

AP-42 Test Data - Submission Checklist		
FACILITY INFORMATION		
Landfill Name: Vasco Road Landfill		
Location: 4001 North Vasco Road, Livermore, CA 94550		
Owner: Republic Services	LFG Operator: Republic Services	
Contact Person: Michael O'Connor	Address: 3843 Brickway Blvd, Ste, 208, Santa Rosa, CA	
Email: moconnor@scsengineers.com	Phone: 707-546-9461	Fax:
Year Opened:	Year Gas Collection Started:	
Gas Collection Control Device Description: LFG Fire Flare		
Co disposal: ☐ Yes ☐ No ☒ Unknown		
ADMINISTRATIVE INFORMATION		
Complete test reports must be submitted (see footnote ¹)		
Sampling Date: 8/8 & 24/06	Analysis Date: 8/24 & 25/06, 9/6/06	
Description of sampling site: LFG Flare		
Description of sampling method: Continuous emissions monitoring		
QA/QC data included: ☒ Yes ☐ No		
Chain of Custody included: ☒ Yes ☐ No		
DATA SUMMARY		
Type of Data: ☐ Header Draw ☐ Punch Probe (this data does not presently meet EPA requirements) ☒ Stack Test ☐ Other:		
Header Draw data:		Raw LFG Constituent data:
NMOC data: ☐ Yes ☐ No NMOC (ppm as hexane):		☐ Yes ☐ No Sulfur Compound data: ☐ Yes ☐ No
NMOC Test Method:	LFG Test Methods:	
Stack Testing data:		
Device Tested (Flare , IC Engine, Turbine, Boiler):		
Concentration (ppm)		
NOx: 10.16 @ 15% O2	SOx:	
CO: <3.02 @ 15% O2	Dioxin/furans: NS	
PM: NS	Aldehydes/metals: NS	
Was sampling conducted after the control device? (Y/N): Y		
Test Methods: BAAQMD Methods ST-7, ST13A, 14 & 16 and Modified EPA TO-15 & D-5504		

¹ According to USEPA, complete test reports should contain, at a minimum: Landfill name; physical description of the landfill, gas collection system and control device; description of sampling site and methods used to take samples; a sample matrix showing date of test and methods used for analysis; data results tables and discussion of results, identifying any data qualifiers or unusual circumstances affecting results; and QA/QC items such as field notes, laboratory notes, and a test QAPP or documentation of field and laboratory QA/QC procedures, including equipment calibrations and blank or spiked sample results.

VASCO ROAD LANDFILL
Livermore, CA

Compliance Emissions Test Report
One Landfill Gas Fired Flare
NOx, CO & THC Emission Results
Complete Landfill Gas Characterization

Test Date(s): August 8 & 24, 2006
Report Date: October 6, 2006

Performed and Reported by:

BEST ENVIRONMENTAL (BE)
6261 Southfront Road
Livermore, CA 94551
Phone: (925) 455-9474
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Prepared For:

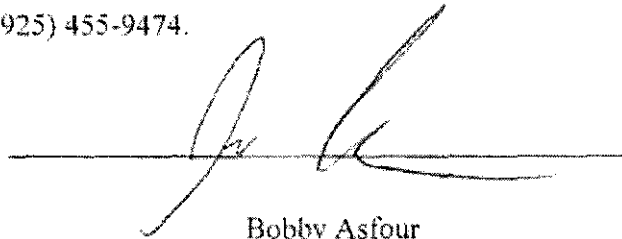
Republic Services
Vasco Road Landfill
4001 North Vasco Road
Livermore, CA 94550
Attn: Diana Ratto

For Submittal To:

Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

REVIEW AND CERTIFICATIONTeam Leader:

The work performed herein was conducted under my supervision, and I certify that the details and results contained within this report are to the best of my knowledge an authentic and accurate representation of the test program. If this report is submitted for Compliance purposes it should only be reproduced in its entirety. If there are any questions concerning this report, please call the Team Leader or Reviewer at (925) 455-9474.

A handwritten signature in black ink, appearing to read 'Bobby Asfour', is written over a horizontal line.

Bobby Asfour
Project Manager

Reviewer:

I have reviewed this report for presentation and accuracy of content, and hereby certify that to the best of my knowledge the information is complete and correct.

Regan Best
Source Test Manager

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SECTION 1. INTRODUCTION**1.1. Test Purpose**

Best Environmental was contracted by Republic Services to perform emissions testing on one landfill gas flare to comply with Bay Area Air Quality Management District (BAAQMD) Regulation # 8-34-301.3 and condition # 818. A copy of the Permit is included in the appendices.

1.2. Test Location

The testing was conducted on the flare located at the Vasco Road Landfill, 4001 North Vasco Road, Livermore, CA 94550. (Facility #5095)

The flare is used to incinerate landfill gas that is generated from the decomposition of waste.

1.3. Test Date(s)

Testing was conducted on August 8 & 24, 2006.

1.4. Pollutants Tested

The following emission parameters were measured:

Parameter	Monitoring & Analytical Protocols
THC, NO _x , CO & O ₂	BAAQMD Methods ST-7, 13A, 14 & 6
DSCFM	EPA Method 19 (exhaust)
Inlet TNMHC	EPA Method 25C
Fixed Gases, Btu/CF & F Factor	ASTM D-1945 & 3588
LFG organics & TRS compounds	Modified EPA TO-15 & D-5504

1.5. Sampling and Observing Personnel

Sampling was performed by Bobby Asfour and Eddy Asfour of BEST ENVIRONMENTAL (BE).

The BAAQMD was notified of the test date, however, there was no representative present to witness the test program.

1.6. Other Important Background Information

SCS Field Services performs all flare maintenance. Last years source test was performed on July 27, 2005.

SECTION 2. SUMMARY OF RESULTS

2.1. Emission Results

Table 2.1:

Parameter	Average Results	Limits
NOx, ppm @ 15% O ₂	10.16	11
NOx, lbs/MMBtu	0.0417	0.05
NOx, lbs/day	29.35	92
CO, lbs/day	<5.22	460.1
TNMHC, ppm @ 3% O ₂ as Methane	2.78	30
TNMHC Destruction Efficiency	98.672%	98%
Landfill Gas Characterization (inlet)		
Hydrogen Sulfide, ppm	53	80
Carbon Disulfide, ppb	<400	N/A
Carbonyl Sulfide, ppb	<400	N/A
Methyl Mercaptan, ppb	550	N/A
Ethyl Mercaptan, ppb	<400	N/A
Dimethyl Sulfide, ppb	950	N/A
Total Reduced Sulfur as H ₂ S, ppm	57	320
Acrylonitrile, ppb*	N/D	
Benzene, ppb*	1600	N/A
Benzyl Chloride, ppb	120	
Carbon Tetrachloride, ppb*	N/D	N/A
Chlorobenzene, ppb	120	N/A
Chlorodifluoromethane, ppb	1200	N/A
Chloroethane, ppb	130	N/A
Chloroform, ppb	N/D	N/A
1,1-Dichloroethane, ppb	85	N/A
1,1-Dichloroethene, ppb	N/D	N/A
1,2-Dichloroethane, ppb	N/D	N/A
1, 4-Dichlorobenzene, ppb	160	N/A
Dichlorodifluoromethane, ppb	85	N/A
Dichlorofluoromethane	360	
Ethyl Benzene, ppb	36000	N/A
1,2-Dibromoethane(ethylene dibromide), ppb (EDB)	N/D	N/A
Fluorotrichloromethane	1000	
Hexane, ppb	800	N/A
Isopropyl Alcohol	11000	
2-Butanone (Methyl Ethyl Ketone), ppb	7800	N/A
Methylene Chloride, ppb	150	N/A
Perchloroethylene	310	
Toluene, ppb	11000	N/A
1,1,1-Trichloroethane, ppb	N/D	N/A
1,1,2,2-Tetrachloroethane, ppb	N/D	N/A
Trichloroethylene, ppb	470	
Vinyl Chloride, ppb	420	N/A
m, p-Xylene, ppb	5700	N/A
o-xylene, ppb	1900	N/A

A more extensive summary of the emissions is presented in Tables 1 & 2 on pages 7 & 8.

2.2. Process Data

The flare temperature and fuel flow rate on the flare control panel was recorded during every run.

Table 2.2:

Parameter	Fuel Flow Meter, SCFM	Flare Temp., °F
Run # 1	1445	1500
Run # 2	1447	1521
Run # 3	1441	1531

2.3. Allowable Emissions

See Table 2.1 above. The test results show that the flare is operating within the PTO gaseous emission limit and is therefore in compliance. The complete landfill gas characterization can be found in Table 2.1 above.

2.4. Comments: Discussion of Quality Assurance and Errors

Quality assurance procedures listed in the above referenced test methods and referenced in the Source Test Plan were performed and documented. The QA/QC procedures are described in Section 4.4 of the report. Documentation of the QA/QC is provided in Appendix A, B & E.

Outlet Sampling was originally scheduled and performed on August 8, 2006, however at the request of the client, sampling was re-performed on August 24, 2006. Inlet Fuel factors and NMOC content were assumed the same for both sets of tests. Inlet and Outlet Results for the August 24, 2006 test program are shown above as well as in Table 1. Outlet results for the August 8, 2006 test program can be found in Table 2.

SECTION 3. SOURCE OPERATION

3.1. Process Description

The landfill gas fired flare is a control device for the treatment of landfill gas (mainly methane, carbon dioxide and nitrogen) that is generated from the decomposition of waste. The gas is collected in a network of interconnected pipes from several vertical extraction wells that draw a vacuum on the vapors in the landfill. The vapors are treated to remove condensate and particulate material, and then they are incinerated in the flare.

3.2. Flow Diagram

A digital image of the flare stack is contained in Appendix F.

3.3. Process and control operating parameters during testing

The flare were operated at ~1600 °F at a fuel rate of ~1700 SCFM according to the flare's monitoring devices,

3.4. Normal Operating Parameters

The flare was operating normally during the test periods.

3.5. Testing or Process interruptions and changes

There were no process interruptions during the test series.

SECTION 4. SAMPLING AND ANALYSIS PROCEDURES

4.1. Port location

Emissions from the flare were sampled via a circular stack with two ports located approximately 5 stack diameters downstream of the burners and 1 stack diameter upstream from the exit. Access to the sampling ports was provided by a 40-foot boom-lift.

The dimensional cross-sections of the circular stack is 126-inches (Area SQFT = 86.59)

The fuel line to the flare was a 12-inch PVC pipe with an inside diameter of 11.75 inches (Area SQFT = 0.75). A single port/tap was located >8 diameters downstream and >2 diameters upstream from the flame arrestor.

4.2. Point description/Labeling – ports/stack

The stack ports were not labeled, but were designated as facing Northeast and Southeast. 12-traverse points were selected by CARB Method 1 and were used to determine the stack gas profile during the first run. No stratification was found; therefore the remaining test runs were performed at a single point.

4.3. Method description, equipment, sampling, analysis and QA/QC

Sampling and analytical procedures of the EPA Methods are followed as published in the "Quality Assurance Handbook for Air Pollution Measurement Systems" Volume III, US EPA 600/4-77-027b.

