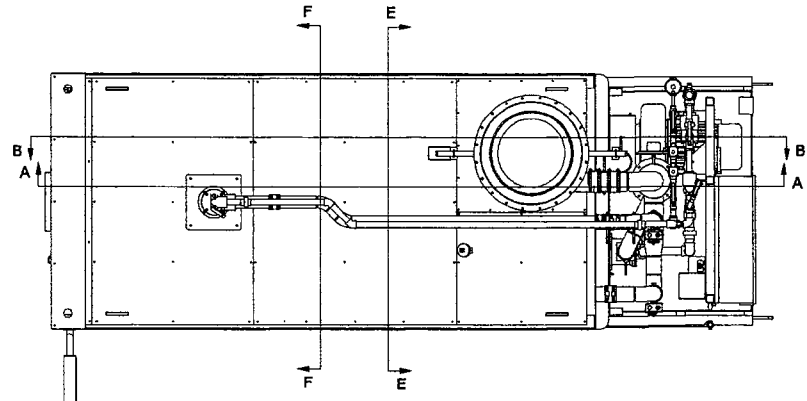
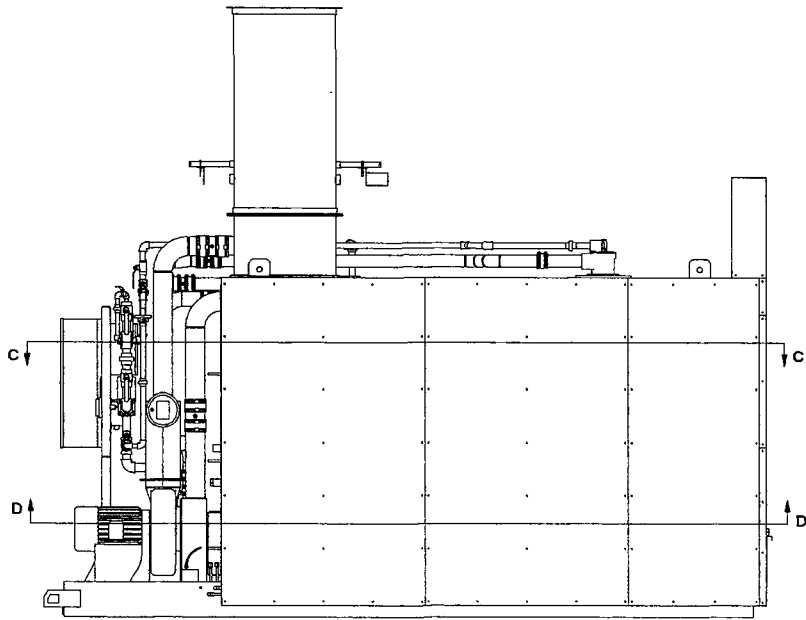
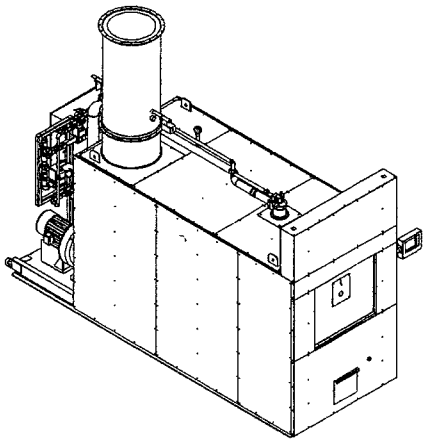
	Run 1	Run 2	Run 3
Date	1/13/2005	1/13/2005	1/13/2005
Start Time	8:33	10:19	12:49
Stop Time	9:38	11:23	13:51
CP	0.84	0.84	0.84
Y	0.9964	0.9964	0.9964
ΔH_a (inches H ₂ O)	1.7565	1.7565	1.7565
Diameter of Nozzle (inches)	0.2983	0.2983	0.2983
Stack Diameter or Equivalent (inches)	13.00	13.00	13.00
Static Pressure (inches H ₂ O)	-0.16	-0.16	-0.16
Barometric Pressure (inches Hg)	30.10	30.10	30.10
Test Time (minutes)	60	60	60
Meter Volume (cubic feet)	38.890	42.057	41.935
Square Root ΔP (inches H ₂ O)	0.552	0.627	0.630
Orifice Pressure ΔH (inches H ₂ O)	1.299	1.602	1.617
Average Meter Temperature (Deg. F)	79.6	83.8	83.1
Average Stack Temperature (Deg. F)	563.4	660.8	669.5
Particulate Sample Weight (grms)	0.0221	0.0253	0.0259
Water Collected (grms)	41.7	54.6	66.7
Percent CO ₂	0.8	0.8	0.8
Percent O ₂	18.1	17.4	17.1
Molecular Weight (lbs/lb Mole)	28.85	28.82	28.81
Nozzle Area (square feet)	0.00049	0.00049	0.00049

