HORIZON

AIR MEASUREMENT SERVICES, INC.

Horizon Test #: B06-016-FR
Date Tested: August 28, 2007
Report Date: October 18, 2007
Revision Number: 0

EMISSION COMPLIANCE TEST ON A LANDFILL GAS FLARE

Flare #3

Sunshine Canyon Landfill

Permit to Operate No. F23230
Facility ID No.: 049111

Prepared for:

BFI of California
Sunshine Canyon Landfill
14747 San Fernando Road
Sylmar, California 91342

Prepared by:

Horizon Air Measurement Services, Inc.
996 Lawrence Drive, Suite 108
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Regulatory Agency

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Richard J. Vacherot
Technical Director

HORIZON
AIR MEASUREMENT SERVICES, INC.

October 18, 2007

Ms. Susan Jennings
Sunshine Canyon Landfill
14747 San Fernando Road
Sylmar, California 91342

Dear Ms. Jennings:

Please find enclosed three copies of the final report entitled "Emission Compliance Test on a Landfill Gas Flare"for submittal to SCAQMD.

If you have any questions, please call me at (805) 498-8781.

Sincerely,

HORIZON AIR MEASUREMENT SERVICES, INC.

Edward S Swede

Edward S. Swede
Project Manager

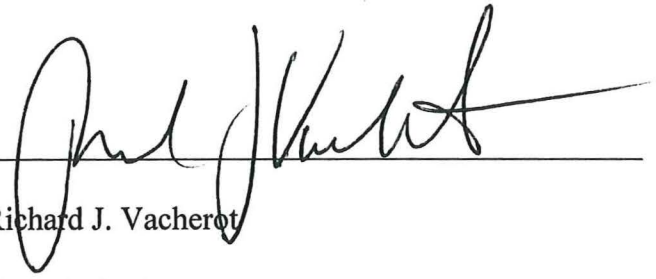
RV:lmg

996 LAWRENCE DR., SUITE 108, NEWBURY PARK, CALIFORNIA 91320 • (805) 498-8781 • FAX (805) 498-3173

CERTIFICATE OF NO CONFLICT OF INTEREST

I certify that I am responsible for the testing operations of Horizon Air Measurement Services, Inc. (Horizon) and am authorized to sign this certificate on Horizon's behalf.

Horizon may conduct tests as an independent contractor of the California Air Resources Board pursuant to Section 91200-91220 of Title 17, of the California Code of Regulations and SCAQMD Rule 304(L). I further certify that Horizon only utilizes personnel to participate in such tests where such testing and participation would not be prohibited by Section 91208, "Conflict of Interest", Title 17, California Code of Regulations.

Signature: 

Name: Richard J. Vacherot

Title: Technical Director

Date: 10/17/07

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1. INTRODUCTION

Under Permit to Operate (PTO) F23230 or per the approved 1150.1 compliance plan which states, "at least one flare every year and then alternate all others such that each is source tested at least once every three years", BFI of California (BFI) is required to conduct an annual source test on the subject landfill gas flare (Flare #3) located at the Sunshine Canyon Landfill in Sylmar, California. Horizon Air Measurement Services, Inc. (Horizon) had been retained for this purpose. The last scheduled test was August 2004 for Flare #3. The next scheduled routine source test will be conducted in August 2010.

The test program was completed on August 28, 2007 by Horizon in accordance with the SCAQMD-approved Test Plan (Horizon # B06-016-TP). The test was not observed by SCAQMD, even though SCAQMD had been notified seven days in advance. The test matrix is shown in Table 1-1.

The results of the testing program, with respect to PTO limits, are summarized in Section 2, Summary of Results. A brief description of the flare and flare operating conditions during testing is provided in Section 3. Section 4 provides a detailed description of the sampling/analytical techniques utilized. Section 5 provides a more detailed results summary/discussion.

Table 1-1
Compounds of Interest
BFI - Sunshine Canyon Landfill
Flare 3
August 28, 2007

Parameter	Location	Method	Number of Samples Per Flare
Total Non-Methane Hydrocarbons (TNMHC)	Inlet	ASTM D3588/D1945	1
	Outlet	SCAQMD Method 25.3	2
Reduced Sulfur Compounds (C_1-C_3) Including H_2S	Inlet	SCAQMD Method 307.91 (equivalent)	1
Speciated Organic Compounds	Inlet	EPA TO-15	1
	Outlet	EPA TO-15	3
Particulate Matter	Outlet	SCAQMD Method 5.1	1
Oxides of Nitrogen	Outlet	SCAQMD Method 100.1	1
Oxides of Sulfur	Outlet	Calculated based on inlet reduced sulfur compounds	1
Carbon Monoxide	Outlet	SCAQMD Method 100.1	1
	Inlet	ASTM D 3588	1
Oxygen	Outlet	SCAQMD Method 100.1	1
	Inlet	ASTM D 3588	1
Carbon Dioxide	Inlet	ASTM D 3588	1
	Outlet	SCAQMD Method 100.1	1
Methane	Inlet	ASTM D 3588	1
	Outlet	SCAQMD Method 25.3	1
Flow Rate/Temperature	Inlet	SCAQMD Method 2.1	1
	Outlet	SCAQMD Method 2.1	1
Moisture	Outlet	SCAQMD Method 5.1	1
	Inlet	SCAQMD Method 4.1	1
BTU Content	Inlet	ASTM D3588	1

2. SUMMARY OF RESULTS

The results of the testing program are provided in Table 2-1. All flare emission rates are based upon the measured exhaust flow rate. Carbon monoxide concentrations were below the quantifiable limit of 20 ppm and is reported as such.

A more detailed summary of results is provided in Section 5.

Table 2-1
Summary of Results
BFI - Sunshine Canyon Landfill
Flare 3
August 28, 2007

Parameter	Emission Rate	Allowable Emissions
Inlet Gas Flow Rate	2,900 dscfm	4,167 dscfm
Oxides of Nitrogen	1.56 lb/hr	6.3 lb/hr
Total Particulate Matter (PM_{10})	0.29 lb/hr	0.64 lb/hr
Carbon Monoxide	<2.07 lb/hr	3.7 lb/hr
Reactive Organic Gases, as CH_4	0.190 lb/hr	0.63 lb/hr
	1.13 ppm (C_6) @ 3% O_2	20 ppm (C_6) @ 3% O_2 (Rule 1150.1)
	99.5% DRE	98% DRE
Oxides of Sulfur, as SO_2	2.41 lb/hr	3.8 lb/hr
Heat Output	84.6 MMBtu/hr	105 MMBtu/hr

3. FLARE DESCRIPTION AND OPERATION

3.1 Flare Description

The landfill gas flare is a Flare Industries equivalent to a McGill model No. EFG-125: consisting of an insulated steel cylinder 50 feet high and approximately 13 feet in diameter. Operating flow rate is limited (by permit conditions) to either 4167 scfm or 105 million BTU/hr, which ever is reached first. The flow rate, continuously monitored during the testing on BFI's permanent strip chart recorder, averaged 2,719 scfm. (Appendix E).

The flare is equipped with a multi-jet burner, propane gas pilot system with electric ignitor system, UV flame sensor (s), automatic shutdown and alarm system, automatic combustion air regulating system (louvers) and temperature controller.

The flare operating temperature range is 1,600°F to 2,000°F. Flare operating temperature during the test was set within this range. Flare temperature was continuously monitored by the facility over the duration of the testing period (Appendix E).

3.2 Flare Operation

Landfill gas to the flare is supplied by operating one or two blowers: Lampson, Model 362-2D, each 45 H.P., one blower for standby, venting the landfill gas collection system. The blowers supply a vacuum to the landfill gas collection system to extract gas from the landfill. The blower(s) then discharge the gas at a slightly positive pressure towards the flare where additional particulate material is removed in the particulate filter prior to combustion in the flare.

Gas enters the flare through a flame arrestor into the multi-jet burner where it is distributed to one of the six burners. The temperature is regulated by thermocouples (temperature sensors) located through the flare stack at different heights. The temperature then regulates the amount of air allowed in to the combustion chamber through the automated louvers depending upon stack temperature. The higher the temperature the more the louvers will try to open to maintain the preset temperature, and work on the same parameter as the temperature drops the louvers close. This test was conducted at operating temperature above the permitted limit of 1,600°F.

Typical flare operating temperature range is 1,600^{0}F to 2,000^{0}F. Flare operating temperature during this test was set at the 1,650^{0}F. Flare stack and combustion temperature was continuously monitored by the facility over the duration of the testing period.

3.3 Sample Location

Flare exhaust samples were obtained from the sample ports, of which there are four, positioned at right angles, six and a half feet from the top of the flare.

The flare inlet landfill gas supply line is 16 inches in diameter (OD) schedule 40 pipe, which is stainless steel. One sample port is located approximately 24 inches upstream of a disturbance and at 84 inches downstream of a bend in the supply piping.

4. SAMPLING/ANALYSES

The sampling/analytical program had been designed to quantify the parameters of interest outlined in Table 1-1.

4.1 Sample Location

4.1.1 Flare Exhaust

At the flare exhaust 24 sample points (12 per diameter), determined in accordance with Method 1, were utilized for the determination of the following compounds:

- PM_{10}, as particulate matter
- NO_X
- CO
- O_2/CO_2
- Flow Rate
- Moisture

A single sample point was used for the collection of the following samples:

- speciated organic compounds
- total non methane hydrocarbons
- methane

4.1.2 Landfill Gas Supply Line

A single sample point was utilized for the collection of the following compounds:

- moisture
- total non methane hydrocarbons
- CO
- CO_2/O_2
- reduced sulfur compounds
- speciated organic compounds
- BTU content

4.2 Moisture (Inlet/Outlet)

Moisture content of the landfill gas was determined using SCAQMD Method 4.1. One, sixty-minute SCAQMD Method 4.1 run was conducted at the landfill gas inlet. Moisture content of the exhaust was determined using SCAQMD Method 4.1 in conjunction with SCAQMD Method 5.1 sampling. A description of SCAQMD Method 4.1 is provided in Appendix A.

4.3 Flow Rate/Temperature (Inlet/Outlet)

The landfill gas flow rate was determined using SCAQMD Method 1.1 and 2.1. The flare exhaust flow rate was determined using SCAQMD Methods 1.1 and 2.1 in conjunction with SCAQMD Method 5.1. Descriptions of SCAQMD Methods 1.1 and 2.1 are provided in Appendix A.