The following is an overview of the Testing Performed

Parameter	Location	Method(s)	Duration	# of Runs
THC, CH ₄ , NMOC, NO _x , CO & O ₂	Exhaust	BAAQMD ST-7, 13A, 14, 6	30 mins	6
Flow Rate	Exhaust	EPA 19	30 mins	6
LFG organics & TRS compounds	Inlet	Modified EPA TO-15 & D-5504	30 mins	1
Cl-C6, O ₂ , N ₂ , BTU-Fixed Gasses	Inlet	ASTM D-1945/3588	~10 mins	3
Flow Rate & Flare Temp.	Inlet	Flare Gas Metering System	~10 mins	6
NMOC	Inlet	EPA Method 25C	~30 mins	3

CARB Method 1. This method is used to determine the duct of stack area and appropriate traverse points that represent equal areas of the duct for sampling and velocity measurements. The point selection is made based on the type of test (particulate, velocity or CEM), the stack diameter and port location distance from flow disturbance.

O₂, NO_x, CO & THC by BAAQMD ST-13A, 14, 6 & 7. These methods are all continuous emissions monitoring (CEM) techniques using instrumental analyzers to determine stack emissions. A leak check of the CEM system was performed prior to the start of testing. A linearity check was performed by first calibrating all analyzers with a zero gas and a high level gas. All calibrations were performed internally before and after each run. NMHC testing was performed using a heated FID THC analyzer with methane cutter calibrated with propane in air EPA Protocol 1 calibration gas. Sample gas is alternately pulled through a methane cutter, during each run, and tested for CH₄. NMHC is assumed equal to THC minus CH₄.

The following continuous monitoring analyzers were used:

<u>Parameter</u>	<u>Make</u>	<u>Model</u>	<u>Principle</u>
NO _x	TECO	42C	Chemiluminescence
NO _x	CAI	600CLD	Chemiluminescence
CO	Horiba	VIA510	GFC IR analyzer
CO	TECO	48C	GFC IR analyzer
O ₂	Siemens	5E	Paramagnetic
O ₂	CAI	100P	Paramagnetic
THC	CAI	300M	FID/Methane Cutter

EPA Method 25C, TO-15 & D-5504 analysis is used to determine emissions of NMOC (equivalent to TNMHC) referenced to methane. Organic and inorganic compounds including sulfurs are determined from one of the runs. Inlet gases are filled into tedlar bags in triplicate corresponding to the test program. The bags are labeled respectively then sent to a laboratory and analyzed for NMOC and speciated compounds using GC/FID (gas chromatography/flame ionization detector) within 72 hours (48 hours for sulfur). For more information on the lab analysis, refer to Appendix C for method description and QA/QC.

EPA Method 19 is used to determine stack gas volumetric flow rates using oxygen based F-factors. F-factors are ratios of combustion gas volumes generated from heat input. The heating value of the fuel in Btu per cubic foot is determined from the analysis of fuel gas samples using gas chromatography (GC). Dedicated fuel meters monitor total fuel consumption for the source. The total cubic feet per hour of fuel multiplied times the Btu/CF provides million Btu per hour (MMBTU) heat input. The heat input in MMBTU/hr is multiplied by the F-factor (DSCF/MMBTU) and adjusted for the measured oxygen content of the source to determine volumetric flow rate. This procedure is proposed for pollutants whose compliance standards are based on emission rates (lb/day) or emission factors (lb/MMBtu).

EPA Method ASTM D-1945 & D-3588 analysis is used to determine the contents of fuel gas (e.g. Methane, fixed gases & BTU Content). Inlet gases are filled into a tedlar bag, the bag is labeled respectively then sent to a Laboratory and analyzed for fixed gases, methane and C₁-C₆ using GC/FID (gas chromatography/flame ionization detector). Each compound has calorific values that are used to calculate the combustion factors.

4.4. Analytical Laboratories

3 Inlet bag samples were sent to Columbia Analytical. for VOC analysis. 3 Inlet bag samples were also sent to Zalco Laboratories for heat input analysis. 1 inlet bag sample was sent to Air Toxics Laboratories Ltd. for organic and inorganic compound analyses.

For more information on the analysis procedure and QA/QC refer to Appendix B.

TABLE 1
NO_x, CO & THC Emissions
Vasco Road Landfill
Flare Outlet (A-3)

RUN #	1		2		3		AVG	
TEST LOCATION	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
TEST DATE	8/24/06		8/24/06		8/24/06			
TEST TIME	1150-1225		1240-1310		1321-1351			
STANDARD TEMP., °F	70		70		70			
FLARE TEMP., °F	1500		1521		1531		1517	
FLOW RATE, DSCFM	1,445.0	12,602	1,447.0	12,757	1,451.0	13,325	1,447.7	12,895
O ₂ , %	6.28	13.17	5.92	13.08	5.81	13.32	6.00	13.19
CO ₂ , (%)	26.06	N.M.	26.70	N.M.	26.85	N.M.	26.54	N.M.
N ₂ , (%)	34.37	N.A.	33.19	N.A.	32.63	N.A.	33.40	N.A.
CO, ppm	N.A.	9.84	N.A.	<1.00	N.A.	<1.00	N.A.	<3.95
CO, ppm @ 15% O ₂	N.A.	7.51	N.A.	<0.75	N.A.	<0.78	N.A.	<3.02
CO, lbs/hr	N.A.	0.539	N.A.	<0.055	N.A.	<0.058	N.A.	<0.217
CO, lbs/day	N.A.	12.93	N.A.	<1.33	N.A.	<1.39	N.A.	<5.22
NO _x , ppm	N.A.	12.45	N.A.	13.62	N.A.	13.76	N.A.	13.28
NO _x , ppm @ 15% O ₂	N.A.	9.50	N.A.	10.27	N.A.	10.72	N.A.	10.16
NO _x , lbs/hr as NO ₂	N.A.	1.120	N.A.	1.240	N.A.	1.309	N.A.	1.223
NO _x , lbs/day	N.A.	26.87	N.A.	29.76	N.A.	31.41	N.A.	29.35
CH ₄ , ppm	332230.0	<1.00	341500.0	<1.00	347010.0	<1.00	340246.7	<1.00
CH ₄ , lbs/hr	1191.739	<0.031	1226.687	<0.032	1249.925	<0.033	1222.783	<0.032
THC, ppm	332990.0	2.39	342330.0	2.21	347840.0	1.82	341053.3	2.14
THC, lbs/hr	1142.465	0.075	1229.668	0.070	1252.914	0.060	1225.682	0.068
TNMHC, ppm	760	1.39	830	1.21	830	<1.00	807	1.20
TNMHC, ppm @ 3% O ₂ as Methane	N.A.	3.22	N.A.	2.77	N.A.	<2.36	N.A.	2.78
TNMHC, lbs/hr as CH ₄	2.726	0.043	2.981	0.038	2.990	<0.033	2.899	0.038
TNMHC D.E., %	98.406		98.715		>98.894		98.672	
THC D.E., %	99.994		99.994		99.995		99.994	
CH ₄ D.E., %	>99.997		>99.997		>99.997		99.997	
CO, lbs/MMBtu (O ₂ based)	0.0188		<0.0019		<0.0019		<0.0075	
NO _x , lbs/MMBtu (O ₂ based)	0.0390		0.0422		0.0439		0.0417	

WHERE:

CO = Carbon Monoxide (M.W. = 28)

NO_x = Nitrogen Dioxide (M.W. = 46)CO₂ = Carbon DioxideO₂ = OxygenCH₄ = Methane (M.W. = 16)TOC = Total Oxidizable Carbon as CH₄THC = Total Hydrocarbon as CH₄TNMHC = Total Non-Methane Hydrocarbon as CH₄TNMHC = THC - CH₄

lbs/hr = Pounds Per Hour Emission Rate

lbs/MMBtu = Pounds per Million Btu

DSCFM = Dry Standard Cubic Feet Per Minute

D.E. = Destruction Efficiency

N.M. = Not Measured

N.A. = Not Applicable

ppm = Parts per Million

CALCULATIONS:D.E. = $100 * (\text{Inlet TNMHC lbs/hr} - \text{Outlet TNMHC lbs/hr}) / \text{Inlet TNMHC lbs/hr}$

lbs/hr = ppm * DSCFM * M.W. * 8.223E-5 (Tstd = 460)

lbs/MMBtu (O₂ based) = ppm * M.W. * Pd * 2.64E-9 * 20.9 / (20.9 - %O₂)ppm @ 3% O₂ = ppm * (17.9 / (20.9 - O₂))ppm @ 15% O₂ = ppm * (5.9 / (20.9 - O₂))

TABLE 2
NO_x, CO & THC Emissions
Vasco Road Landfill
Flare Outlet (A-3)

RUN #	1		2		3		AVG	
TEST LOCATION	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet
TEST DATE	8/8/06		8/8/06		8/8/06			
TEST TIME	850-921		931-1001		1007-1036			
STANDARD TEMP., °F	70		70		70			
FLARE TEMP., °F	1587		1598		1598		1594	
FLOW RATE, DSCFM	1,684.0	13,460	1,607.0	12,758	1,552.0	12,586	1,614.3	12,935
O ₂ , %	6.28	12.46	5.92	12.21	5.81	12.32	6.00	12.33
CO ₂ , (%)	26.06	N.M.	26.70	N.M.	26.85	N.M.	26.54	N.M.
N ₂ , (%)	34.37	N.A.	33.19	N.A.	32.63	N.A.	33.40	N.A.
CO, ppm	N.A.	<5.00	N.A.	<5.00	N.A.	<5.00	N.A.	<5.00
CO, ppm @ 15% O ₂	N.A.	<3.50	N.A.	<3.39	N.A.	<3.44	N.A.	<3.44
CO, lbs/hr	N.A.	<0.292	N.A.	<0.277	N.A.	<0.273	N.A.	<0.281
CO, lbs/day	N.A.	<7.02	N.A.	<6.65	N.A.	<6.56	N.A.	<6.74
NO _x , ppm	N.A.	11.77	N.A.	12.13	N.A.	11.98	N.A.	11.96
NO _x , ppm @ 15% O ₂	N.A.	8.23	N.A.	8.23	N.A.	8.23	N.A.	8.23
NO _x , lbs/hr as NO ₂	N.A.	1.131	N.A.	1.104	N.A.	1.076	N.A.	1.104
NO _x , lbs/day	N.A.	27.14	N.A.	26.50	N.A.	25.82	N.A.	26.49
CH ₄ , ppm	332230.0	1.21	341500.0	<1.00	347010.0	<1.00	340246.7	<1.07
CH ₄ , lbs/hr	1388.850	0.040	1362.326	<0.032	1336.928	<0.031	1362.701	<0.034
THC, ppm	312990.0	3.34	342330.0	1.38	347840.0	1.44	341053.3	2.06
THC, lbs/hr	1392.027	0.112	1365.637	0.044	1340.126	0.043	1365.930	0.087
TNMHC, ppm	760	2.14	830	<0.38	830	<1.00	807	1.17
TNMHC, ppm @ 3% O ₂ as Methane	N.A.	4.53	N.A.	<0.78	N.A.	<2.09	N.A.	2.47
TNMHC, lbs/hr as CH ₄	3.177	0.071	3.311	<0.012	3.198	<0.031	3.229	0.038
TNMHC D.E., %	97.753		>99.637		>99.023		>98.805	
THC D.E., %	99.992		99.997		99.997		99.995	
CH ₄ D.E., %	99.997		>99.998		>99.998		99.997	
CO, lbs/MMBtu (O ₂ based)	<0.0087		<0.0085		<0.0086		<0.0086	
NO _x , lbs/MMBtu (O ₂ based)	0.0338		0.0338		0.0337		0.0338	