Attachment 2

Crawford Model C500P Specifications & Engineering Drawings

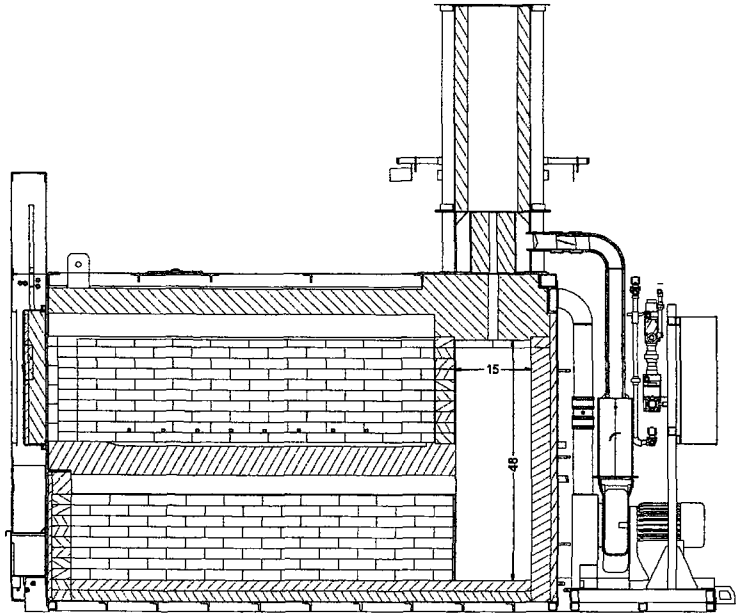
CRAWFORD MODEL C500P SPECIFICATIONS

Recognized Approvals:	Underwriters Laboratory (U.L.) Listed (Control # 54E3)
Capacity ratings:	75 lb/hr. for type 4, pathological waste Recommended maximum initial charge: 200 lbs
Overall dimensions:	11'-6" L x 3'-8" W* x 7'-11" H *(5'-1" W, w/ touch screen panel)
Approx. system weight:	10,000 lbs.
Required fuel (NG/LPG): (light oil fired optional)	Main Line - 1,500,000 BTU/hr @ 11-14" w.c. @ 1.5" header Pilot Line - 150,000 BTU/hr @ 5 psi, max. @ 3/8" regulator
Required electrical supply:	230 Volt, Single Phase, 60 Hz, 40 Amp @ single point connection (Three Phase 230/460 Volt, 60 or 50 Hz & alt. voltage available)
Primary chamber volume:	Primary - 26.25 cu. ft.
Hearth Area:	12.1 sq. ft. (60"L x 29"W)
Secondary chamber volume:	26.58 cu. ft. (provides in excess of one second retention time)
Primary burner capacity:	500,000 BTU/hr. (hi/lo modulated control)
Secondary burner capacity:	1,000,000 BTU/hr. (fully modulated control)
Combustion air fan:	900 scfm, 3 hp, 230 Volt, Single Phase, 60 Hz std. (Three phase, optional)
Charging door:	29"W x 25"H - electric-hydraulic powered
Hydraulic power unit:	1.5 hp, 230 Volt, Single Phase, 4.4 gpm, 500 psi, ¼ gal. res.
Steel construction:	Heavy channel steel skid base, with angle, square tube, and plate steel structure, with sheet steel used for inner and outer casings
Refractory & insulation:	
Hearth:	7" to 13" 3000°F abrasion resistant cast refractory
Side walls:	4.5" thick 2700°F dense fire brick 4.5" thick 2600°F insulating fire brick 1.25" 1900°F insulation backing
PCC roof:	6" 2800°F cast refractory with 2" 2400°F insulation cap
SCC floor:	5" 3000°F thick dense-insulating cast refractory
Stack:	20" od x 48" L sections (2 sections standard) 10 gauge steel shell with 2" 2400°F high-temperature refractory lining approx. weight - 91 lb/ft.
Draft control:	via "Induce-a-Cool" w/ temperature reduction to 875°F
Controls (PLC based with):	Touch screen operator interface Primary & secondary chamber temperature control Temperature actuated fuel and air control Burner interface, status and reset access** System status and alarm display Opacity alarm system with control intervention ** Discrete, UL, CSA, FM & IRI burner monitoring / control w/ U.V. flame supervision provided for each burner