4.4 PM10 as Particulate Matter (Outlet)

Horizon conducted one, 60-minute test run on the flare exhaust for particulate matter determination in accordance with SCAQMD Method 5.1 as described in Appendix A. Twenty-four traverse points were utilized. Samples were withdrawn isokinetically from each of the determined traverse points.

4.5 Oxides of Nitrogen, Carbon Monoxide, Carbon Dioxide, Oxygen (Outlet)

One, 60-minute test run was conducted at the flare exhaust. Twenty-four sample points were utilized. All sampling was performed under the guidelines of SCAQMD Method 100.1 as detailed in Appendix A.

4.6 Hydrogen Sulfide (H_2S), and C_1 - C_3 Sulfur Compounds (Inlet)

Hydrogen sulfide and C_1 - C_3 sulfur compounds samples were collected at the inlet of the flare using the Tedlar bag collection system depicted in Appendix A. All system components coming in contact with the landfill gas were polypropylene or Teflon.

All reduced sulfur samples were analyzed within 24 hours of collection. Hydrogen sulfide and C_1 - C_3 sulfur compounds were analyzed using a Method 307.91 equivalent by AtmAA, Inc. Equivalency has been formally granted by SCAQMD to AtmAA, Inc. for this Method.

4.7 Speciated Organic Compounds (Inlet/Outlet)

One inlet and three outlet samples were gathered in Tedlar bags using the Tedlar bag lung sampling procedure described in Appendix A for analysis using TO-15 (GC/MS) for speciated organic compounds (Rule 1150.1 list).

4.8 Total Non Methane Hydrocarbons, Methane (Outlet)

Duplicate samples for methane and total non methane hydrocarbon (TNMHC) samples were collected at the outlet using SCAQMD Method 25.3 as described in Appendix A.

4.9 Total Non Methane Hydrocarbons, Methane (Inlet)

Total non-methane/non-ethane hydrocarbons and methane concentration of the landfill gas were determined using ASTM D1945. A description of ASTM D1945 is provided in Appendix A.

4.10 Carbon Monoxide, Carbon Dioxide, Oxygen and Nitrogen (Inlet)

Oxygen and carbon dioxide concentrations of the landfill gas were determined using SCAQMD Method 10.1. Nitrogen was determined by difference. A description of SCAQMD Method 10.1 is provided in Appendix A.

5. RESULTS DISCUSSION

The results of the test program are provided in Table 5-1. Trace organic species emission rates and destruction efficiencies are presented in Tables 5-2, 5-3 and 5-4.

Test Critique

No sampling or analytical problems were encountered during any phase of the test program.

Table 5-1
Summary of Results
BFI - Sunshine Canyon Landfill
Flare 3
August 28, 2007

	LANDFILL GAS	FLARE EXHAUST
Run Number	1	1
STACK GAS CHARACTERISTICS		
Temperature, degrees F*	115	1651
Moisture, %	6.2	9.6
Flow Rate, acfm	3634	
Flow Rate, dscfm	2900	23360
Fixed Gases		
Oxygen, %	3.02	12.44
Carbon Dioxide, %	35.07	7.88
Methane, %	45.69	-
BTU Value, Btu/scf	471	-
EMISSIONS		
Oxides of Nitrogen		
ppm	-	9.2
ppm @ 3% O2	-	19.4
lb/hr	-	1.56
lb/MMBtu	-	0.0265
Carbon Monoxide		
ppm	-	< 20.0
ppm @ 3% O2	-	< 42.3
lb/hr	-	< 2.07
lb/MMBtu	-	< 0.0351
Total Particulate Matter		
gr/dscf	-	0.0014
lb/hr	-	0.29
Total Non-Methane Hydrocarbons (Reactive Organic Compounds)		
ppm, as Methane	5569	3.21
lb/hr, as Methane	40.83	0.190
Sulfur Compounds		
Hydrogen Sulfide, ppm	75.3	0.500
Total Sulfur, ppm as H2S	82.2	-
Oxides of Sulfur**		
lb/hr	-	2.41

* As recorded at the Reference Method sample probe, not at the permanent thermocouple.
** Calculated from sulfur balance

Table 5-2
Trace Organic Species
Destruction Efficiency Results
BFI - Sunshine Canyon Landfill
Flare 3
August 28, 2007
Run 1

Species	Inlet		Outlet		Destruction Efficiency (%)
	Concentration (ppb)	Emission Rate (lb/hr)	Concentration (ppb)	Emission Rate (lb/hr)	
Hydrogen Sulfide	75300	1.18E+00	< 500	< 6.30E-02	> 94.65
Benzene	1760	6.29E-02	1.3	3.83E-04	99.39
Benzylchloride	< 100	< 5.82E-03	< 1.00	< 4.69E-04	NA
Chlorobenzene	< 60	< 3.11E-03	< 0.6	< 2.50E-04	NA
Dichlorobenzenes	248	1.67E-02	< 1.5	< 8.14E-04	> 95.13
1,1-dichloroethane	81	3.69E-03	< 0.6	< 2.19E-04	> 94.06
1,2-dichloroethane	< 60	< 2.72E-03	< 0.6	< 2.19E-04	NA
1,1-dichloroethylene	< 60	< 2.67E-03	< 0.6	< 2.15E-04	NA
Dichloromethane	489	1.91E-02	< 0.60	< 1.88E-04	> 99.01
1,2-dibromoethane	< 60	< 5.17E-03	< 0.6	< 4.16E-04	NA
Perchloroethene	538	5.85E-02	< 0.40	< 3.50E-04	> 99.40
Carbon tetrachloride	< 50	< 3.53E-03	< 0.4	< 2.27E-04	NA
Toluene	11500	4.85E-01	2.15	7.30E-04	99.849
1,1,1-trichloroethane	< 50	< 3.05E-03	< 0.4	< 1.96E-04	NA
Trichloroethene	273	1.64E-02	< 0.4	< 1.94E-04	> 98.82
Chloroform	< 50	< 2.73E-03	< 0.4	< 1.76E-04	NA
Vinyl Chloride	320	9.17E-03	< 0.6	< 1.38E-04	> 98.49
m xylenes	3970	1.93E-01	1.71	6.69E-04	99.65
o+p xylene	1290	6.27E-02	0.6	2.43E-04	99.61
TNMHC	5569000	4.09E+01	3210	1.90E-01	99.54

Note: All values preceded by "<" are below the detection limit - reported values are detection limit values.
NA--Not applicable: Destruction efficiency cannot be calculated since both inlet and outlet values are below the detection limit.

Table 5-3
Trace Organic Species
Destruction Efficiency Results
BFI - Sunshine Canyon Landfill
Flare 3
August 28, 2007
Run 2

		INLET Flow rate	2900 dscfm		OUTLET Flow rate	23360 dscfm	
Species	Conc. (ppb)	Conc. (mg/dscf)	Em. Rate (lb/hr)	Conc. (ppb)	Conc. (mg/dscf)	Em. Rate (lb/hr)	Dest. Eff. (%)
Hydrogen Sulfide	75300	3.07E+00	1.18E+00	< 500	< 2.04E-02	< 6.30E-02	> 94.65
Benzene	1760	1.64E-01	6.29E-02	1.25	1.17E-04	3.60E-04	99.43
Benzylchloride	< 100	< 1.52E-02	< 5.82E-03	< 0.60	< 9.11E-05	< 2.81E-04	NA
Chlorobenzene	< 60	< 8.10E-03	< 3.11E-03	< 1.50	< 2.03E-04	< 6.26E-04	NA
Dichlorobenzenes	248	4.36E-02	1.67E-02	< 0.60	< 1.05E-04	< 3.26E-04	> 98.05
1,1-dichloroethane	81	9.63E-03	3.69E-03	< 0.60	< 7.10E-05	< 2.19E-04	> 94.06
1,2-dichloroethane	< 60	7.10E-03	< 2.72E-03	< 0.60	< 7.10E-05	< 2.19E-04	> 91.95
1,1-dichloroethylene	< 60	< 6.96E-03	< 2.67E-03	< 0.60	< 6.96E-05	< 2.15E-04	NA
Dichloromethane	489	4.97E-02	< 1.91E-02	< 0.60	< 6.10E-05	< 1.88E-04	> 99.01
1,2-Dibromoethane	< 60	< 1.35E-02	< 5.17E-03	< 0.60	< 1.35E-04	< 4.16E-04	1 NA
Perchloroethene	538	1.52E-01	5.85E-02	< 0.40	< 1.13E-04	< 3.50E-04	> 99.40
Carbon tetrachloride	< 50	< 9.20E-03	< 3.53E-03	< 0.40	< 7.36E-05	< 2.27E-04	NA
Toluene	11500	1.26E+00	4.85E-01	2.09	2.30E-04	7.10E-04	99.85
1,1,1-trichloroethane	< 50	< 7.95E-03	< 3.05E-03	< 0.40	< 6.36E-05	< 1.96E-04	NA
Trichloroethene	273	4.27E-02	1.64E-02	< 0.40	< 6.26E-05	< 1.94E-04	> 98.82
Chloroform	< 50	< 7.11E-03	< 2.73E-03	< 0.40	< 5.69E-05	< 1.76E-04	NA
Vinyl Chloride	320	2.39E-02	9.17E-03	< 0.60	< 4.48E-05	< 1.38E-04	> 98.49
m+p-xylenes	3970	5.03E-01	1.93E-01	0.94	1.19E-04	3.68E-04	99.81
o-xylene	1290	1.63E-01	6.27E-02	< 0.40	< 5.07E-05	< 1.57E-04	> 99.75
TNMHC	5569000	1.06E+02	4.09E+01	3210	6.14E-02	1.90E-01	99.54

Note: All values preceded by "<" are below the detection limit. The reported values are the detection limit.
NA--Not Applicale: Destruction efficiency can not be calculated since both inlet and outlet values are below the detection limit.