WHERE:

CO = Carbon Monoxide (M.W. = 28)

NO_x = Nitrogen Dioxide (M.W. = 46)CO₂ = Carbon DioxideO₂ = OxygenCH₄ = Methane (M.W. = 16)FOC = Total Oxidizable Carbon as CH₄THC = Total Hydrocarbon as CH₄TNMHC = Total Non-Methane Hydrocarbon as CH₄TNMHC = THC - CH₄

lbs/hr = Pounds Per Hour Emission Rate

lbs/MMBtu = Pounds per Million Btu

DSCFM = Dry Standard Cubic Feet Per Minute

D.E. = Destruction Efficiency

N.M. = Not Measured

N.A. = Not Applicable

ppm = Parts per Million

CALCULATIONS:

$$D.E. = 100 * (\text{Inlet TNMHC lbs/hr} - \text{Outlet TNMHC lbs/hr}) / \text{Inlet TNMHC lbs/hr}$$

$$\text{lbs/hr} = \text{ppm} * \text{DSCFM} * \text{M.W.} * 8.223E-5 \quad (\text{Tstd} = 460)$$

$$\text{lbs/MMBtu (O}_2 \text{ based)} = \text{ppm} * \text{M.W.} * \text{Fd} * 2.60E-9 * 20.9 / (20.9 - \%O_2)$$

$$\text{ppm @ 3\% O}_2 = \text{ppm} * (17.9 / (20.9 - O_2))$$

$$\text{ppm @ 15\% O}_2 = \text{ppm} * (5.9 / (20.9 - O_2))$$

APPENDICES

APPENDIX A – CALCULATIONS & NOMENCLATURE

APPENDIX B - LABORATORY REPORTS

APPENDIX C - FIELD DATA SHEETS

APPENDIX D - STRIP CHART RECORDS

APPENDIX E – CALIBRATION GAS CERTIFICATES

APPENDIX F – STACK DIAGRAMS

APPENDIX G – SAMPLING SYSTEM DIAGRAMS

APPENDIX H – SOURCE TEST PLAN

APPENDIX I – PERMIT TO OPERATE

APPENDIX A
CALCULATIONS & NOMENCLATURE

Standard Abbreviations for Reports

Unit	Abbreviation	Unit	Abbreviation
billion	G	microgram	µg
Brake horsepower	bhp	milligram	mg
Brake horsepower hour	bhp-hr	milliliter	ml
British Thermal Unit	Btu	million	MM
capture efficiency	CE	minute	min
destruction efficiency	DE	Molecular Weight	M
Dry Standard Cubic Feet	DSCF	nanogram	ng
Dry Standard Cubic Feet per Minute	DSCFM	Parts per Billion	ppb
Dry Standard Cubic Meter	DSCM	Parts per Million	ppm
Dry Standard Cubic Meter per Minute	DSCMM	pennyweight per firkin	pw/fkn
grains per dry standard cubic foot	gr/DSCF	pound	lb
gram	g	pounds per hour	lbs/hr
grams per Brake horsepower hour	g/bhp-hr	pounds per million Btu	lbs/MMBtu
kilowatt	kW	second	sec
liter	l	Specific Volume, ft ³ /lb-mole	SV
Megawatts	MW	Thousand	k
meter	m	watt	W

Common Conversions / Calculations / Constants

1 gram = 15,432 grains

1 pound = 7000 grains

grains per pound = 453.6

bhp = 1.344 * Engine kW, (where Engine kW = Generator kW output / 0.95) @ 95% efficiency

g/bhp-hr = lbs/hr * 453.6 / bhp

2.59E-9 = Conversion factor for ppm to lbs/scf, EPA 40CFR60.45

dscf / MMBTU = 8710 for Natural gas; EPA Method 19

Btu/ft³ = 1040 for Natural Gas; EPA Method 19

lb/hr Part. Emission Rate = 0.00857 * gr/dscf * dscfm; EPA Method 5

lbs/hr = ppm / SV x dscfm x M * 60; CARB Method 100; where SV ≈ 385E⁶ @ 68°F or ≈ 379E⁶ @ 60°F.

Correction to 12% CO₂ = gr/dscf * 12% / stack CO₂%; EPA Method 5

Correction to 3% O₂ = ppm * 17.9 / (20.9 - stack O₂ %); CARB Method 100

Correction to 15% O₂ = ppm * 5.9 / (20.9 - stack O₂ %); CARB Method 100

dscfm = Gas Fd * MMBtu/min * 20.9 / (20.9 - stack O₂ %); EPA Method 19

lb/MMBtu = Fd * M * ppm * 2.59E-9 * 20.9 / (20.9 - stack O₂ %); EPA Method 19

Standard Temperatures by District

EPA	68 °F	NSAPCD - Northern Sonoma	68 °F
CARB	68 °F	PCAPCD - Placer	68 °F
BAAQMD - Bay Area	70 °F	SLOCAPCD - San Luis Obispo	60 °F
SJVUAPCD - San Joaquin	60 °F	SMAQMD - Sacramento	68°F de facto
SCAQMD - South Coast	60 °F	SCAQMD - Shasta County	68 °F
MBUAPCD - Monterey Bay	68 °F	YSAPCD - Yolo-Solano	60 °F
FRAQMD - Feather River	68 °F		

STACK GAS FLOW RATE DETERMINATION -- FUEL USAGE

EPA Method 19

Facility: Vasco Road Landfill
 Unit: Flare Outlet (A-3)
 Condition: 1517F
 Date: 08/24/2006

	Run 1 1150-1225	Run 2 1240-1310	Run 3 1321-1351	
Time:				
Gross Calorific Value @ 68°F	332.8	340.55	344.08	Btu / ft ³
Stack Oxygen	13.17	13.08	13.32	%
Gas Fd-Factor @ 68°F	9694.1	9691.5	9677.9	DSCF/MMBtu
Standard Temperature (°F)	70	70	70	°F
Corrected Fuel Rate (SCFM) @ 68°F	1445.0	1447.0	1451.0	SCFM
Fuel Flow Rate (SCFH) @68°F	86,700	86,820	87,060	SCFH
Fuel Flow Rate (SCFH) @60°F	85,386	85,563	85,741	SCFH
Million Btu per minute	0.481	0.493	0.499	MMBtu/min
Heat Input (MMBtu/hour)	28.9	29.6	30.0	MMBtu/Hr

Stack Gas Flow Rate	12,602	12,757	13,325	DSCFM
----------------------------	---------------	---------------	---------------	--------------

WHERE:

Gas Fd-Factor = Fuel conversion factor (ratio of combustion gas volumes to heat inputs)
 MMBtu = Million Btu

CALCULATIONS:

SCFM = CFM * 528 * (gas line PSIA) / 14.7 * (gas °F + 460)
 MMBtu/min = (SCFM * Btu / ft³) / 1,000,000
 DSCFM = Gas Fd-Factor * MMBtu/min * 20.95 / (20.95 - stack oxygen%)
 SCFH = SCFM * 60
 Heat Input = MMBtu/min * 60

CEM CORRECTION SUMMARY

Facility: Vasco Road Landfill
 Unit: Flare Outlet (A-3)
 Condition: 1517 F
 Date: 08/24/2006

Barometric: 29.70
 Leak Check: OK
 Strat. Check: OK
 Personnel: BA

	Inlet					Outlet						
	TOC	CO ₂	O ₂	CO	CH ₄	O ₂	CO	NOx	CO	THC	CH ₄	Comments
Analyzer						100P		600CL	48C	0.0	0.0	
Range						25		25	100	100	100	
Units, ppm or %						%		ppm	ppm	ppm	ppm	
Span Gas Value						21.04		22.4	83.0	87.0	87.0	
Run 1 1150-1225						0.01		0.2	0.3	-0.1	-0.1	zero (initial), Zi
						21.10		22.4	82.9	86.6	86.6	upscale cal (initial), Si
						13.2		12.3	10.8	1.1	-0.7	TEST AVG
						-0.02		0.3	1.7	-2.4	-2.4	zero (final), Zf
						20.99		21.7	84.3	83.7	83.7	upscale cal (final), Sf
						-0.1%		0.4%	1.4%	-2.3%	-2.3%	zero drift
						-0.4%		-2.8%	1.5%	-2.8%	-2.8%	cal drift
						13.2		12.4	9.8	2.4	0.6	CORRECTED AVG
Run 2 1240-1310						-0.02		0.3	1.7	0.0	0.0	zero (initial), Zi
						20.99		21.7	84.3	87.8	87.8	upscale cal (initial), Si
						13.0		13.2	1.2	1.9	-0.1	TEST AVG
						-0.02		0.3	3.0	-0.7	-0.7	zero (final), Zf
						21.00		21.3	85.3	85.9	85.9	upscale cal (final), Sf
						0.0%		0.1%	1.2%	-0.7%	-0.7%	zero drift
						0.0%		-1.3%	1.0%	-1.8%	-1.8%	cal drift
						13.1		13.6	-1.1	2.2	0.2	CORRECTED AVG
Run 3 1321-1351						-0.02		0.3	3.0	-0.7	-0.7	zero (initial), Zi
						21.00		21.3	85.3	85.9	85.9	upscale cal (initial), Si
						13.3		13.1	-1.2	1.2	-0.7	TEST AVG
						-0.02		0.3	3.3	-0.4	-0.4	zero (final), Zf
						20.95		21.0	84.4	83.8	83.8	upscale cal (final), Sf
						0.0%		0.1%	0.4%	0.2%	0.2%	zero drift
						-0.2%		-1.2%	-0.9%	-2.1%	-2.1%	cal drift
						13.3		13.8	-4.4	1.8	-0.2	CORRECTED AVG
AVERAGES						13.2		13.3	1.4	2.1	0.2	TEST AVG

CORRECTED VALUE = [Test Avg. - ((ZF-ZI) / 2) * Span Gas Value / ((SF-SI) / 2) - ((ZI-ZF) / 2)]

ZERO DRIFT % = 100 * (ZF-ZI) / Instrument Range

SPAN DRIFT % = 100 * (SF-SI) / Instrument Range

CEM CORRECTION SUMMARY

Facility: Vasco Road Landfill
 Unit: Flare Outlet (A-3)
 Condition: 1594 F
 Date: 08/08/2006