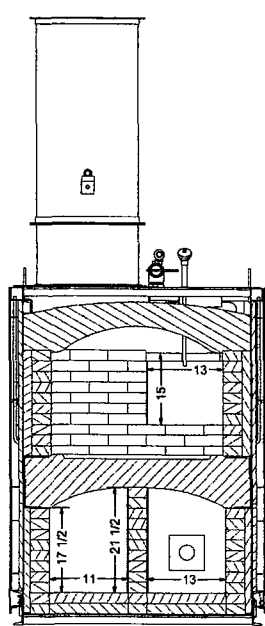


NOTE: All Section Views On Page 2

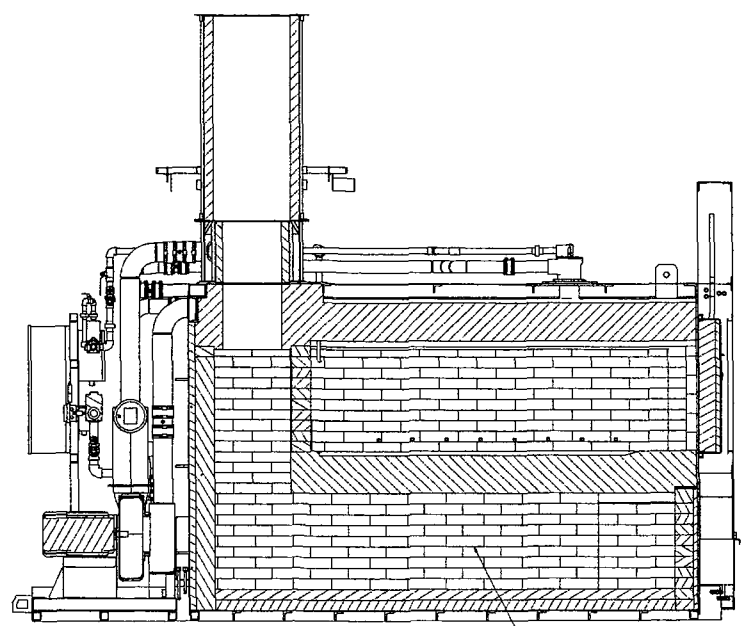
DRAWN CHS D 04/2003			CRAWFORD INDUSTRIAL GROUP, LLC 8101 PARKERS LANDING, ORLANDO, FL 32824 (407) 663-0960								
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REV	DATE	DESCRIPTION	SHEET NAME	SIZE	D	SCALE	C600	SHEET	1	OF	2