Table 5-4
Trace Organic Species
Destruction Efficiency Results
BFI - Sunshine Canyon Landfill
Flare 3
August 28, 2007
Run 3

Species	Inlet		Outlet		Destruction Efficiency (%)
	Concentration (ppb)	Emission Rate (lb/hr)	Concentration (ppb)	Emission Rate (lb/hr)	
Hydrogen Sulfide	75300	1.18E+00	< 500	< 6.30E-02	> 94.65
Benzene	1760	6.29E-02	1.04	3.00E-04	99.52
Benzylchloride	< 100	< 5.82E-03	< 1.00	< 4.69E-04	NA
Chlorobenzene	< 60	< 3.11E-03	< 0.60	< 2.50E-04	NA
Dichlorobenzenes	248	1.67E-02	< 1.50	< 8.14E-04	> 95.13
1,1-dichloroethane	81	3.69E-03	< 0.60	< 2.19E-04	> 94.06
1,2-dichloroethane	< 60	< 2.72E-03	< 0.60	< 2.19E-04	NA
1,1-dichloroethylene	< 60	< 2.67E-03	< 0.60	< 2.15E-04	NA
Dichloromethane	489	1.91E-02	< 0.60	< 1.88E-04	> 99.01
1,2-dibromoethane	< 60	< 5.17E-03	< 0.60	< 4.16E-04	NA
Perchloroethene	538	5.85E-02	< 0.40	< 3.50E-04	> 99.40
Carbon tetrachloride	< 50	< 3.53E-03	< 0.40	< 2.27E-04	NA
Toluene	11500	4.85E-01	1.56	5.30E-04	99.891
1,1,1-trichloroethane	< 50	< 3.05E-03	< 0.40	< 1.96E-04	NA
Trichloroethene	273	1.64E-02	< 0.40	< 1.94E-04	> 98.82
Chloroform	< 50	< 2.73E-03	< 0.40	< 1.76E-04	NA
Vinyl Chloride	320	9.17E-03	< 0.60	< 1.38E-04	> 98.49
m xylenes	3970	1.93E-01	0.68	2.66E-04	99.86
o+p xylene	1290	6.27E-02	< 0.40	< 1.57E-04	> 99.75
TNMHC	5569000	4.09E+01	3210	1.90E-01	99.54

Note: All values preceded by "<" are below the detection limit - reported values are detection limit values.
NA--Not applicable: Destruction efficiency cannot be calculated since both inlet and outlet values are below the detection limit.

APPENDIX B - Computer Printout of Results

EXPANSION AND F-FACTOR CALC. METHOD

Facility: BFI SunShine
Source: Flare 3
Job No.: B06-016
Date: 08/28/07 **Run No.:** 1

Fuel temperature		deg. F	Std. Temp.	deg. F
Fuel Pressure		psi		
Fuel Flow Rate		cfm	Fuel Flow 2900	dscfm
Exhaust Outlet O2	12.44	%		
Barometric Pressure	27.56			

COMPONENTS		MOLE %	HHV btu/ft3	LLV btu/ft3	Exp Factor dscf/scf fuel
Oxygen		3.02			0.030
Nitrogen		15.67			0.157
Carbon Dioxide		35.07			0.351
Methane		45.69	461.47	415.50	3.916
Ethane	C2	0.55	9.73	8.90	0.084
Propane	C3		0.00	0.00	0.000
Iso-Butane	C4		0.00	0.00	0.000
N-Butane			0.00	0.00	0.000
Iso-Pentane	C5		0.00	0.00	0.000
N-Pentane			0.00	0.00	0.000
Hexane	C6		0.00	0.00	0.000
Heptane	C7		0.00	0.00	0.000
Octane	C8		0.00	0.00	0.000
Nonane	C9		0.00	0.00	
Total		**100.00**	**471.20**	**424.41**	**4.54**

CALCULATIONS

EXHAUST FLOW RATE, Q = (scfm*Exp Fac)*(20.92(20.92-%O2)

32463 DSCFM

EPA F-Factor = (scf exhaust/scf fuel)/(btu/scf fuel)*(1000000 btu/MMbtu)

9629 dscf/Mmbtu

SCAQMD Method 5.1 Particulate Emissions

Facility: BFI SunShine
Source: Flare 3
Job No.: B06-016
Date: 08/28/07

STANDARD TEMPERATURE	Degrees F	60
RUN NUMBER	******	1
CLOCK TIME: INITIAL	******	915
CLOCK TIME: FINAL	******	1024
AVG. STACK TEMPERATURE	Degrees F	1651
AVG. SQUARE DELTA P	Inches H20	0.1217
NOZZLE DIAMETER	Inches	0.994
BAROMETRIC PRESSURE	Inches HG	27.56
SAMPLING TIME	Minutes	60
SAMPLE VOLUME	Cubic Feet	64.384
AVG. METER TEMP.	Degrees F	100
AVG. DELTA H	Inches H20	2.92
DGM CALIB. FACTOR [Y]	******	0.988
WATER COLLECTED	Milliliters	123
CO 2	Percent	7.88
O 2	Percent	12.44
CO	Percent	
CH4	Percent	
N 2	Percent	79.68
STACK AREA	Square Inches	19113.5
STATIC PRESSURE	Inches WG.	-0.005
PITOT COEFFICIENT	******	0.84
SAMPLE VOLUME DRY	DSCF	54.87
WATER AT STD.	SCF	5.8
MOISTURE	Percent	9.6
MOLE FRACTION DRY GAS	******	0.90
MOLECULAR WT.DRY	lb/lb Mole	29.76
EXCESS AIR	Percent	145
MOLECULAR WT. WET	lb/lb Mole	28.63
STACK GAS PRESSURE	Inches HG	27.56
STACK VELOCITY	AFPM	858
VOLUMETRIC FLOWRATE, DRY STD.	DSCFM	23360
VOLUMETRIC FLOWRATE, ACTUAL	ACFM	113859
ISOKINETIC RATIO	Percent	95

CALCULATIONS FOR GRAIN LOADING AND EMISSION RATES

TOTAL PARTICULATE	mg	5.1
PARTICULATE CONCENTRATION	gr/dscf	0.0014
PARTICULATE EMISSION RATE	lb/hr	0.29

Facility:	**BFI**	**Run No.:**	**1**
Source:	**Flare 3**	**Fuel:**	**LFG**
Job No.:	**B16-016**	**Std. O2:**	**3**
Date:	**08/28/07**		

	O2 %	CO2 %	NOx ppm	CO ppm
Range:	25	15	25	100
Span:	12.00	7.00	13.30	49.80
Low:				
High:	19.94	11.97	23.70	79.60

** POST-TEST DRIFT (DIRECT)**

Values				
Zero:	0.03	0.00	0.00	0.00
Span:	12.00	6.95	13.30	49.70

Percent Drift				
Zero:	0.12	0.00	0.00	0.00
Span:	0.00	-0.33	0.00	-0.10

** PRE-TEST BIAS **

Values				
Zero:	0.03	0.10	0.12	0.00
Span:	12.00	6.95	13.32	49.70

** POST-TEST BIAS **

Values				
Zero:	0.03	0.00	0.19	0.00
Span:	11.98	6.90	13.33	49.60

** BIAS CORRECTION **

Zero Average	0.03	0.05	0.16	0.00
Span Average	11.99	6.93	13.33	49.65

** POST-TEST DRIFT (BIAS)**

Percent Drift				
Zero:	0.00	0.67	-0.28	0.00
Span:	0.08	0.33	-0.04	0.10

Bias-Corrected Concentration	**12.44**	**7.88**	**9.18**	**3.33**
Bias-Corrected Conc.(O2 adjusted)			**19.44**	**7.05**

** RAW AVERAGE CONCENTRATION **

Average:		12.43	7.79	9.25	3.32
O2 adjust:	3.0			19.56	7.01
Date	Time	O2	CO2	NOx	CO
28-Aug-07	915	12.29	7.93	9.15	0.19
28-Aug-07	916	12.24	7.95	9.23	3.26
28-Aug-07	917	12.33	7.90	9.64	0.06
28-Aug-07	918	12.26	7.91	9.37	0.01
28-Aug-07	919	12.35	7.85	9.31	7.37
28-Aug-07	920	12.23	7.97	9.52	0.06
28-Aug-07	921	12.29	7.90	9.62	0.17
28-Aug-07	922	12.35	7.88	9.49	0.10
28-Aug-07	923	12.22	7.98	10.20	0.01

Facility: BFI SunShine
Source: Flare 3
Job No.: B06-016
Date: 08/28/07

PRETEST	CALIBRATION ERROR			
LEAK CHECK	Good			
RANGE :	25	15	25	100
	O2	CO2	NOx	CO
ZERO				
Instrument	0.00	0.00	0.00	0.00
Cylinder	0.00	0.00	0.00	0.00
Difference (%)	0.00	0.00	0.00	0.00
LOW LEVEL				
Instrument				
Cylinder				
Difference (%)				
MID LEVEL				
Instrument	12.00	6.99	13.25	50.00
Cylinder	12.00	7.00	13.30	49.80
Difference (%)	0.00	-0.07	-0.20	0.20
HIGH LEVEL				
Instrument	19.83	11.99	23.75	79.80
Cylinder	19.94	11.96	23.70	79.60
Difference (%)	-0.44	0.20	0.20	0.20

PRETEST	LINEARITY	
	Cylinder	Instrument
	O2	
Zero	0.00	0.00
High Level	19.94	19.83
Slope	1.01	
Intercept	0.00	Status
Predicted Value	11.93	<1
Linearity (%)	0.26	PASS
	CO2	
Zero	0.00	0.00
High Level	11.96	11.99
Slope	1.00	
Intercept	0.00	Status
Predicted Value	7.02	<1
Linearity (%)	-0.18	PASS
	NOx	
Zero	0.00	0.00
High Level	23.70	23.75
Slope	1.00	
Intercept	0.00	Status
Predicted Value	13.33	<1
Linearity (%)	-0.31	PASS
	CO	
Zero	0.00	0.00
High Level	79.60	79.80
Slope	1.00	
Intercept	0.00	Status
Predicted Value	49.93	<1
Linearity (%)	0.07	PASS

SYSTEM RESPONSE TIME		
	#1	#2
Upscale		
CO	49	47
NOx	30	30
O2	30	31
CO2	31	30
Downscale		
CO	44	45
NOx	28	29
O2	32	32
CO2	29	30

NO2 CONVERTER EFFICIENCY			
	ppm	%	status
Cylinder(C0)	17.90		
NO Mode(C1)	0.65		
NOx Mode(C2)	17.63		
D1	17.25		
D2	16.98		
D3	0.27		
CE		98.41	
CE > 90 %			PASS
D3 <1.0 ppm	0.27		PASS