Barometric: 29.75
 Leak Check: OK
 Strat. Check: OK
 Personnel: BA

Inlet												Outlet					Comments
TOC	CO ₂	O ₂	CO	CH ₄	O ₂	CO	NOx	CO	THC	CH ₄							
Analyzer						100P		600CL	48C	300M	300M						
Range						25		25	500	100	100						
Units, ppm or %						%		ppm	ppm	ppm	ppm						
Span Gas Value						21.49		22.5	417.0	88.2	88.2						
Run 1																	
8501-921						0.02		0.0	0.1	-0.4	-0.4	zero (initial), ZI					
						21.52		22.8	416.9	89.6	89.6	upscale cal (initial), SI					
						12.5		11.9	4.6	3.0	-1.2	TEST AVG					
						0.01		0.1	0.0	-4.4	-4.4	zero (final), ZF					
						21.53		22.8	414.1	83.8	83.8	upscale cal (final), SF					
						0.0%		0.2%	0.0%	-4.1%	-4.1%	zero drift					
						0.0%		0.1%	-0.6%	-5.8%	-5.8%	cal drift					
						12.5		11.8	3.9	3.3	1.2	CORRECTED AVG					
Run 2																	
931-1001						0.01		0.1	0.0	-0.5	-0.5	zero (initial), ZI					
						21.53		22.8	414.1	88.8	88.8	upscale cal (initial), SI					
						12.2		12.4	2.4	0.5	-0.2	TEST AVG					
						0.01		0.1	0.1	-1.3	-1.3	zero (final), ZF					
						21.56		23.0	410.9	90.7	90.7	upscale cal (final), SF					
						0.0%		0.0%	0.0%	-0.9%	-0.9%	zero drift					
						0.1%		0.7%	-0.6%	1.8%	1.8%	cal drift					
						12.2		12.1	2.4	1.4	0.7	CORRECTED AVG					
Run 3																	
1007-1036						0.01		0.1	0.1	-1.3	-1.3	zero (initial), ZI					
						21.56		23.0	410.9	90.7	90.7	upscale cal (initial), SI					
						12.4		12.3	2.2	-0.3	-0.9	TEST AVG					
						0.00		0.1	0.1	-2.2	-2.2	zero (final), ZF					
						21.57		23.0	409.5	89.1	89.1	upscale cal (final), SF					
						0.0%		0.0%	0.0%	-0.9%	-0.9%	zero drift					
						0.1%		0.1%	-0.3%	-1.6%	-1.6%	cal drift					
						12.3		12.0	2.1	1.4	0.9	CORRECTED AVG					
AVERAGES						12.3		12.0	2.8	2.1	0.9	TEST AVG					

CORRECTED VALUE = [Test Avg - ((ZI-ZF) / 2)] * Span Gas Value / [(SI+SF) / 2 + ((ZI+ZF) / 2)]

ZERO DRIFT % = 100 * (ZF-ZI) / Instrument Range

SPAN DRIFT % = 100 * (SF-SI) / Instrument Range

STACK GAS FLOW RATE DETERMINATION -- FUEL USAGE

EPA Method 19

Facility: Vasco Road Landfill
 Unit: Flare Outlet (A-3)
 Condition: 1594F
 Date: 08/08/2006

	Run 1 850-921	Run 2 931-1001	Run 3 1007-1036	
Time:				
Gross Calorific Value @ 68°F	332.8	340.55	344.08	Btu · lb ⁻¹
Stack Oxygen	12.46	12.21	12.32	%
Gas Fd-Factor @ 68°F	9694.1	9691.5	9677.9	DSCF/MMBtu
Standard Temperature (°F)	70	70	70	°F
Corrected Fuel Rate (SCFM) @ 68°F	1684.0	1607.0	1552.0	SCFM
Fuel Flow Rate (SCFH) @ 68°F	101,040	96,420	93,120	SCFH
Fuel Flow Rate (SCFH) @ 60°F	90,509	84,959	81,709	SCFH
Million Btu per minute	0.560	0.547	0.534	MMBtu/min
Heat Input (MMBtu-hour)	33.6	32.8	32.0	MMBtu/Hr

Stack Gas Flow Rate	13,460	12,758	12,586	DSCFM
---------------------	--------	--------	--------	-------

WHERE:

Gas Fd-Factor = Fuel conversion factor (ratio of combustion gas volumes to heat inputs)
 MMBtu = Million Btu

CALCULATIONS:

$SCUM = CFM \times 528 \times (\text{gas line PSIA}) \times 14.7 \times (\text{gas } ^\circ\text{F} - 460)$
 $MMBtu/min = (SCFM \times Btu/lb) \div 1,000,000$
 $DSCFM = \text{Gas Fd-Factor} \times MMBtu/min \times 20.95 \div (20.95 - \text{stack oxygen}\%)$
 $SCFH = SCFM \times 60$
 $\text{Heat Input} = MMBtu/min \times 60$

APPENDIX B

LAB REPORTS

September 13, 2006

Mr. Bobby Asfour
Best Environmental
6261 Southfront Road
Livermore, CA 94551

RE: P2602331
Vasco Road Landfill

Dear Mr. Asfour:

Enclosed are the results of the sample(s) submitted to our laboratory on August 25, 2006.
For your reference, these analyses have been assigned our service request number P2602331.

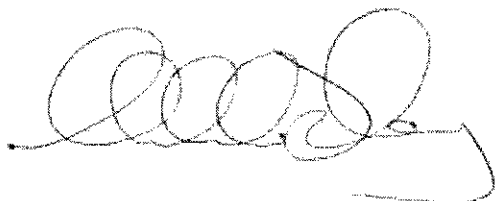
All analyses were performed in accordance with our laboratory's quality assurance program. Results are intended to be considered in their entirety and apply only to the samples analyzed. Columbia Analytical Services is not responsible for use of less than the complete report. Your report contains 5 pages.

Columbia Analytical Services is certified by the California Department of Health Services, Certificate No. 2380; Arizona Department of Health Services, Certificate No. AZ0550; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661. Please contact me for specific method(s) and analyte(s) corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.



Michael Tuday
Director of Research & Development

LABORATORY REPORT

Client:	BEST ENVIRONMENTAL	Date of Report:	09/13/06
Address:	6261 Southfront Road	Date Received:	08/25/06
	Livermore, CA 94551	CAS Project No:	P2602331
Contact:	Mr. Bobby Asfour	Purchase Order:	Verbal

Client Project ID: Vasco Road Landfill

Three (3) Tedlar Bag Samples labeled:

"R1/M25C/Inlet" "R2/M25C/Inlet" "R3/M25C/Inlet"

The samples were received at the laboratory under chain of custody on August 25, 2006. At the client's request, a portion of the contents of each of the tedlar bag samples were transferred to separate one-liter passivated stainless steel canisters for storage prior to analysis. Otherwise, the samples were received intact. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time that they were received at the laboratory.

Total Gaseous Non-Methane Organics as Methane Analysis

The samples were analyzed for total gaseous non-methane organics as methane according to modified EPA Method 25C. The analyses included a single sample injection (method modification) analyzed by gas chromatography using flame ionization detection/total combustion analysis.

The results of analyses are given on the attached data sheets. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Reviewed and Approved:



Wade Henton
GC-VOA Team Leader
Air Quality Laboratory

Reviewed and Approved:



John Yokoyama
Operations Manager
Air Quality Laboratory

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Page 1 of 1

Client: Best Environmental
Client Project ID: Vasco Road Landfill

CAS Project ID: P2602331

Total Gaseous Nonmethane Organics (TGNMO) as Methane

Test Code: EPA Method 25C Modified
Instrument ID: HP5890II-GC1/FID/TCA
Analyst: Wade Henton
Sampling Media: Tedlar Bag(s)
Test Notes:

Date(s) Collected: 8/24/06
Date Received: 8/25/06
Date(s) Analyzed: 9/6/06
Volume(s) Analyzed: 0.50 ml

Client Sample ID	CAS Sample ID	D.F.	Total Gaseous Nonmethane Organics (TGNMO) as Methane Concentration in ppmV		Data Qualifier
			Result	MRL	
R1-M25C Inlet	P2602331-001	1.00	760	1.0	
R2-M25C Inlet	P2602331-002	1.00	830	1.0	
R3-M25C Inlet	P2602331-003	1.00	830	1.0	
Method Blank	P060906-MB	1.00	ND	1.0	

ND - Compound was analyzed for, but not detected above the laboratory reporting limit.

MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: RL Date: 9/6/06

3

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: Best Environmental Work order: P2602331
 Project: Vasco Road Landfill
 Sample(s) received on: 8/25/06 Date opened: 8/25/06 by: MZ

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or non-compliance. Thermal preservation and pH will only be evaluated either at the request of the client or as required by the method SOP.

		Yes	No	N/A
1	Were custody seals on outside of cooler Box?	☐	☒	☐
	Location of seal(s): _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s): _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
2	Were sample containers properly marked with client sample ID?	☒	☐	☐
3	Did sample containers arrive in good condition?	☒	☐	☐
4	Were chain-of-custody papers used and filled out?	☒	☐	☐
5	Did sample container labels and/or tags agree with custody papers?	☒	☐	☐
6	Was sample volume received adequate for analysis?	☒	☐	☐
7	Are samples within specified holding times?	☒	☐	☐
8	Was proper temperature (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature <u>NA</u> °C			
	Block Temperature <u>NA</u> °C			
9	Is pH (acids) preservation necessary according to method SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are pH (acids) preserved?	☐	☐	☒
	Were VOA vials checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client method SOP require that the analyst check the sample pH and, if necessary, alter it?	☐	☐	☒
10	Tubes: Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
11	Badges: Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Required pH (as received, if required)	pH (as received, if required)	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P2602331-001			NA	
P2602331-002			NA	
P2602331-003			NA	

Explain any discrepancies (include lab sample ID numbers): _____

Project ID: VESCO Road Landfill
 Analytical Lab: Columbia

SAMPLE CHAIN OF CUSTODY

P2602331

#	DATE	TIME	SAMPLE ID Run#/Method/Fraction/Source	CONTAINER size/type	Volume	Storage Temp °F	SAMPLE DESCRIPTION	ANALYSIS	TAT
1	8-24-06	1150	R1/M25C/Inlet	10L/Tedlar	~6	Amb	Landfill Gas	NMCC	Normal
2									
3		1246	R2/M25C/Inlet	10L/Tedlar	~6	"	Landfill Gas	"	"
4									
5		1321	R3/M25C/Inlet	10L/Tedlar	~6	"	"	"	"
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

SPECIAL INSTRUCTIONS:

Submit Results to: Attn: Robby Astor

Best Environmental, 6261 Southfront Rd., Livermore, CA 94551

Relinquished by: [Signature] Received by: [Signature] Date: 8/25/06 Time: 0800

Relinquished by: _____ Received by: _____ Date: _____ Time: _____

Relinquished by: _____ Received by: _____ Date: _____ Time: _____

B-6

SAMPLE CONDITION AS RECEIVED: OK or not OK

SHIP DATE:

CARRIER:

BEST ENVIRONMENTAL ANALYTICAL SERVICES 000866325

SAMPLE CHAIN OF CUSTODY

Project ID: Vasco Rd. Landfill

Analyst: Lab: Air Toxics

#	DATE	TIME	SAMPLE ID	CONTAINER	VOLUME	DATE	TIME	SAMPLE DESCRIPTION	ANALYSIS	LAB
1	8-24-06	1200	8110111111	100/1000	~8L	8/24/06	1200	Landfill Gas	Organic & Inorganic Compounds from list attached	None
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										

SPECIAL INSTRUCTIONS:

Submit Results to: Air Toxics Bobby Peterson Best Environmental, 6361 Sandtrap Rd., Livermore, CA 94551

Relinquished by: [Signature] Date: 8/24/06 Time: 15:27

Relinquished by: [Signature] Date: 8/24/06 Time: 15:27

Relinquished by: [Signature] Date: 8/24/06 Time: 15:27

SAMPLE CONDITION AS RECEIVED: OK or NOT OK

SHIP DATE: 8/24/06

CARRIER: 7 N KESTER

ORAP-011



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0608632B

Work Order Summary

CLIENT: Mr. Regan Best
Best Environmental
6261 Southfront Road
Livermore, CA 94551

BILL TO: Mr. Regan Best
Best Environmental
6261 Southfront Road
Livermore, CA 94551

PHONE: 925-455-9474

P.O. # 6667

FAX: 925-455-9479

PROJECT # Valero Cogen

DATE RECEIVED: 08/24/2006

CONTACT: Nicole Danbacher

DATE COMPLETED: 08/29/2006

FRACTION #

NAME

TEST

RECEIPT
YAC/PRES.