SECTION A-A

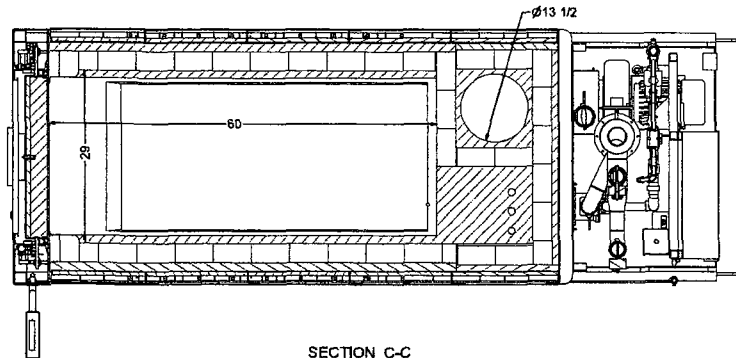


SECTION E-E

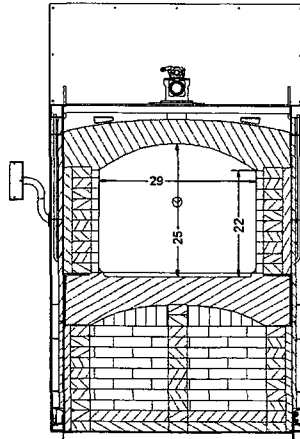


SECTION B-B

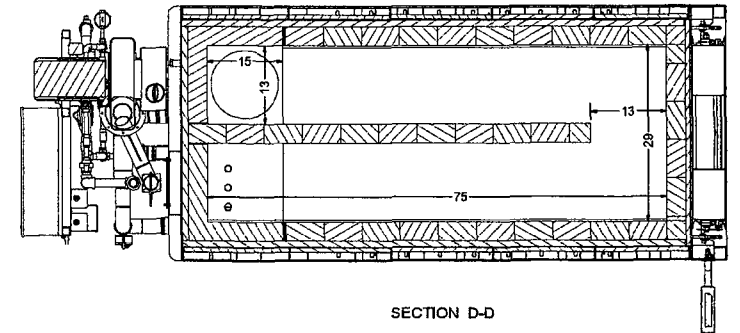
Brick Jet DP



SECTION C-C



SECTION F-F



SECTION D-D

DRWING	CHS D	04/2003	CRAWFORD INDUSTRIAL GROUP, LLC 8101 PARKERS LANDING, ORLANDO, FL 32834 (407) 851-0999 TITLE	PROJECT NO.	0500	REV	
CHECKED				SCALE	NONE	SHEET	2 OF 2
DESIGNER							
THIS DRAWING IS THE PROPERTY OF CRAWFORD INDUSTRIAL GROUP, LLC. IT IS TO BE USED ONLY FOR THE PROJECT AND MANUFACTURING OF PURCHASED PLANT AND EQUIPMENT. IT IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN APPROVAL OF CRAWFORD INDUSTRIAL GROUP, LLC.							
REV	DATE	DESCRIPTION	SHEET NAME				

C500P 75PPH MR

Heat and Mass Balance		Basis one Hour		Waste Type and Description - Generalities				
Enter the following:		This Run	0-Trash	1-Rubbish	3-Garbage	4-Animal	MSW	
Percent Carbon Combustion		95	95	95	95	95	95	
Feed Compos. %	Carbon	30	47	33	12	7	25	
	Hydrogen	3	6	5	3	2	4	
	Oxygen	6	30	26	10	6	20	
	Water	57	10	25	70	82	30	
	Chlorine	0	2	1	0.4	0	1	
	Sulfur	0.1	0.1	0.1	0.1	0.1	0.1	
	Nitrogen	0.4	0.2	0.2	0.2	0.4	0.5	
	Ash	3.5	4.70	9.70	4.30	2.5	19.4	
Stated HHV of waste feed, Btu/lb		5500	8500	6500	2500	1000	5000	
Calculated LHV by Dulong's eq, Btu/lb		4403	7147	4909	1644	630	3679	
& subtracting heat to vaporize water								
Density of Waste, lb/cu ft		40	10	10	35	55	25	
Heat value of waste, Btu/cu ft		220000						
				Paper, carboard, wood-10%plastics	paper, rags, cartons floor sweepings	Food wastes, paper resta/hotels/clubs	All animal & human tissue; labs; hosp.	Municipal Solid Waste
<-Typical Ranges->								
Percent carbon combustion		95	95-98%					
Percent Excess Air		150	40-150% Excess Air (=140-250% total air) for solid waste					
Percent of Total Air		250						
Feed rate Lbs per hour		75						
Target Comb gas temp. deg F		1850	1800-2200					
Target stack gas temp. deg F		1650	1400-1800					
True heat loss, %		5	← Losses (2-6%) due to rad./ cond./conv. Does not reflect HHV-LHV differences or delta H H2O vapz.					
O2 Req. for	2.21 lbmol/hr							
Dry air req	303 lb/hr							
		CO2	HCl	SO2	H2O			
Moles from combustion		1.78	0.00	0.00	1.13			
Moles from evap					2.38			
Actual O2 in inlet air	lbmol/hr	5.51			Humidity Input			
Water vapor in Air		0.008	lbs water/ lbs dry air		0.13	lbmol/hr		
Tot. dry air, lbmol/hr	26.26				2 lb/hr			
	lb/hr	757						
		CO2	HCl	SO2	N2	O2	H2O	
Total moles before aux fuel		1.78	0.00	0.00	20.74	3.31	3.63	
Total flue gas, wet		29.47	lbmol/hr		831	lb/hr		
Total flue gas, dry		25.83	lbmol/hr		765	lb/hr		
Mole Weight, wet/dry		28.19	29.62					
Temperature with no heat added, deg F			1,452					