POST TEST	CALIBRATION ERROR			
LEAK CHECK	Good			
	O2	CO2	NOx	CO
ZERO				
Instrument	0.00	0.00	0.00	0.00
Cylinder	0.00	0.00	0.00	0.00
Difference (%)	0.00	0.00	0.00	0.00
LOW LEVEL				
Instrument				
Cylinder				
Difference (%)				
MID LEVEL				
Instrument	12.00	6.96	13.20	49.50
Cylinder	12.00	7.00	13.30	49.80
Difference (%)	0.00	-0.27	-0.40	-0.30
HIGH LEVEL				
Instrument	19.80	11.96	23.73	79.30
Cylinder	19.94	11.96	23.70	79.60
Difference (%)	-0.56	0.00	0.12	-0.30

POST TEST	LINEARITY	
	Cylinder	Instrument
	O2	
Zero	0.00	0.00
High Level	19.94	19.80
Slope	1.01	
Intercept	0.00	Status
Predicted Value	11.92	<1
Linearity (%)	0.34	PASS
	CO2	
Zero	0.00	0.00
High Level	11.96	11.96
Slope	1.00	
Intercept	0.00	Status
Predicted Value	7.00	<1
Linearity (%)	-0.27	PASS
	NOx	
Zero	0.00	0.00
High Level	23.70	23.73
Slope	1.00	
Intercept	0.00	Status
Predicted Value	13.32	<1
Linearity (%)	-0.47	PASS
	CO	
Zero	0.00	0.00
High Level	79.60	79.30
Slope	1.00	
Intercept	0.00	Status
Predicted Value	49.61	<1
Linearity (%)	-0.11	PASS

Trace Organic Species
Destruction Efficiency Results
BFI - Sunshine Canyon Landfill
Flare 3
August 28, 2007
Run 1

Species	Inlet		Outlet		
	Concentration (ppb)	Emission Rate (lb/hr)	Concentration (ppb)	Emission Rate (lb/hr)	Destruction Efficiency (%)
Hydrogen Sulfide	75300	1.18E+00	< 500	< 6.30E-02	> 94.65
Benzene	1760	6.29E-02	1.3	3.83E-04	99.39
Benzylchloride	< 100	< 5.82E-03	< 1.00	< 4.69E-04	NA
Chlorobenzene	< 60	< 3.11E-03	< 0.6	< 2.50E-04	NA
Dichlorobenzenes	248	1.67E-02	< 1.5	< 8.14E-04	> 95.13
1,1-dichloroethane	81	3.69E-03	< 0.6	< 2.19E-04	> 94.06
1,2-dichloroethane	< 60	< 2.72E-03	< 0.6	< 2.19E-04	NA
1,1-dichloroethylene	< 60	< 2.67E-03	< 0.6	< 2.15E-04	NA
Dichloromethane	489	1.91E-02	< 0.60	< 1.88E-04	> 99.01
1,2-dibromoethane	< 60	< 5.17E-03	< 0.6	< 4.16E-04	NA
Perchloroethene	538	5.85E-02	< 0.40	< 3.50E-04	> 99.40
Carbon tetrachloride	< 50	< 3.53E-03	< 0.4	< 2.27E-04	NA
Toluene	11500	4.85E-01	2.15	7.30E-04	99.849
1,1,1-trichloroethane	< 50	< 3.05E-03	< 0.4	< 1.96E-04	NA
Trichloroethene	273	1.64E-02	< 0.4	< 1.94E-04	> 98.82
Chloroform	< 50	< 2.73E-03	< 0.4	< 1.76E-04	NA
Vinyl Chloride	320	9.17E-03	< 0.6	< 1.38E-04	> 98.49
m xylenes	3970	1.93E-01	1.71	6.69E-04	99.65
o+p xylene	1290	6.27E-02	0.6	2.43E-04	99.61
TNMHC	5569000	4.09E+01	3210	1.90E-01	99.54

Note: All values preceded by "<" are below the detection limit - reported values are detection limit values.
NA--Not applicable: Destruction efficiency cannot be calculated since both inlet and outlet values are below the detection limit.

Trace Organic Species
Destruction Efficiency Results
BFI - Sunshine Canyon Landfill
Flare 3
August 28, 2007
Run 3

		INLET Flow rate	2900	dscfm		OUTLET Flow rate	23360	dscfm	
Species	Conc. (ppb)	Conc. (mg/dscf)	Em. Rate (lb/hr)		Conc. (ppb)	Conc. (mg/dscf)	Em. Rate (lb/hr)		Dest. Eff. (%)
Hydrogen Sulfide	75300	3.07E+00	1.18E+00		< 500	< 2.04E-02	< 6.30E-02		> 94.65
Benzene	1760	1.64E-01	6.29E-02		1.04	9.69E-05	3.00E-04		99.52
Benzylchloride	< 100	< 1.52E-02	< 5.82E-03		< 1.00	< 1.52E-04	< 4.69E-04		> 91.95
Chlorobenzene	< 60	< 8.10E-03	< 3.11E-03		< 0.60	< 8.10E-05	< 2.50E-04		NA
Dichlorobenzenes	248	4.36E-02	1.67E-02		< 1.50	< 2.64E-04	< 8.14E-04		> 95.13
1,1-dichloroethane	81	9.63E-03	3.69E-03		< 0.60	< 7.10E-05	< 2.19E-04		> 94.06
1,2-dichloroethane	< 60	< 7.10E-03	< 2.72E-03		< 0.60	< 7.10E-05	< 2.19E-04		NA
1,1-dichloroethylene	< 60	< 6.96E-03	< 2.67E-03		< 0.60	< 6.96E-05	< 2.15E-04		NA
Dichloromethane	489	4.97E-02	1.91E-02		< 0.60	< 6.10E-05	< 1.88E-04		> 99.01
1,2-Dibromoethane	< 60	< 1.35E-02	< 5.17E-03		< 0.60	< 1.35E-04	< 4.16E-04		NA
Perchloroethene	538	1.52E-01	5.85E-02		< 0.40	< 1.13E-04	< 3.50E-04		> 99.40
Carbon tetrachloride	< 50	< 9.20E-03	< 3.53E-03		< 0.40	< 7.36E-05	< 2.27E-04		NA
Toluene	11500	1.26E+00	4.85E-01		1.56	1.72E-04	5.30E-04		99.89
1,1,1-trichloroethane	< 50	< 7.95E-03	< 3.05E-03		< 0.40	< 6.36E-05	< 1.96E-04		NA
Trichloroethene	273	4.27E-02	1.64E-02		< 0.40	< 6.26E-05	< 1.94E-04		> 98.82
Chloroform	< 50	< 7.11E-03	< 2.73E-03		< 0.40	< 5.69E-05	< 1.76E-04		NA
Vinyl Chloride	320	2.39E-02	9.17E-03		< 0.60	< 4.48E-05	< 1.38E-04		> 98.49
m+p-xylenes	3970	5.03E-01	1.93E-01		0.68	8.61E-05	2.66E-04		99.86
o-xylene	1290	1.63E-01	6.27E-02		< 0.40	< 5.07E-05	< 1.57E-04		> 99.75
TNMHC	5569000	1.06E+02	4.09E+01		3210	6.14E-02	1.90E-01		99.54

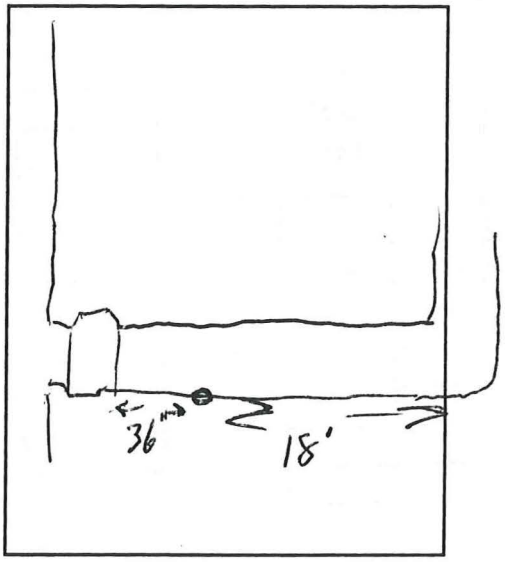
Note: All values preceded by "<" are below the detection limit. The reported values are the detection limit.
NA--Not Applicale: Destruction efficiency can not be calculated since both inlet and outlet values are below the detection limit.

VELOCITY DATA SHEET - METHOD 2

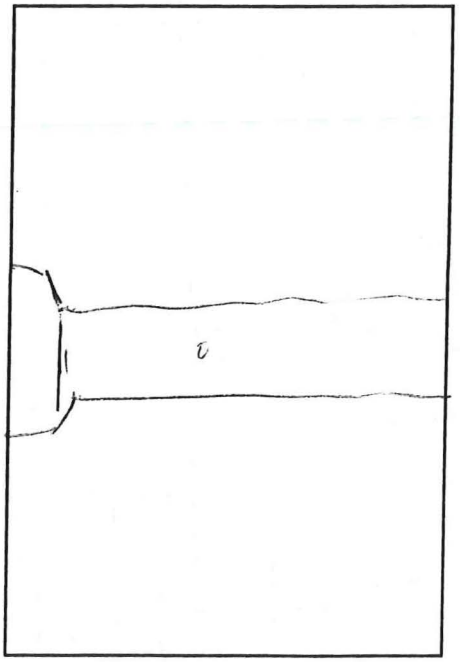
Facility:	EF1 Sunshine	**Baro. Press:**	27.56	**D_1 upstream:**	2.3
Source:	Flare 3	**Static Press:**	+7.2	**D_1 downstream:**	11.3
Job #:	B06-016	**Pitot Tube #:**	Std 18"	**Stack Diameter:**	4.6 16"
Date:	8/28/07	**Pitot Tube Type:**	Std	**Leak Check**	
Operator:	EI	**Magnahelic:**	2	**Initial:**	**Final:**
Run #:	1			✓	✓

Point #	Position in.	Velocity Head in. H_2O	Stack Temp °F	Cyclonic Flow Angle
A-8	0.5	0.20	115	
7	1.7	0.28	115	
6	3.1	0.36	115	
5	5.2	0.38	115	
4	10.8	0.42	115	
3	12.9	0.44	115	
2	14.3	0.40	115	
1	15.8	0.38	115	
Average		√ΔP=0.5941	T_s= 115	∠=

Side View



Top View



EI EI

PARTICULATE FIELD DATA

PLANT BFI Sunshine
DATE 8/29/07
LOCATION Sylmar
OPERATOR CJ
SOURCE Flare 3 out
RUN NO. 1
SAMPLE BOX NO. C11