21A

RI Inlet

ASTM D-5504

Tedlar Bag

22A

Lab Blank

ASTM D-5504

NA

23A

LCS

ASTM D-5504

NA

CERTIFIED BY:

Laboratory Director

DATE: 08/29/06

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP - AI 30763, NJ NELAP - CA004

NY NELAP - 11291, UT NELAP - 9166389892

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,

Accreditation number: ES7680, Effective date: 07/01/06, Expiration date: 06/30/07

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAP standards.

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000, (800) 985-5955, FAX (916) 985-1020



LABORATORY NARRATIVE

ASTM D-5504

Best Environmental

Workorder# 0608632B

One 10 Liter Tedlar Bag sample was received on August 24, 2006. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 1.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

n-Butyl Mercaptan and Ethyl Methyl Sulfide coelute with 3-Methyl Thiophene. The corresponding peak is reported as 3-Methyl Thiophene.

The Total Reduced Sulfur (TRS) concentration is calculated by summing all peaks and quantitating the area based on the response of Hydrogen Sulfide.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:

B - Compound present in laboratory blank greater than reporting limit.

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the detection limit.

M - Reported value may be biased due to apparent matrix interferences.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

rl-File was requantified for the purpose of reissue



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: RI/inlet

Lab ID#: 0608632B-21A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	400	53000
Methyl Mercaptan	400	550
Dimethyl Sulfide	400	550 M
3-Methylthiophene	400	640
Total Reduced Sulfur ref. to H ₂ S (MW=34)	400	57000



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: R1/inlet

Lab ID#: 0608632B-21A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	b082417	Date of Collection:	8/24/06
Dil. Factor:	100	Date of Analysis:	8/24/06 06:53 PM
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	
Hydrogen Sulfide	400	53000	
Carbonyl Sulfide	400	Not Detected	
Methyl Mercaptan	400	550	
Ethyl Mercaptan	400	Not Detected	
Dimethyl Sulfide	400	950 M	
Carbon Disulfide	400	Not Detected	
Isopropyl Mercaptan	400	Not Detected	
tert-Butyl Mercaptan	400	Not Detected	
n-Propyl Mercaptan	400	Not Detected	
Ethyl Methyl Sulfide	400	Not Detected	
Thiophene	400	Not Detected	
Isobutyl Mercaptan	400	Not Detected	
Diethyl Sulfide	400	Not Detected	
n-Butyl Mercaptan	400	Not Detected	
Dimethyl Disulfide	400	Not Detected	
3-Methylthiophene	400	640	
Tetrahydrothiophene	400	Not Detected	
2-Ethylthiophene	400	Not Detected	
2,5-Dimethylthiophene	400	Not Detected	
Diethyl Disulfide	400	Not Detected	
Total Reduced Sulfur ref. to H ₂ S (MW=34)	400	57000	

M = Reported value may be biased due to apparent matrix interferences

TRS is reported from file #B082417a d analyzed on August 24, 2006 with a dilution factor of 100.

Container Type: 10 Liter Tedlar Bag



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0608632B-22A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	b082404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/24/06 07:56 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	Not Detected
Carbonyl Sulfide	4.0	Not Detected
Methyl Mercaptan	4.0	Not Detected
Ethyl Mercaptan	4.0	Not Detected
Dimethyl Sulfide	4.0	Not Detected
Carbon Disulfide	4.0	Not Detected
Isopropyl Mercaptan	4.0	Not Detected
tert-Butyl Mercaptan	4.0	Not Detected
n-Propyl Mercaptan	4.0	Not Detected
Ethyl Methyl Sulfide	4.0	Not Detected
Thiophene	4.0	Not Detected
Isobutyl Mercaptan	4.0	Not Detected
Diethyl Sulfide	4.0	Not Detected
n-Butyl Mercaptan	4.0	Not Detected
Dimethyl Disulfide	4.0	Not Detected
3-Methylthiophene	4.0	Not Detected
Tetrahydrothiophene	4.0	Not Detected
2-Ethylthiophene	4.0	Not Detected
2,5-Dimethylthiophene	4.0	Not Detected
Diethyl Disulfide	4.0	Not Detected
Total Reduced Sulfur ref. to H ₂ S (MW=34)	4.0	Not Detected

TRS is reported from file #B082404a.d analyzed on August 24, 2006 with a dilution factor of 1.00.

Container Type: NA - Not Applicable



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0608632B-23A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	b082402	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 8/24/06 06:15 AM

Compound	%Recovery
Hydrogen Sulfide	117
Carbonyl Sulfide	122
Methyl Mercaptan	105
Ethyl Mercaptan	97
Dimethyl Sulfide	89
Carbon Disulfide	81
Isopropyl Mercaptan	110
tert-Butyl Mercaptan	110
n-Propyl Mercaptan	104
Ethyl Methyl Sulfide	97
Thiophene	98
Isobutyl Mercaptan	109
Diethyl Sulfide	94
n-Butyl Mercaptan	97
Dimethyl Disulfide	94
3-Methylthiophene	97
Tetrahydrothiophene	85
2-Ethylthiophene	86
2,5-Dimethylthiophene	80
Diethyl Disulfide	83

Container Type: NA - Not Applicable



**BAY AREA AIR QUALITY
MANAGEMENT DISTRICT**

904 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

**PERMIT
TO OPERATE**

Plant# 5095

Page: 15

Expires: APR 1, 2007

This document does not permit the holder to violate any District regulation or other law.

0608632

***** PERMIT CONDITIONS *****

=====

be drawn from the main landfill gas header. In addition to the compounds listed in part 20b, the landfill gas shall be analyzed for all the organic and sulfur compounds listed below. All concentrations shall be reported on a dry basis. The test report shall be submitted to the Compliance and Enforcement Division within 45 days of the test date.

(basis: Toxic Risk Management Policy, AS-2588 Air Toxic Hot Spots Act, RACT for 802, and Regulations 8-34-412 and 9-1-102)

Organic Compounds
Acrylonitrile
Benzene
benzyl chloride
carbon tetrachloride
chlorobenzene
chlorodifluoromethane
chloroethane
chloroform
1,1 dichloroethane
1,1,1 dichloroethane
1,2 dichloroethane
1,4 dichlorobenzene
dichlorodifluoromethane
dichlorofluoromethane

Organic Compounds
ethylbenzene
ethylene dibromide
fluorotrichloromethane
hexane
isopropyl alcohol
methyl ethyl ketone
methylene chloride
perchloroethylene
toluene
1,1,1 trichloroethane
1,1,2,2 tetrachloroethane
trichloroethylene
vinyl chloride
xylenes

Sulfur Compounds
carbon disulfide
carbonyl sulfide
dimethyl sulfide
ethyl mercaptan
hydrogen sulfide
methyl mercaptan

22. The Permit Holder shall maintain the following records in an APCO approved log book.

- a. Record the total amount of solid waste received at S-1 and the total number of vehicles transporting solid waste or other materials to and from the site on a daily basis. Summarize these daily waste



ZALCO LABORATORIES, INC.
Analytical & Consulting Services

4309 Armour Avenue
Bakersfield, California 93308

(661) 395-0539
FAX (661) 395-3089

Tuesday, September 05, 2006

Bobby Asfour
Best Environmental Services
6261 Southfront Rd.
Livermore, CA 94551

TEL: (925) 455-9474

FAX: (925) 455-9479

RE:

Order No.: 0608412

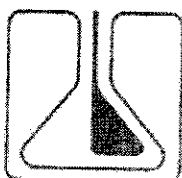
Dear Bobby Asfour:

Zalco Laboratories, Inc. received 3 sample(s) on 8/24/2006 for the analyses presented in the following report.

We appreciate your business and look forward to serving you in the future. Please feel free to call our office if you have any questions regarding these test results.

Sincerely,

Zalco Laboratories, Inc.
(661) 395-0539



ZALCO LABORATORIES, INC.

Analytical & Consulting Services

4309 Armour Avenue
Bakersfield, California 93308

(861) 395-0539
FAX (861) 395-3069

Best Environmental Services
6261 Southfront Road
Livermore CA 94551

Attention: Bobby Asfour

Sample Description: **R1/Comp Fuel/Inlet**

Sampled: 08/24/2006 @ 11:50 AM by Bobby Asfour

Laboratory No: 0608412-001
Date Received: 08/24/06
Date Analyzed: 08/25/06
Purchase Order:
Date Printed: 08/29/06
Test Code: 1635

Chromatographic Analysis, ASTM D-1945-81, ASTM D-3588-89, GPA 2145-94

Constituent:	Mole %	Weight %	Gas Liquids, Gallons per 1000 cubic feet	CHONS% Carbon, C Hydrogen, H Oxygen, O Nitrogen, N Sulfur, S
Oxygen	6.277	7.049		25.16
Nitrogen	34.370	33.789		
Carbon Dioxide	26.056	40.242		4.71
Carbon Monoxide	0.000	0.000		
Hydrogen Sulfide	0.000	0.000		
Methane	33.223	18.705		36.32
Ethane	0.000	0.000		
Propane	0.003	0.005	0.001	
IsoButane	0.000	0.000	0.000	33.79
n-Butane	0.000	0.000	0.000	
IsoPentane	0.000	0.000	0.000	
n-Pentane	0.000	0.000	0.000	
Hexanes +	0.076	0.212	0.030	0.00

Totals:	100.000	100.000	0.031	100.00
Gas Properties calculated at STP: degrees F. 60.00				EC Ratio:
Measurement Base Pressure at STP: psia 14.696				0.19

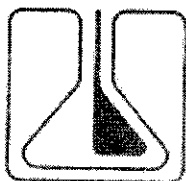
Gross Btu/Cu.Ft.,	Dry Gas HHV	339.6	Relative Gas Density: Ideal gas:	0.9839
Ideal Gross Btu/Lb.	Dry Gas HHV	4514.0	Specific Gravity, (Air = 1) Real gas:	0.9851
Net Btu/Cu.Ft.	Dry Gas LHV	305.8	Real Gas Density, Lb/Cu.Ft.	0.07523
Ideal Net Btu/Lb	Dry Gas LHV	4065.5	Specific Volume, Cu.Ft. / Lb	13.2934
Gross Btu/Cu.Ft., water saturated		339.0	Compressibility, 'z	0.9982

		Gross or HHV:	Net or LHV:
"F" Factor, DSCF/MMBtu at 60F.	9548.7		10763.6
"F" Factor, DSCF/MMBtu at 68F.	9694.1		10763.6
"F" Factor, DSCF/MMBtu at 70F.	9731.0		10804.5
"FC" Factor, DSCF CO2/MMBtu 60F.	1762.3		1956.7
"FC" Factor, DSCF CO2/MMBtu 68F.	1789.1		1986.5

Robert Cortez, Laboratory Manager

*Note: Total sulfur is below the detection limit of 0.01 mole %.