Heat needed BTUs/Hour			9.39E+04								
If heat needed is positive, then add methane fuel:											
Heat balance calculations, based on LHVs and net available heat for methane											
T (w/o) fuel	1452	deg F									
Ht need	93935	Btu/hr									
NAH	186551	Btu/lbmol	Net Avail heat of methane at T= target temp								
Fuel need	0.50	lbmol/hr									
Mol O2	1.06	lbmol/hr	(includes 10% excess air at burner)								
Air added	145	lb/hr									
If heat needed shows negative, then add cooling air:											
Heat in actual flue gas		311726.4 btu/hr									
Mass cooling air		-199 lb/hr									
			Inlet air	Inlet air	Inlet air	Fr Humid	Fr Comb	Fr Comb	Fr Comb		
Moles of air added (to cool or burn gas)			5.04	MWwet	Moles O2	Moles N2	Mol H2O	Mol CO2	Mol H2O	Mol O2	
			28.70	1.06	3.98	0.06	0.50	1.01	-1.01		
Stack gas lb mol/hr, wet		35.07									
Stack gas lb mol/hr, dry		30.37									
			CO2	HCl	SO2	N2	O2	H2O	Total		
Total	Moles out stack	2.28	0.00	0.00	24.72	3.36	4.71	35.07			
	Pounds	100.53	0.00	0.15	692.16	107.47	84.71	985			
	Vol % dry	7.52	0.00	0.01	81.41	11.06					
	Mole wt of flue gas, wet	28.09									
			Retention time = scc volume / acfm/60 sec.								
Actual flue gas, acfm		986	at	1850	deg F						
Actual flue gas acfm		900	at	1650	deg F						
sccm		226	For this cell, Std Temp == 70								
Mass Balance: Pounds per hour											
In			Out								
Feed	75	ash out	4								
Air	906	flue gas	985								
Fuel	8										
Total	989	Total	989								
Error in Mass Balance, %		-0.03%									
Heat Balance: BTUs per hour											
In			Out								
Feed	3.33E+05	Ash	2.01E+03								
Fuel	1.74E+05	Flue Gas	4.79E+05								
Air(h2o)	6.41E+03	Loss	2.54E+04								
Total	5.14E+05	Total	5.06E+05								
Error in heat balance, %		-1.57%									
Maximum Heat available in flue gas BTUs/Hour			5.35E+04								

Attachment 3

Emission Calculations based on AP-42 Table 2.1-12

Emission Unit	Pounds Incinerated Per Hour (Average)	Hours Per Year	SO2 lb/ton	SO2 lb/hr	SO2 TPY	Nox lb/ton	Nox lb/hr	Nox TPY	TOC lb/ton	TOC lb/hr	TOC TPY
EU 001 C1000S	400	8760	2.5	0.5	2.19	3	0.6	2.628	3	0.6	2.628
EU 002 C500P	75	8760	2.5	0.09375	0.410625	3	0.1125	0.49275	3	0.1125	0.49275
Total				0.59375	2.600625		0.7125	3.12075		0.7125	3.12075

CO=100 ppm@ 7% O2 for each unit

PM = 0.080 gr/dscfm @ 7% O2 for each unit



***Air General Permit Registration Form
(change in ownership and equipment addition for Source ID number :
0710207)***

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Lee County***

Animal Cremation Facility

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July 2011

Application Contents

▶ DEP 62-210-920(10) Air General Permit Registration Form

Attachments

Attachment 1 Compliance Test Report

Attachment 2 Crawford Model C500P Specifications & Engineering Drawings

Attachment 3 Emission Calculations based on AP-42 Table 2.1-12