TIME START 0915

METER BOX NO. 6
METER ΔH @ 1.562
Y= 0.988
PROBE I.D. NO. CQ-4 6-inc
NOZZLE DIAMETER, in. ~~0.497~~ 0.484
STACK DIAMETER, in. 15.6
PROBE HEATER SETTING -
HEATER BOX SETTING -
Δ Cp FACTOR 0.84
FILTER NO. 5 7030

ASSUMED MOISTURE, % 8
AMBIENT TEMPERATURE 90
BARO. PRESS. 27.56
STATIC PRESS. -0.005
NOMAGRAPH INDEX ~~0.212~~ 195

PRE TEST LEAK CHECKS
METER 2.005 @ 15 in. Hg
PITOTS ✓✓ @ 5.0 in. Hg
ORSAT

P#	TIME	T_S °F	Δ P in H_2O	√Δ P	Δ H in H_2O	Vm ft^3	$T_{m\,IN}$ °F	T_m OUT °F	OVEN °F	IMP. OUT °F	VAC. (in Hg)
A 6	0	1663	0.015		2.9	364.728	89	~~88~~	NA	57	6
5	2.5	1654	0.015		2.9	367.4	98	89		56	6
4	5.0	1660	0.015		2.9	370.1	103	89		56	6
3	7.5	1661	0.015		2.9	372.8	104	90		56	6
2	10	1658	0.01		2.0	375.4	104	90		54	4
1	12.5	1673	0.01		2.0	377.7	104	91		55	4
B 6	15	1645	0.02		3.9	375.995	100	90		56	8
5	17.5	1655	0.02		3.9	382.9	106	92		57	8
4	20	1651	0.015		2.9	386.5	105	93		56	6
3	22.5	1672	0.015		2.9	389.2	107	93		57	6
2	25	1660	0.015		2.9	391.9	108	94		58	6
1	27.5	1653	0.015		2.9	394.5	108	94		57	6
C 6	30	1657	0.020		3.9	397.363	100	95		56	8
5	32.5	1641	0.020		3.9	400.4	106	95		57	8
4	35	1639	0.020		3.9	403.9	109	95		56	8
3	37.5	1634	0.015		2.9	407.2	109	95		57	6
2	40	1651	0.015		2.9	409.4	110	95		56	6
1	42.5	1653	0.015		2.9	411.8	110	95		56	6
D 6	45	1649	0.015		2.9	414.765	103	95		57	6
5	47.5	1647	0.015		2.9	417.2	109	95		56	6
4	50	1656	0.015		2.9	419.8	110	95		56	6
3	52.5	1643	0.01		2.0	422.3	112	97		57	4
2	55	1627	0.01		2.0	425.0	112	98		56	4
1	57.5	1632	0.01		2.0	527.1	112	98		56	4
	LO	—			—	429.112	—	—		—	—
Avg.		1651.4		0.1217	2.92	64.384		99.6			

TIME END = 1024 (CSM) (CSM) (CSM) (CSM) (CSM) 2740 scfm 1650 sp

Volume of Liquid Water Collected	Impinger Volume 1	2	3	4	Silica Gel Wght. 5
Final	166	126	12		269
Initial	100	100	0		250
Liquid Collected	66	26	12		19
Total Vol. Collected					123 (CSM)

POST TEST LEAK CHECKS
Meter 2.005 @ 15 in. Hg
Pitots ✓✓ @ 6 in. Hg
Orsat

Orsat Meas.	Time	CO_2	O_2	CO	N_2
1					
2					
3					

Nozzle Cal	D_1	D_2	D_3	Average

INTEGRATED BAG SAMPLING DATA FORM

Run Number: 1

Date: 8-28-07 Plant: SUNSHINE CYN

Sampling Location: INLET - FLARE #3

Barometric Pressure: 27.56

Ambient Temp. °C: 30 Stack Temp. °C: 32

Operator: TW

Time	Traverse Point	Rate Meter Flow Rate (Q), cm^3/min.	% Dev.[a]
0	SRT	120	0
10	|	120	0
20	|	120	0
30	|	120	0
40	|	120	0
		Avg. =	0

a

$$\% \ Dev. = \left(\frac{Q - Q_{avg}}{Q_{avg}}\right) 100; \ must \ be \leq 10\%$$

H:\WPDOCS\FORMS\Integrated Bag Sampling Form.wpd

CEM TEMPERATURE DATA

Facility: SUNSHINE CYN

Date: 8-28-07

Job No.: B16-016

Run #: 1

Source: FLARE #3

Probe Temp Settings: NA

Heated Line Temp Settings: _____

		TEMPERATURES °F		
	Time	Condenser Outlet	Probe	Teflon Line
1	0	36	NA	256
2	10	34		252
3	20	35		255
4	30	35		258
5	40	37		260
6	50	36		257
7	60	35		255
8				
9				
10				
11				
12				
13				
14				
15				

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LABORATORY ANALYSIS REPORT

Organic Carbon Analysis in Water Impinger and Methane & TGNMO Analysis in SUMMA Canister Samples from Impinger/Canister Train Sample Collection

Report Date: September 25, 2007
Client: Horizon Air Measurement Services, Inc.
Client Project No.: BO6 - 016
Source Location : BFI Sunshine Canyon Landfill
Source ID: Flare outlet

Date Received: August 28, 2007
Date Analyzed: August 29, - September 11, 2007

Methane and total gaseous non-methane organics were measured by flame ionization detection/total combustion analysis (FID/TCA). Organic carbon in water vial samples were measured by Dohrman total organic carbon analyzer, water FID/TCA.

Lab No.	ID	Canister Methane	Canister Ethane	Canister TGNMO	Impinger Carbon	Impinger Volume	P_1	P2
			(concentration, ppmv)			(ml)		
02407-18	S11	<1	<1	<1	---	---	497	820
	Impinger H98	---	---	---	2.55	2.30	--	--
02407-19	S19	<1	<1	<1	---	---	469	820
	Impinger H99	---	---	---	1.87	2.57	--	--

TGNMO is total gaseous non-methane organics (excluding ethane), reported as ppmv carbon. Ethane is reported as ppmv carbon.
** Note - Impinger sample results are not field blank corrected. The field blank (impinger H30) contained 1.21 ug carbon, corresponding to 0.63 ppm carbon for a 3.88 liter sample.*
P_1 and P_2 are initial and final pressures measured in mm Hg.

Michael L. Porter
Laboratory Director

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LABORATORY ANALYSIS REPORT

SCAQMD Rule 1150.1 Components Analysis in Outlet Tedlar Bag Sample

Report Date: September 20, 2007
Client: Horizon Air Measurement Services
Project Location: BFI / Sunshine Cyn LF
Client Project No.: B06-016
Date Received: August 28, 2007
Date Analyzed: August 30-September 1, 2007

AtmAA Lab No.:	02407-20	02407-21	02407-22
Sample I.D.:	Sample B6-16-TB-O-1	Sample B6-16-TB-O-2	Sample B6-16-TB-O-3
Components	*(Concentration in ppbv)*		
Hydrogen sulfide	<500	<500	<500
Benzene	1.33	1.25	1.04
Benzylchloride	<1	<1	<1
Chlorobenzene	<0.6	<0.6	<0.6
Dichlorobenzenes*	<1.5	<1.5	<1.5
1,1-dichloroethane	<0.6	<0.6	<0.6
1,2-dichloroethane	<0.6	<0.6	<0.6
1,1-dichloroethylene	<0.6	<0.6	<0.6
Dichloromethane	<0.6	<0.6	<0.6
1,2-dibromoethane	<0.6	<0.6	<0.6
Perchloroethylene	<0.4	<0.4	<0.4
Carbon tetrachloride	<0.4	<0.4	<0.4
Toluene	2.15	2.09	1.56
1,1,1-trichloroethane	<0.4	<0.4	<0.4
Trichloroethene	<0.4	<0.4	<0.4
Chloroform	<0.4	<0.4	<0.4
Vinyl chloride	<0.6	<0.6	<0.6
m+p-xylenes	1.71	0.94	0.68
o-xylene	0.62	<0.4	<0.4

** total amount containing meta, para, and ortho isomers*

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LABORATORY ANALYSIS REPORT

SCAQMD Rule 1150.1 Components Analysis in Inlet Gas Tedlar Bag Sample

Report Date: September 20, 2007
Client: Horizon Air Measurement Services
Project Location: BFI / Sunshine Cyn LF
Client Project No.: B06-016
Date Received: August 28, 2007
Date Analyzed: August 30-September 1, 2007

AtmAA Lab No.:	02407-23
Sample I.D.:	Sample B6-16-TB-I-1
Components	*(Concentration in ppmv)*
Hydrogen sulfide	75.3
	(Concentration in ppbv)
Benzene	1760
Benzylchloride	<100
Chlorobenzene	<60
Dichlorobenzenes*	248
1,1-dichloroethane	81.4
1,2-dichloroethane	<60
1,1-dichloroethylene	<60
Dichloromethane	489
1,2-dibromoethane	<60
Perchloroethylene	538
Carbon tetrachloride	<50
Toluene	11500
1,1,1-trichloroethane	<50
Trichloroethene	273
Chloroform	<50
Vinyl chloride	320
m+p-xylenes	3970
o-xylene	1290

** total amount containing meta, para, and ortho isomers*

Michael L. Porter
Laboratory Director

QUALITY ASSURANCE SUMMARY
(Repeat Analyses)

Client Project No.: B06-016
Date Received: August 28, 2007
Date Analyzed: August 30-September 1, 2007

Components	Sample ID	Repeat Analysis Run #1	Repeat Analysis Run #2	Mean Conc.	% Diff. From Mean
		(Concentration in ppbv)			
Benzene	B6-16-TB-I-1	1800	1720	1760	2.3
Benzylchloride	B6-16-TB-I-1	<100	<100	---	---
Chlorobenzene	B6-16-TB-I-1	<60	<60	---	---
Dichlorobenzenes	B6-16-TB-I-1	223	273	248	10
1,1-dichloroethane	B6-16-TB-I-1	74.6	88.1	81.4	8.3
1,2-dichloroethane	B6-16-TB-I-1	<60	<60	---	---
1,1-dichloroethylene	B6-16-TB-I-1	<60	<60	---	---
Dichloromethane	B6-16-TB-I-1	449	529	489	8.2
1,2-dibromoethane	B6-16-TB-I-1	<60	<60	---	---
Perchloroethylene	B6-16-TB-I-1	520	556	538	3.3
Carbon tetrachloride	B6-16-TB-I-1	<50	<50	---	---
Toluene	B6-16-TB-I-1	11200	11800	11500	2.6
1,1,1-trichloroethane	B6-16-TB-I-1	<50	<50	---	---
Trichloroethene	B6-16-TB-I-1	258	288	273	5.5
Chloroform	B6-16-TB-I-1	<50	<50	---	---
Vinyl chloride	B6-16-TB-I-1	304	335	320	4.8
m+p-xylenes	B6-16-TB-I-1	3580	4360	3970	9.8
o-xylene	B6-16-TB-I-1	1160	1420	1290	10

AtmAA Inc.
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environmental consultants
laboratory services

LABORATORY ANALYSIS REPORT

Speciated Hydrocarbons Analysis in Tedlar Bag Samples

Report Date: September 25, 2007
Client: Horizon Air Measurement Services
Site: BFI Sunshine Canyon Landfill
Project No.: BO6-016

Date Received: August 28, 2007
Date Analyzed: August 28, & 29, 2007

ANALYSIS DESCRIPTION

Hydrocarbon Speciation analysis was performed by flame ionization detection/gas chromatography (FID/GC), modified EPA-18.