B-17



ZALCO LABORATORIES, INC.

Analytical & Consulting Services

4309 Armour Avenue
Bakersfield, California 93308

(661) 395-0539
FAX (661) 395-3069

Best Environmental Services
6261 Southfront Road
Livermore CA 94551

Attention: Bobby Asfour

Sample Description: **R2/Comp. Fuel/Inlet**

Sampled: 08/24/2006 @ 12:40 PM by Bobby Asfour

Laboratory No: 0608412-002
Date Received: 08/24/06
Date Analyzed: 08/25/06
Purchase Order:
Date Printed: 08/28/06
Test Code: 1635

Chromatographic Analysis, ASTM D-1945-81, ASTM D-3588-89, GPA 2145-94

Constituent	Mole %	Weight %	Gas Liquids, Gallons per 1000 cubic feet	CHONS% Carbon, C Hydrogen, H Oxygen, O Nitrogen, N Sulfur, S
Oxygen	5.915	6.652		25.78
Nitrogen	33.190	32.673		
Carbon Dioxide	26.703	41.297		4.86
Carbon Monoxide	0.000	0.000		
Hydrogen Sulfide	0.000	0.000		
Methane	34.150	19.253		36.69
Ethane	0.000	0.000		
Propane	0.000	0.000	0.000	
IsoButane	0.000	0.000	0.000	32.67
n-Butane	0.000	0.000	0.000	
IsoPentane	0.000	0.000	0.000	
n-Pentane	0.000	0.000	0.000	
Hexanes+	0.041	0.126	0.018	

Totals:	100.000	100.000	0.018	100.00
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Gas Properties calculated at STP: degrees F.	60.00	H/C Ratio:
Measurement Base Pressure at STP: psia	14.696	0.19

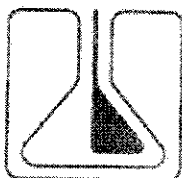
Gross Btu/Cu.Ft., Dry Gas HHV	347.5	Relative Gas Density: Ideal gas:	0.9825
Ideal Gross Btu/Lb. Dry Gas HHV	4626.0	Specific Gravity, (Air = 1) Real gas:	0.9838
Net Btu/Cu.Ft. Dry Gas LHV	313.0	Real Gas Density, Lb/Cu.Ft.	0.07513
Ideal Net Btu/Lb. Dry Gas LHV	4165.8	Specific Volume, Cu.Ft./Lb	13.3116
Gross Btu/Cu.Ft., water saturated	346.9	Compressibility, 'z'	0.9982

	Gross or HHV:	Net or LHV:
"F" Factor, DSCF/MMBtu at 60F.	9546.2	10762.1
"F" Factor, DSCF/MMBtu at 68F.	9691.5	10762.1
"F" Factor, DSCF/MMBtu at 70F.	9728.4	10803.0
"FC" Factor, DSCF CO2/MMBtu60F.	1762.2	1956.9
"FC" Factor, DSCF CO2/MMBtu68F.	1789.0	1986.7

Robert Cortez
Robert Cortez, Laboratory Manager

This report is for subject for the analysis and is not to be used for any other purpose. *Note: Total sulfur is below the detection limit of 0.01 mole %.

B-18



ZALCO LABORATORIES, INC.
Analytical & Consulting Services

4309 Armour Avenue
Bakersfield, California 93308

(661) 395-0539
FAX (661) 395-3063

Best Environmental Services
6261 Southfront Road
Livermore CA 94551

Attention: Bobby Asfour

Sample Description: R3/Comp. Fuel/Inlet

Sampled: 08/24/2006 @ 13:21 PM by Bobby Asfour

Laboratory No: 0608412-003
Date Received: 08/24/06
Date Analyzed: 08/25/06
Purchase Order:
Date Printed: 08/28/06
Test Code: 1635

Chromatographic Analysis, ASTM D-1945-81, ASTM D-3588-89, GPA 2145-94

Constituent	Mole %	Weight %	Gas Liquids, Gallons per 1000 cubic feet	CHONS% Carbon, C Hydrogen, H Oxygen, O Nitrogen, N Sulfur, S
Oxygen	5.812	6.552		26.04
Nitrogen	32.634	32.205		
Carbon Dioxide	26.853	41.632		4.93
Carbon Monoxide	0.000	0.000		
Hydrogen Sulfide	0.000	0.000		
Methane	34.701	19.611		36.83
Ethane	0.000	0.000		
Propane	0.000	0.000	0.000	
IsoButane	0.000	0.000	0.000	32.21
n-Butane	0.000	0.000	0.000	
IsoPentane	0.000	0.000	0.000	
n-Pentane	0.000	0.000	0.000	
Hexanes+	0.000	0.000	0.000	0.00

Totals:	100.000	100.000	0.000	100.00
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Gas Properties calculated at STP: degrees F:	60.00	ILC Ratio:
Measurement Base Pressure at STP: psia	14.696	0.19

344 0820684P

Gross Btu/Cu.Ft.,	Dry Gas HHV	351.1	Relative Gas Density; Ideal gas:	0.9807
Ideal Gross Btu/Lb.	Dry Gas HHV	4685.4	Specific Gravity, (Air = 1) Real gas:	0.9813
Net Btu/Cu.Ft.	Dry Gas LHV	316.2	Real Gas Density, Lb/Cu.Ft.	0.07491
Ideal Net Btu/Lb.	Dry Gas LHV	4218.6	Specific Volume, Cu Ft./Lb.	13.3438
Gross Btu/Cu.Ft., water saturated		350.5	Compressibility, 'Z'	0.9982

		Gross or HHV:	Net or LHV:
"F" Factor,	DSCF/MMBtu at 60F.	9532.7	10748.7
"F" Factor,	DSCF/MMBtu at 68F.	9677.9	10748.7
"F" Factor,	DSCF/MMBtu at 70F.	9714.7	10789.5
"FC" Factor,	DSCF CO2/MMBtu60F.	1757.1	1951.5
"FC" Factor,	DSCF CO2/MMBtu68F.	1783.8	1981.2

For report only, use only values reported in this report. **Note:** Total sulfur is below the detection limit of 0.01 mole %.

B-19

Project ID: Vasco Road Landfill
 Analytical Lab: ~~Best Environmental~~ Calico

#	DATE	TIME	SAMPLE ID Run/Method/Location/Source	CONTAINER size / type	Volume	Storage Temp °C	SAMPLE DESCRIPTION	ANALYSIS	TAI
1	8-28-00	1150	R1/comp Fuel / inlet	10L / red / 10	~6	10	Landfill Gas	comp Fuel	Norm
2									
3		1700	R2/comp Fuel / inlet	" " "	~6	" "	" "	analysis	" "
4									
5		1321	R3/comp Fuel / inlet	" " "	~6	" "	" "	" "	" "
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									

SPECIAL INSTRUCTIONS:

Submit Results to: Attn: Bobby Astor
 Best Environmental, 6261 Southfront Rd., Livermore, CA 94551

Relinquished by: ~~Best Environmental~~ 8-28-00 1700 Received by: Signature
 Relinquished by: Signature Date: 8/28/00 Time: 1720
 Relinquished by: Signature Date: 8/28/00 Time: 1720
 SAMPLE CONDITION AS RECEIVED: OK or not OK
 SHIP DATE: 8/28/00 CARRIER: Signature

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Page 1 of 1

Client: Best Environmental
Client Project ID: Vasco Road Landfill

CAS Project ID: P2602331

Total Gaseous Nonmethane Organics (TGNMO) as Methane

Test Code: EPA Method 25C Modified
Instrument ID: HP5890II/GC1/FID-TCA
Analyst: Wade Henton
Sampling Media: Tedlar Bag(s)
Test Notes:

Date(s) Collected: 8/24/06
Date Received: 8/25/06
Date(s) Analyzed: 9/6/06
Volume(s) Analyzed: 0.50 ml

Client Sample ID	CAS Sample ID	D.F.	Total Gaseous Nonmethane Organics (TGNMO) as Methane Concentration in ppmV		Data Qualifier
			Result	MRL	
R1/M25C/Inlet	P2602331-001	1.00	760	1.0	
R2/M25C/Inlet	P2602331-002	1.00	830	1.0	
R3/M25C/Inlet	P2602331-003	1.00	830	1.0	
Method Blank	P060906-MB	1.00	ND	1.0	

ND = Compound was analyzed for, but not detected above the **laboratory reporting limit**.

MRL -- Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: _____ Date: _____



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0609485

Work Order Summary

CLIENT: Mr. Bobby Asfour
Best Environmental
6261 Southfront Road
Livermore, CA 94551

BILL TO: Mr. Bobby Asfour
Best Environmental
6261 Southfront Road
Livermore, CA 94551

PHONE: 925-455-9474 x104

P.O. #

FAX: 925-455-9479

PROJECT # Vasco Rd Landfill

DATE RECEIVED: 09/22/2006

CONTACT:

DATE COMPLETED: 09/19/2006

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT</u> <u>VAC/PRES.</u>
01A	R1/inlet	Modified TO-15	Tedlar Bag
02A	Lab Blank	Modified TO-15	NA
03A	CCV	Modified TO-15	NA
04A	LCS	Modified TO-15	NA

CERTIFIED BY

Laboratory Director

DATE: 10/05/06

Certification numbers: CA NELAP - 02110CA, LA NELAP/LELAP - 0130763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 916638982

Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,

Accreditation number: E87680, Effective date: 07/01/06, Expiration date: 06/30/07

Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAP standards

(This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.)