AtmAA Lab No.:	02407-23	(repeat)
Sample ID:	TB-I-1 Inlet	TB-I-1 Inlet
	(Concentration in ppmv, component)	
Methane	446000	446000
non-methane hydrocarbons analysis by carbon number grouping		
C2	2.46	2.55
C3	35.43	35.44
C4	18.98	18.58
C5	115.9	97.07
C6	120.5	100.9
>C6	582.8	568.1
TNMNE	5564	5248
TNMHC	5569	5253

TNMNE - total non-methane, non-ethane, hydrocarbons as ppmv methane.
TNMHC - total non-methane hydrocarbons as ppmv methane.

Michael L. Porter
Laboratory Director

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BFI	Sunshine Cyn L.F

Project No.	Field Logbook No.
B06 016	

Sampler: (Signature)	Chain of Custody Tape No.
[signature]	

ANALYSES

Sample No./ Identification	Date	Time	Lab Sample Number	Type of Sample	Fill	Scaqmd 25.3	trap #	EPA TO 15 (ISSD.L list)	AQMD 307.91	ASTM D3588/D1945	REMARKS
Summa 11	8/28/07		02407-18	Summa	1.0	X	H98				Summa
Summa 19	8/28/07		-19	Summa	1.0	X	H98				Summa
B6·16·TB·O·1			-20	Tedlar bag				X			Flare Out
B6·16·TB·O·2			-21	↓				X			"
B6·16·TB·O·3			-22	↓				X			"
B6·16·TB·I·1			-23	↓				X	X	X	Flare In
Blank H2O			-24	↓		X					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	8/28/07	1150			
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received for Laboratory: (Signature)	Date	Time
			[signature]	8.28.07	1150
Sample Disposal Method:			Disposed of by: (Signature)	Date	Time

SAMPLE COLLECTOR

HORIZON AIR MEASUREMENT SERVICES, INC
996 Lawrence Drive, Suite 108
Newbury Park, CA 91320
(805) 498-8781 Fax (805) 498-3173

ANALYTICAL LABORATORY

AtmAA

№ 09598

DATA SHEET FOR PARTICULATE MATTER SCAQMD METHOD 5.1

DATE SAMPLED: 08/29/07
DATE EXTRACTED: 09/04/07

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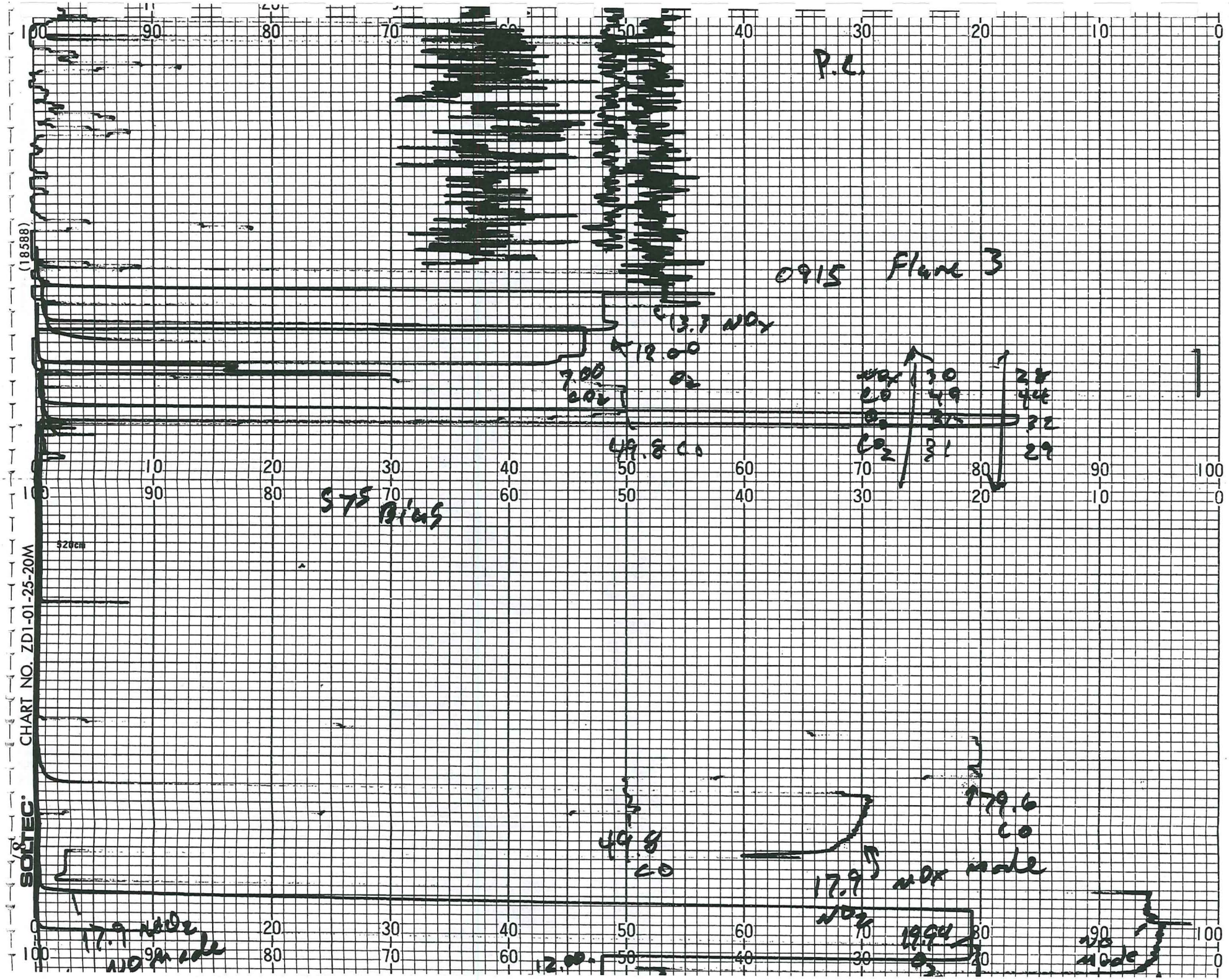
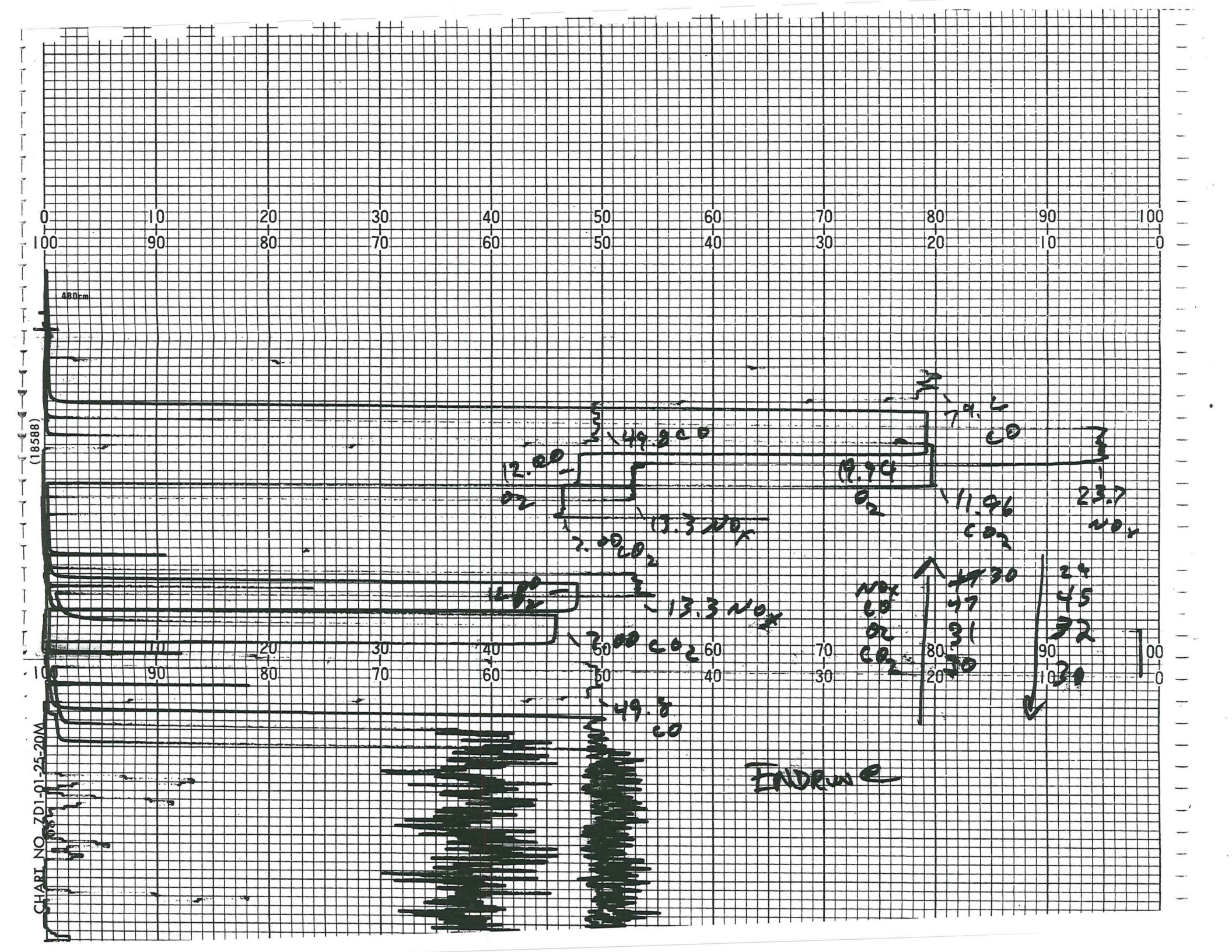
	SAMPLE ID	BEAKER/ FILTER ID	VOLUME	INITIAL	FINAL	NET WEIGHT(g)
A - FILTER CATCH	B6-16-M5-PF-B	Q6017	NA	0.1489	0.1486	0.0000
FILTER ACID						0.0000
FILTER SULFATE						
						0.0000
B - PROBE CATCH						0.0000
PROBE ACID						
PROBE SULFATE						0.0000
C - IMP.CATCH(INSOL)	B6-16-M5-EF-B	Q62	250	0.1509	0.1506	0.0000
INSOLUBLE ACID						0.0000
INSOLUBLE SULFATE						0.0000
D - IMP. CATCH (SOL)	B6-16-M5-DI-B	B7091	250	30.0485	30.0483	0.0000
SOLUBLE ACID						0.0000
SOLUBLE SULFATE						0.0000
E - ORGANIC EXTRACT						0.0000
TOTAL PARTICULATE	(A+B+C+D+E)					0.0000
SOLID PARTICULATE	(A+B+C+D)					0.0000

APPENDIX E - Operating Data

APPENDIX F - Strip Chart Records


P.L.
0915 Flame 3
13.7 NOx
12.00
7.00
20.2
49.8 CO
STS Bias
49.8
CO
17.9 NOx mode
17.9 NOx
19.6
CO
12.00


480cm
(18588)
CHART NO. ZD1-01-25-20M
49.8 CO
12.00 O2
13.3 NOx
2.00 CO2
13.3 NOx
2.00 CO2
49.8 CO
11.96 O2
11.96 CO2
23.7 NOx
ENDURANCE

Praxair
5700 South Alameda Street
Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS ES

CUSTOMER HORIZON AIR MEASUREMENTS **P.O NUMBER** 9048

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
NITRIC OXIDE GMIS	vs.SRM#2628	CC 149122	10.57 ppm

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. **COMPONENT** NITRIC OXIDE GMIS **ANALYZER MAKE-MODEL-S/N** THERMO ENV. 42C S/N 0518112467

ANALYTICAL PRINCIPLE CHEMILUMINESCENCE **LAST CALIBRATION DATE** 03/01/07

FIRST ANALYSIS DATE 03/06/07 **SECOND ANALYSIS DATE** 03/14/07

Z 0	R 10.66	C 13.43	CONC. 13.3		Z 0	R 10.65	C 13.37	CONC. 13.3	
R 10.66	Z 0	C 13.39	CONC. 13.3		R 10.66	Z 0	C 13.38	CONC. 13.3	
Z 0	C 13.40	R 10.66	CONC. 13.3		Z 0	C 13.39	R 10.66	CONC. 13.3	
U/M ppm		MEAN TEST ASSAY 13.3			U/M ppm			MEAN TEST ASSAY 13.3	

VALUE NOT VALID BELOW 150 PSIG.
NOX VALUE FOR REFERENCE USE ONLY.

THIS CYLINDER NO. CC 145749
HAS BEEN CERTIFIED ACCORDING TO SECTION EPA-600/R97/121
OF TRACEABILITY PROTOCOL NO. Rev. 9/97
PROCEDURE G1
CERTIFIED ACCURACY ± 1 **% NIST TRACEABLE**
CYLINDER PRESSURE 2000 **PSIG**
CERTIFICATION DATE 03/14/07
EXPIRATION DATE 03/14/09 **TERM** 24 MONTHS

CERTIFIED CONCENTRATION

NITRIC OXIDE	13.3 ppm
NITROGEN	BALANCE
NOx	13.3 ppm

ANALYZED BY HENRY KOUNG ***CERTIFIED BY*** PHI KIM

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Los Angeles, CA 90058
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CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER HORIZON AIR MEASUREMENTS **P.O NUMBER** 8952

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE GMIS	vs.SRM#1679	CC 155880	99.4 ppm
NITRIC OXIDE GMIS	vs.SRM#1683	CC 108042	50.6 ppm

ANALYZER READINGS

R=REFERENCE STANDARD *Z=ZERO GAS* *C=GAS CANDIDATE*

1. **COMPONENT** CARBON MONOXIDE GMIS **ANALYZER MAKE-MODEL-S/N** HORIBA, VIA-510, S/N 576876015
   ANALYTICAL PRINCIPLE NDIR **LAST CALIBRATION DATE** 09/11/06
   FIRST ANALYSIS DATE 02/22/06 **SECOND ANALYSIS DATE** 09/28/06

Z 0.0	R 99.0	C 49.9	CONC. 49.9	Z 0.0	R 99.4	C 49.6	CONC. 49.6
R 99.0	Z 0.0	C 49.9	CONC. 49.9	R 99.4	Z 0.0	C 49.6	CONC. 49.6
Z 0.0	C 50.0	R 99.0	CONC. 50.0	Z 0.0	C 49.6	R 99.4	CONC. 49.6
U/M ppm		MEAN TEST ASSAY 49.9		U/M ppm		MEAN TEST ASSAY 49.6	

2. **COMPONENT** NITRIC OXIDE GMIS **ANALYZER MAKE-MODEL-S/N** BECKMAN 951A S/N#0101354
   ANALYTICAL PRINCIPLE CHEMILUMINESCENCE **LAST CALIBRATION DATE** 09/11/06
   FIRST ANALYSIS DATE 02/22/06 **SECOND ANALYSIS DATE** 09/28/06

Z 0.0	R 540.9	C 547.9	CONC. 50.4	Z 0.0	R 671.0	C 670.0	CONC. 50.5
R 541.2	Z 0.0	C 549.0	CONC. 50.5	R 673.0	Z 0.0	C 671.0	CONC. 50.4
Z 0.0	C 549.8	R 541.6	CONC. 50.6	Z 0.0	C 672.0	R 677.0	CONC. 50.2
U/M mV		MEAN TEST ASSAY 50.5		U/M mV		MEAN TEST ASSAY 50.4	

Values not valid below 150 psig.
NOx value for reference use only.
CO,NO first analysis done vs. 99.0 ppm,49.8 ppm GMIS respectively

THIS CYLINDER NO. CC 200266
HAS BEEN CERTIFIED ACCORDING TO SECTION EPA-600/R97/121
OF TRACEABILITY PROTOCOL NO. Rev. 9/97
PROCEDURE G1
CERTIFIED ACCURACY ± 1 **% NIST TRACEABLE**
CYLINDER PRESSURE 2000 **PSIG**
CERTIFICATION DATE 09/28/06
EXPIRATION DATE 09/28/08 **TERM** 24 MONTHS

CERTIFIED CONCENTRATION

CARBON MONOXIDE	49.8 ppm
NITRIC OXIDE	50.5 ppm
NITROGEN	BALANCE
NOx	51.3 ppm

ANALYZED BY GEORGE WAHBA *CERTIFIED BY* PHU TIEN NGUYEN

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6/2/2006

HORIZON AIR
455 E WOOLEY RD
OXNARD, CA 93030
USA

Praxair Order No. **410897-00**
Customer Reference No.
Intended End User: **Horizon Air**

Product Lot/Batch No. **109517305**
Praxair Part No. **EV NINX19MP-AS**

CERTIFICATE OF ANALYSIS
Primary Standard

Component	Requested Concentration	Certified Concentration	Analytical Principle	Analytical Accuracy
Nitrogen dioxide (as NOx)	**19 ppm**	**17.9 ppm**	**U**	**±1%**
Nitrogen	**balance**	**balance**		

Analytical Instruments: **Thermo Environmental~42H~S/N 44979-273 ~Chemiluminescence**
Cylinder Style: **AS**
Cylinder Pressure @70F: **2000 psig**
Cylinder Volume: **141 ft3**
Valve Outlet Connection: **CGA-660**
Cylinder No(s). **CC 141408**
Comments: **All values not valid below 150 psig.**
NO=0.9 ppm value for reference use only.

Filling Method: **Gravimetric**
Date of Fill: **6/22/2005**
Expiration Date: **6/5/2008**

Analyst: **Henry Koung**

QA Reviewer: **Phu Tien Nguyen**

The gas calibration cylinder standard prepared by Praxair Distribution is considered a certified standard. It is prepared by gravimetric, volumetric, or partial pressure techniques. The calibration standard provided is certified against Praxair Reference Materials which are either prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

Note: All expressions for concentration (e.g., % or ppm) are for gas phase, by volume (e.g., ppmv) unless otherwise noted.

Key to Analytical Techniques:

A	Flame Ionization with Methanizer	B	Gas Chromatography with Discharge Ionization Detector	C	Gas Chromatography with Electrolytic Conductivity Detector	D	Gas Chromatography with Flame Ionization Detector
E	Gas Chromatography with Flame Photometric Detector	F	Gas Chromatography with Helium Ionization Detector	G	Gas Chromatography with Methanizer Carbonizer	H	Gas Chromatography with Photoionization Detector
I	Gas Chromatography with Reduction Gas Analyzer	J	Gas Chromatography with Thermal Conductivity Detector	K	Gas Chromatography with Ultrasonic Detector	L	Infrared - FTIR or NDIR
M	Mass Spectrometry - MS or GC/MS	N	Proprietary	O	Paramagnetic	P	Specific Water Analyzer
Q	Total Hydrocarbon Analyzer	R	Wet Chemical	S	Detector Tube	T	Odor
U	Chemiluminescence	V	Gravimetric	W	Electrolytic Cell/Electrochemical	X	Photoionization
Y	Pulsed Fluorescence	Z	UV Spectrometry				

PRAXAIR

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CERTIFICATE OF ANALYSIS

CUSTOMER HORIZON AIR MEASUREMENTS

DATE 05/12/04

P.O NUMBER

REF. NUMBER 67757400

REQUESTED COMPOSITION

GAS	CONCENTRATION
CARBON DIOXIDE	12 %
OXYGEN	20 %
NITROGEN	BALANCE
ANALYTICAL ACCURACY	±0.02%abs

ANALYTICAL METHOD

INSTRUMENT	ANALYTICAL PRINCIPLE
Mettler ID5, S/N:1865166	Gravimetric
Mettler ID5, S/N:1865166	Gravimetric

Values not valid below 150 psig.