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000, (800) 985-5955, FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15
Best Environmental
Workorder# 0609485

One 10 Liter Tedlar Bag sample was received on September 22, 2006. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 0.2 liters of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

Method modifications taken to run these samples are summarized in the below table. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
Daily CCV	± 36% Difference	≤ 50% Difference with two allowed out up to <7=46% ; flag and narrate outliers
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

All Quality Control Limit failures and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds.

Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

- U - Compound analyzed for but not detected above the reporting limit.
- UI- Non-detected compound associated with low bias in the CCV
- N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

- a-File was requantified
- b-File was quantified by a second column and detector
- c-File was requantified for the purpose of reissue



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Summary of Detected Compounds MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: RI/inlet

Lab ID#: 0609485-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	50	1000	250	5100
Vinyl Chloride	50	420	130	1100
Chloroethane	50	130	130	360
Freon 11	50	85	280	430
Methylene Chloride	50	150	170	520
1,1-Dichloroethane	50	85	200	340
Benzene	50	1600	160	5200
Trichloroethene	50	470	270	2500
Tetrachloroethene	50	310	340	2100
Chlorobenzene	50	120	230	550
Toluene	50	11000	190	41000
Ethyl Benzene	50	3600	220	16000
m,p-Xylene	50	5700	220	25000
o-Xylene	50	1900	220	8100
1,4-Dichlorobenzene	50	160	300	980
Hexane	50	1800	180	6300
Acetone	200	7500	480	18000
2-Propanol	200	11000	490	26000
2-Butanone (Methyl Ethyl Ketone)	200	7800	590	23000
4-Methyl-2-pentanone	200	1300	820	5200
Ethanol	200	36000 E	380	68000 E
Chlorodifluoromethane	200	1200	710	4200
Dichlorodifluoromethane	200	360	840	1500



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: R1/inlet

Lab ID#: 0609485-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	t092218	Date of Collection:	9/21/06	
Dil. Factor:	100	Date of Analysis:	9/23/06 10:51 AM	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	50	1000	250	5100
Vinyl Chloride	50	420	130	1100
Chloroethane	50	130	130	360
Freon 11	50	85	280	480
1,1-Dichloroethene	50	Not Detected	200	Not Detected
Methylene Chloride	50	150	170	520
1,1-Dichloroethane	50	85	200	340
Chloroform	50	Not Detected	240	Not Detected
1,1,1-Trichloroethane	50	Not Detected	270	Not Detected
Carbon Tetrachloride	50	Not Detected	310	Not Detected
Benzene	50	1600	160	5200
1,2-Dichloroethane	50	Not Detected	200	Not Detected
Trichloroethene	50	470	270	2500
1,2-Dichloropropane	50	Not Detected	230	Not Detected
1,1,2-Trichloroethane	50	Not Detected	270	Not Detected
Tetrachloroethene	50	310	340	2100
1,2-Dibromoethane (EDB)	50	Not Detected	380	Not Detected
Chlorobenzene	50	120	230	550
Toluene	50	11000	190	41000
Ethyl Benzene	50	3600	220	16000
m,p-Xylene	50	5700	220	25000
o-Xylene	50	1900	220	8100
1,1,2,2-Tetrachloroethane	50	Not Detected	340	Not Detected
1,3-Dichlorobenzene	50	Not Detected	300	Not Detected
1,4-Dichlorobenzene	50	160	300	980
1,2-Dichlorobenzene	50	Not Detected	300	Not Detected
Hexane	50	1800	180	6300
Bromodichloromethane	50	Not Detected	340	Not Detected
Chloromethane	200	Not Detected	410	Not Detected
Acetone	200	7500	490	16000
Carbon Disulfide	200	Not Detected	620	Not Detected
2-Propanol	200	11000	490	26000
trans-1,2-Dichloroethene	200	Not Detected	790	Not Detected
2-Butanone (Methyl Ethyl Ketone)	200	7800	590	23000
4-Methyl-2-pentanone	200	1300	820	5200
Ethanol	200	36000 E	380	68000 E
Chlorodifluoromethane	200	1200	710	4200
Acrylonitrile	200	Not Detected	430	Not Detected
Dichlorodifluoromethane	200	360	840	1500
Methyl tert-butyl ether	200	Not Detected	720	Not Detected



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: R1/inlet

Lab ID#: 0609485-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	t092218	Date of Collection:	9/21/06
Dil. Factor:	100	Date of Analysis:	9/23/06 10:51 AM

E = Exceeds instrument calibration range

Container Type: 10 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	113	70-130
4-Bromofluorobenzene	90	70-130



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0609485-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	1092211	Date of Collection:	NA	
Dil. Factor:	1.00	Date of Analysis:	9/22/06 08:15 PM	
Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (uG/m3)	Amount (uG/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.6	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
trans-1,2-Dichloroethene	2.0	Not Detected	7.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
4-Methyl-2-pentanone	2.0	Not Detected	8.2	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Chlorodifluoromethane	2.0	Not Detected	7.1	Not Detected
Acrylonitrile	2.0	Not Detected	4.3	Not Detected
Dichlorodifluoromethane	2.0	Not Detected	8.4	Not Detected
Methyl tert-butyl ether	2.0	Not Detected	7.2	Not Detected



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0609485-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	1092211	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/06 08:15 PM

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	84	70-130



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0609485-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	t092202	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/06 01:06 PM

Compound	%Recovery
Freon 12	110
Vinyl Chloride	108
Chloroethane	124
Freon 11	102
1,1-Dichloroethane	97
Methylene Chloride	92
1,1-Dichloroethane	100
Chloroform	98
1,1,1-Trichloroethane	98
Carbon Tetrachloride	96
Benzene	93
1,2-Dichloroethane	95
Trichloroethene	98
1,2-Dichloropropane	99
1,1,2-Trichloroethane	93
Tetrachloroethene	83
1,2-Dibromoethane (EDB)	96
Chlorobenzene	94
Toluene	101
Ethyl Benzene	92
m,p-Xylene	87
o-Xylene	91
1,1,2,2-Tetrachloroethane	90
1,3-Dichlorobenzene	75
1,4-Dichlorobenzene	75
1,2-Dichlorobenzene	75
Hexane	97
Bromodichloromethane	101
Chloromethane	113
Acetone	96
Carbon Disulfide	91
2-Propanol	100
trans-1,2-Dichloroethene	100
2-Butanone (Methyl Ethyl Ketone)	106
4-Methyl-2-pentanone	100
Ethanol	99
Chlorodifluoromethane	71
Acrylonitrile	100
Dichlorofluoromethane	133
Methyl tert-butyl ether	101



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: CCV

Lab ID#: 0609485-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	1092202	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/22/06 01:06 PM

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	91	70-130



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0609485-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	1092208	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/06 05:58 PM

Compound	% Recovery
Freon 12	110
Vinyl Chloride	104
Chloroethane	123
Freon 11	114
1,1-Dichloroethene	108
Methylene Chloride	104
1,1-Dichloroethane	109
Chloroform	108
1,1,1-Trichloroethane	110
Carbon Tetrachloride	107
Benzene	106
1,2-Dichloroethane	112
Trichloroethene	115
1,2-Dichloropropane	111
1,1,2-Trichloroethane	106
Tetrachloroethene	99
1,2-Dibromoethane (EDB)	104
Chlorobenzene	100
Toluene	110
Ethyl Benzene	100
m,p-Xylene	86
o-Xylene	82
1,1,2,2-Tetrachloroethane	84
1,3-Dichlorobenzene	70
1,4-Dichlorobenzene	70
1,2-Dichlorobenzene	68 Q
Hexane	110
Bromodichloromethane	108
Chloromethane	101
Acetone	108
Carbon Disulfide	107
2-Propanol	104
trans-1,2-Dichloroethene	114
2-Butanone (Methyl Ethyl Ketone)	112
4-Methyl-2-pentanone	101
Ethanol	112
Chlorodifluoromethane	Not Spiked
Acrylonitrile	Not Spiked
Dichlorodifluoromethane	Not Spiked
Methyl tert-butyl ether	107



AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0609485-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	1092208	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/22/06 05:58 PM

O = Exceeds Quality Control limits

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	104	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	97	70-130

APPENDIX C
FIELD DATA SHEETS

DAS CONTINUOUS EMISSIONS MONITORING DATA SHEET

Facility: Vasco Road Landfill
 Location: Flare Outlet (A-3)
 Observers: _____
 Expected Run Time = 30 min
 Cylinder #s: _____

Run #: 1
 Barometric: 29.70
 Personnel: BA
 Std. Temp: 70

Date: 08/24/06
 Leak ✓: OK
 Strat. ✓: OK

Analyte	O2	CO2	NOx	CO	HHC	CH4	timer		
Analyzer	100%		600CLD	48C					
Range	25		25	100	100	100			
Span Value	21.04		22.4	83.0	87.0	87.0			
Time									Comments
11:30	13.08		13.4	12.2	2.0				
11:31	13.16		13.3	15.0	2.0				
11:32	13.04		13.1	14.8	1.8				Leak #
11:33	13.00		13.2	13.9	1.6				A-3
11:34	12.75		13.3	4.3	1.5				
11:35	13.19		13.4	9.6	1.6				Operating Conditions
11:36	13.21		12.3	8.0	1.4				
11:37	13.48		11.4	5.2	1.2				Fuel
11:38	13.42		10.9	3.1	1.2				Landfill Gas
11:39	13.50		10.8	10.8	1.3				
12:00	13.47		10.8	11.4	1.2				
12:01	13.53		11.1	22.5	0.9				
12:02	13.30		11.4	7.8		-0.4			
12:03	13.35		12.1	18.7		-0.2			
12:04	13.47		12.0	7.1		0.0			
12:05	13.34		12.2	8.5		0.6			
12:09	12.54		9.9	24.1	1.7				
12:11	12.43		14.0	27.7	1.4				
12:12	12.82		13.8	20.5	0.9				
12:13	12.75		13.1	17.7	0.9				
12:14	12.52		13.5	5.0	0.9				
12:15	12.63		13.1	0.8	0.6				
12:16	12.97		13.5	4.2		-1.3			
12:17	13.35		12.9	0.9		-1.6			
12:18	13.03		12.8	1.7		-1.9			
12:19	13.25		12.8	2.3		-0.8			
12:20	13.63		12.1	12.3	0.2				
12:21	13.78		11.2	22.2	0.5				
12:22	13.38		10.9	8.4	0.3				
12:23	13.54		11.4	12.1	0.4				
12:24	13.50		11.5	2.1	0.3				
ZERO T	11:33	0.01	0.2	0.3	-0.1	-0.1			
SPAN T	11:41	21.10	22.4	82.9	86.6	86.6			
Average	13.17		12.3	10.8	1.1	-0.7			
ZERO T	12:28	-0.02	0.3	1.7	-2.4	-2.4			
SPAN T	12:33	20.99	21.7	84.3	83.7	83.7			
Zero Drift %	-0.1%		0.4%	1.4%	-2.3%	-2.3%			
Span Drift %	-0.4%		-2.8%	1.5%	-2.8%	-2.8%			
Corr. Avg.	13.17		12.4	9.8	2.4	0.6			