THIS CYLINDER NO.	SA 4023
CYLINDER PRESSURE	2000 **PSIG**
EXPIRATION DATE	12/31/07
CLASSIFICATION	PRIMARY STANDARD
BATCH NUMBER	N/A
LOT NUMBER	109413304
PART NUMBER	NI CDOXP80-AS
CYLINDER SIZE	AS **CGA** 590 152 **CFT**

CERTIFIED CONCENTRATION

CARBON DIOXIDE	11.96 %
OXYGEN	19.94 %
NITROGEN	BALANCE
ANALYTICAL ACCURACY	±0.02%abs

ANALYZED BY JACK FU

CERTIFIED BY TY TRIPLETT

APEX INSTRUMENTS METHOD 5 PRE-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
5-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522/MB06
Console Serial Number	507121
DGM Model Number	T110
DGM Serial Number	1029313

Calibration Conditions			
Date	Time	3-Jul-07	12:20:00 PM
Barometric Pressure		29.2	in Hg
Theoretical Critical Vacuum[1]		13.8	in Hg
Calibration Technician		BJ - Run#3	

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

[1]For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.

[2]The Critical Orifice Coefficient, K', must be entered in English units, $(ft^3R^{1/2})/(in.Hg*min)$.

Calibration Data										
Run Time	Metering Console					Critical Orifice				
Elapsed	DGM Orifice ΔH	Volume Initial	Volume Final	Outlet Temp Initial	Outlet Temp Final	Serial Number	Coefficient	Amb Temp Initial	Amb Temp Final	Actual Vacuum
(Θ)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})		K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F		see above2	°F	°F	in Hg
20.0	0.2	510.750	516.961	80	83	RN-40	0.2333	83	84	24
16.0	0.5	516.961	524.331	82	83	RN-48	0.3455	84	84	22
20 0	0.9	524.331	536.164	83	86	RN-55	0.4431	84	84	20
15.0	1.7	536.164	548.207	84	90	RN-63	0.6003	84	84	18
28.0	2.9	548.207	577.670	85	96	RN-73	0.7827	84	85	16

Results								
Standardized Data				Dry Gas Meter				
				Calibration Factor		Flowrate	ΔH @	
Dry Gas Meter		Critical Orifice		Value	Variation	Std & Corr	0.75 SCFM	Variation
($V_{m(std)}$)	($Q_{m(std)}$)	($Vcr_{(std)}$)	($Q_{cr(std)}$)	(Y)	(ΔY)	($Q_{m(std)(corr)}$)	(ΔH@)	(ΔΔH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
5.910	0.296	5.838	0.292	0.988	0.000	0.292	1.447	-0.116
7.006	0.438	6.914	0.432	0.987	-0.001	0.432	1.550	-0.013
11.218	0.561	11.083	0.554	0.988	0.000	0.554	1.585	0.023
11.387	0.759	11.262	0.751	0.989	0.001	0.751	1.612	0.050
27.752	0.991	27.396	0.978	0.987	-0.001	0.978	1.618	0.056
				0.988	Y Average		1.562	ΔH@ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

Signature _____ Date 7-3-07

Nozzle Calibration Data
Continuous Quartz

Date: 07/26/07
Calibrated by: BJ

QUARTZ NOZZLES

NOZZLE ID	D1 ±.001	D2 ±.001	D3 ±.001	Delta D (.004 Max)	Avg. D
CQ-1 (10')	1.027	1.020	1.026		1.024
CQ-2 (10')	1.009	1.009	1.006		1.008
CQ-3 (10')	1.051	1.049	1.051		1.050
CQ-4 (10')	0.996	0.990	0.997		0.994
CQ-5 (10')	1.034	1.036	1.032		1.034
CQ-7 (6')	1.021	1.022	1.021		1.021
CQ-8 (6')	1.054	1.054	1.056		1.055
CQ-9 (6')	1.053	1.052	1.052		1.052

APPENDIX H - Permit to Operate

CONTINUATION OF PERMIT TO OPERATE

2) THIS EQUIPMENT SHALL BE PROPERLY MAINTAINED AND KEPT IN GOOD OPERATING CONDITION AT ALL TIMES.

3) THIS EQUIPMENT SHALL BE OPERATED AND MAINTAINED BY PERSONNEL PROPERLY TRAINED IN ITS OPERATION.

4) A SET OF FOUR SAMPLING PORTS SHALL BE INSTALLED IN THE FLARE SHROUD AND LOCATED AT LEAST TWO FEET ABOVE THE FLAME ZONE AND AT LEAST SIX AND ONE HALF FEET BELOW THE TOP OF THE FLARE SHROUD. EACH PORT SHALL CONSIST OF A FOUR-INCH COUPLING WITH PLUG. ADEQUATE AND SAFE ACCESS TO ALL SOURCE TEST PORTS SHALL BE PROVIDED WITHIN 24 HOURS OF A REQUEST BY THE AQMD TO CONDUCT A TEST

5) A SAMPLING PORT SHALL BE MAINTAINED AT THE INLET GAS LINE TO THE FLARE TO ALLOW LANDFILL GAS SAMPLEING AND FLOW MEASUREMENT.

6) THE FLARE SHALL BE EQUIPPED WITH A TEMPERATURE INDICATOR AND RECORDER WHICH MEASURES AND RECORDS THE GAS TEMPERATURE IN THE FLARE STACK. THE TEMPERATURE INDICATOR AND RECORDER SHALL OPERATE WHENEVER THE FLARE IS IN OPERATION. THE THERMOCOUPLE USED TO MEASURE THE TEMPERATURE SHALL BE AT LEAST TWO FEET ABOVE THE FLAME ZONE AND AT LEAST SIX AND ONE HALF FEET BELOW THE TOP OF THE FLARE SHROUD AND AT LEAST 0.6 SECONDS DOWNSTREAM OF THE BURNER.

7) WHENEVER THE FLARE IS IN OPERATION, A TEMPERATURE OF NOT LESS THAN 1600 DEGREES F, AS MEASURED BY THE TEMPERATURE INDICATOR AND RECORDER, SHALL BE MAINTAINED IN THE FLARE STACK.

8) THE SKIN TEMPERATURE OF THE FLARE SHROUD WITHIN FOUR FEET OF ALL THE SOURCE TEST PORTS SHALL NOT EXCEED 250 DEGREES F. IF A HEAT SHIELD IS REQUIRED TO MEET THIS REQUIREMENT, ITS DESIGN SHALL BE APPROVED BY THE AQMD PRIOR TO CONSTRUCTION. THE HEAT SHIELD, IF REQUIRED TO MEET THE TEMPERATURE REQUIREMENT, SHALL BE IN PLACE WHENEVER A SOURCE TEST IS CONDUCTED BY THE AQMD.

9) A SUFFICIENT NUMBER OF SIGHT GLASS WINDOWS SHALL BE MAINTAINED IN THE FLARE TO ALLOW VISUAL INSPECTION OF THE FLAME WITHIN THE FLARE AT ALL TIMES. PERMANENT AND SAFE ACCESS SHALL BE PROVIDED FOR ALL SIGHT GLASS WINDOWS.

10) A FLOW INDICATOR AND RECORDER SHALL BE MAINTAINED IN THE LANDFILL GAS SUPPLY LINE TO THE FLARE TO MEASURE AND RECORD THE GAS FLOW RATE (IN SCFM) TO THE FLARE AND SHALL OPERATE WHENEVER THE FLARE IS IN OPERATION.

11) THE TOTAL VOLUME OF LANDFILL GAS BURNED IN THE FLARE SHALL NOT EXCEED 4,167 STANDARD CUBIC FEET PER MINUTE.

CONTINUATION OF PERMIT TO OPERATE

16) A PRESSURE DIFFERENTIAL INDICATOR SHALL BE MAINTAINED ACROSS THE PARTICULATE FILTER.

17) A PRESSURE DIFFERENTIAL INDICATOR SHALL BE MAINTAINED ACROSS THE FLAME ARRESTOR.

18) THE HEAT RELEASE OF LANDFILL GAS BURNED IN THIS FLARE SHALL NOT EXCEED 105 MILLION BTU/HR.

19) LANDFILL GAS ENTERING THE FLARE SHALL BE ANALYZED WEEKLY FOR HEATING VALUE AND METHANE CONCENTRATION. RESULTS SHALL BE RECORDED AND PROVIDED TO THE AQMD UPON REQUEST.

20) ALL RECORDING DEVICES SHALL BE SYNCHRONIZED WITH RESPECT TO THE TIME OF DAY.

21) ALL RECORDS SHALL BE KEPT FOR A PERIOD OF AT LEAST TWO (2) YEARS AND SHALL BE MADE AVAILABLE TO THE AQMD UPON REQUEST. A RECORD OF THE HOURS OF FLARE OPERATION SHALL BE INCLUDED.

22) ANY BREAKDOWN OR MALFUNCTION OF THE LANDFILL GAS FLARE SYSTEM RESULTING IN THE EMISSION OF RAW LANDFILL GAS SHALL BE REPORTED TO THE AQMD WITHIN ONE HOUR AFTER OCCURRENCE, AND IMMEDIATE REMEDIAL MEASURES SHALL BE UNDERTAKEN TO CORRECT THE PROBLEM AND PREVENT FURTHER EMISSIONS INTO THE ATMOSPHERE.

NOTICE

IN ACCORDANCE WITH RULE 206, THIS PERMIT TO OPERATE OR COPY SHALL BE POSTED ON OR WITHIN 8 METERS OF THE EQUIPMENT.

THIS PERMIT DOES NOT AUTHORIZE THE EMISSION OF AIR CONTAMINANTS IN EXCESS OF THOSE ALLOWED BY DIVISION 26 OF THE HEALTH AND SAFETY CODE OF THE STATE OF CALIFORNIA OR THE RULES OF THE AIR QUALITY MANAGEMENT DISTRICT. THIS PERMIT CANNOT BE CONSIDERED AS PERMISSION TO VIOLATE EXISTING LAWS, ORDINANCES, REGULATIONS OR STATUTES OF OTHER GOVERNMENT AGENCIES.

EXECUTIVE OFFICER

Dorris M Bailey

By Dorris M. Bailey/tk01
11/18/1999

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