Corrected Average = $[(\text{Test Avg.} - (Z_0 - Z_0)) \cdot \text{Span Gas Value}] / (Z_0 - Z_0) - 2 \cdot [(Z_0 - Z_0) \cdot \text{Span Gas Value}]$

Zero Drift % = $[(Z_0 - Z_0) / \text{Span Gas Value}] \cdot 100$

Span Drift % = $[(Z_0 - Z_0) / \text{Span Gas Value}] \cdot 100$

DAS CONTINUOUS EMISSIONS MONITORING DATA SHEET

Facility: Vasco Road Landfill
 Location: Flare Outlet (A-3)
 Observers: _____
 Expected Run Time = 30 min
 Cylinder #s: _____

Run #: 2
 Barometric: 28.95
 Personnel: BA
 Std. Temp: 70

Date: 08/24/06
 Leak ✓: OK
 Strat. ✓: OK

Analyte	O2	CO2	NOx	CO	THC	CH4	timer		
Analyzer	5E		42C	VIA-510	300M	300M			
Range	25		25	100	100	100			
Span Value	21.04		22.3	83.0	87.0	87.0			
Time	Comments								
12:40	12.73		13.6	-0.3	1.9				
12:41	12.87		13.8	-0.7	2.0				
12:42	12.92		13.5	0.8	2.0				Leak
12:43	13.04		13.3	3.8	2.0				A-3
12:44	12.95		13.1	4.3	2.1				
12:45	13.04		13.1	1.2	2.1				Operating Conditions
12:46	13.07		13.1	-0.2		0.9			
12:47	12.80		13.2	0.8		0.2			Fuel
12:48	12.97		13.6	4.4		0.2			Landfill Gas
12:49	12.84		13.3	2.2	1.4				
12:50	12.82		13.5	-1.3	1.7				
12:51	12.86		13.5	0.3	1.7				
12:52	12.95		13.5	2.6	1.8				
12:53	12.90		13.2	2.7	1.9				
12:54	12.98		13.4	0.3	1.9				
12:55	12.94		13.3	1.7	1.9				
12:56	12.83		13.6	5.0	2.0				
12:57	12.82		13.4	5.5	2.0				
12:58	12.85		13.4	0.4	2.0				
12:59	12.86		13.5	2.2	1.9				
13:00	13.34		13.4	4.9	2.0				
13:01	13.43		12.4	5.5	2.0				
13:02	13.28		12.2	-1.4	1.9				
13:03	13.34		12.5	0.1	1.7				
13:04	13.30		12.6	-2.8		0.0			
13:05	13.20		12.8	-3.2		-0.3			
13:06	13.24		13.1	-3.2		-0.4			
13:07	13.38		12.9	-0.6		-0.4			
13:08	13.33		12.7	0.5		-0.6			
13:09	13.30		12.8	-0.1		-0.6			
ZERO 1	12.36	-0.02	0.3	1.5	0.0	0.0			
SPAN 1	12.38	20.99	21.7	84.3	87.8	87.8			
Average	13.04		13.2	1.2	1.9	-0.1			
ZERO 2	13.14	-0.02	0.3	3.0	-0.7	-0.5			
SPAN 2	13.18	21.00	21.3	85.3	85.9	85.9			
Zero Drift %	0.0%		0.1%	1.2%	-0.7%	-0.7%			
Span Drift %	0.0%		-1.3%	1.0%	-1.8%	-1.8%			
Corr. Avg.	13.08		13.6	-1.1	2.2	0.2			

Corrected Average = (Test Avg. - Zero Drift) * Span Gas Value / (Span SE - Zero Drift) * 21

Zero Drift % = (Zero * 10) / Zero Instrument Range

Span Drift % = (Span * 10) / Span Instrument Range

DAS CONTINUOUS EMISSIONS MONITORING DATA SHEET

Facility: Vasco Road Landfill
 Location: Flare Outlet (A-3)
 Observers: _____
 Expected Run Time: 30 min
 Cylinder #s: _____

Run #: 3
 Barometric: 28.95
 Personnel: BA
 Std. Temp: 70

Date: 08/24/06
 Leak ☒: OK
 Strat. ☒: OK

Analyte	O2	CO2	NOx	CO	THC	CH4	tuner		
Analyzer	5F		42C	VLA-510	860M	800M			
Range	25		25	100	100	100			
Span Value	21.04		25.4	83.0	87.0	87.0			
Time									Comments
13.27	13.28		13.5	-1.6	1.1				
13.28	13.40		13.3	0.0	1.3				
13.29	13.41		12.8	3.0	1.4				Unit #
13.30	13.25		12.9	-1.6	1.3				A-3
13.31	13.39		13.1	0.0	1.4				
13.32	13.41		13.0	3.1	1.4				Operating Conditions
13.33	13.34		13.0	-1.8		-0.3			
13.34	13.36		13.1	-0.6		-0.5			Fuel
13.35	13.43		13.0	-0.3		-0.6			Landfill Gas
13.36	13.34		12.9	0.0		-0.6			
13.37	13.34		13.0	-0.2		-0.6			
13.38	13.27		13.0	-1.9		-0.7			
13.39	13.28		13.1	-1.6		-0.9			
13.40	13.29		13.2	-2.7		-0.9			
13.41	13.17		13.3	-1.5		-0.9			
13.42	13.20		13.5	-1.9		-0.9			
13.43	13.26		13.2	-0.9		-0.9			
13.44	13.28		13.0	-0.8		-0.9			
13.45	13.27		12.9	-0.8		-0.9			
13.46	13.16		12.9	-2.8		-1.0			
13.47	13.12		13.2	-3.1		-1.0			
13.48	13.34		13.3	-1.6		-1.0			
13.49	13.18		13.0	-1.7		-0.9			
13.50	13.22		13.1	-1.3		0.5			
13.51	13.23		13.2	-2.7	0.9				
13.52	13.21		13.2	-2.5	1.0				
13.53	13.14		13.4	-1.6	1.2				
13.54	13.33		13.3	-1.0	1.3				
13.55	13.25		13.1	-2.6	1.4				
13.56	13.25		13.2	-2.5	1.4				
ZERO 1	13.14	-0.02	0.3	3.0	-0.7	-0.7			
SPAN 1	13.18	21.00	21.3	83.3	83.9	83.9			
Average	13.28		13.1	-1.2	1.2	-0.7			
ZERO 1	13.53	-0.02	0.3	3.3	-0.4	-0.4			
SPAN 1	14.00	20.95	21.0	84.4	83.8	83.8			
Zero Drift %		0.0%	0.1%	0.4%	0.2%	0.2%			
Span Drift %		-0.2%	-1.2%	-0.9%	-2.1%	-2.1%			
Corr. Avg.	13.32		13.8	-4.4	1.8	-0.5			

Corrected Average = (Unit Avg. - (Span Drift / 4)) * Span Gas Value / (20 - Zero Drift / 2)

Zero Drift % = (100 * (21 - Zero Drift) / Range)

Span Drift % = (100 * (80 - Span Drift) / Range)

DAS CONTINUOUS EMISSIONS MONITORING DATA SHEET

Facility: Vasco Road Landfill

Run #: 1

Date: 08/08/06

Location: Flare Outlet (A-3)

Barometric: 29.75

Leak ✓: OK

Observers:

Personnel: BA

Strat. ✓: OK

Expected Run Time = 30 min

Std. Temp: 60

Cylinder #s:

Analyte	O2	CO2	NOx	CO	THC	CH4	timer		
Analyzer	100P		600CLD	48C	500M	500M			
Range	25		25	500	100	100			
Span Value	21.49		22.5	417.0	88.2	88.2			
Time									
8:30	12.75		12.1	6.1	4.0				
8:31	12.81		10.9	2.5	3.4				
8:32	12.83		10.3	3.8	3.2				End of
8:33	12.99		10.2	3.9	2.9				A-3
8:34	12.99		10.0	3.1	2.7				
8:35	13.03		9.7	4.7	2.6				Operating Conditions
8:36	13.02		10.0	4.7	2.3				
8:37	12.66		10.6	2.8	2.0				
8:38	12.53		11.3	1.8	1.7				End of
8:39	12.49		11.7	1.6	1.9				Landfill Gas
9:00	12.30		11.9	2.2		0.6			
9:01	12.35		12.1	1.9		0.5			
9:02	12.18		12.2	2.7		-0.2			
9:03	12.18		12.4	1.4		-0.3			
9:04	12.06		13.1	0.8	0.0				
9:05	11.81		13.2	0.5	-0.2				
9:07	11.78		15.3	6.8	1.7				
9:08	11.29		18.7	22.7	1.6				
9:09	11.73		15.3	10.7	0.1				
9:10	11.59		13.3	2.0	-0.6				
9:11	11.67		13.0	1.5	-1.1				
9:12	12.31		11.8	1.4	-1.3				
9:13	12.44		11.6	1.9		-2.0			
9:14	12.56		11.4	2.1		-2.2			
9:15	13.03		10.4	2.3		-2.4			
9:16	13.03		10.6	5.9		-2.5			
9:17	13.07		10.8	5.1		-2.2			
9:18	13.04		10.6	6.5	-2.0				
9:19	12.82		11.6	3.0	-2.1				
9:20	12.50		11.5	3.5	-2.1				
ZERO 1	8.41	0.02	0.0	0.1	-0.4	-0.4			
SPAN 1	8.46	21.52	22.8	416.9	89.6	89.6			
Average	12.49		11.9	4.0	1.0	-1.2			
ZERO 1	9.23	0.01	0.1	0.0	-4.4	-4.4			
SPAN 1	9.25	21.53	22.8	414.1	83.8	83.8			
Zero Drift %	0.0%		0.2%	0.0%	-4.1%	-4.1%			
Span Drift %	0.0%		0.1%	-0.6%	-5.8%	-5.8%			
Corr. Avg.	12.46		11.8	3.9	3.3	1.2			

Corrected Average = Test Avg - [(Z1-Z0)/(2)] * Span (21.52) Value (21.52-21.49) = 21.49

Zero Drift % = Test * (Z1 - Z0) / (Span) Range

Span Drift % = Test * (S1 - S0) / (Span) Range

DAS CONTINUOUS EMISSIONS MONITORING DATA SHEET

Facility: Vasco Road Landfill
 Location: Flare Outlet (A-3)
 Observers: _____
 Expected Run Time = 30 min
 Cylinder #s: _____

Run #: 2
 Barometric: 29.75
 Personnel: BA
 Std. Temp: 60

Date: 08/08/06
 Leak ☒ : OK
 Strat. ☒ : OK

Analyte	O2	CO2	NOx	CO	THC	CH4	timer	
Analyzer	100P		600CLD	48C	300M	300M		
Range	25		25	500	100	100		
Span Value	21.49		22.5	417.0	88.2	88.2		
Time								Comments
9:31	12.47		12.0	2.2	1.5			
9:32	12.11		12.9	2.1	1.3			End of
9:33	13.23		12.4	2.2	1.2			A-3
9:34	12.30		12.4	2.1	1.1			
9:35	12.07		12.8	2.1	1.0			Operating Conditions
9:36	12.13		12.5	2.2	0.8			
9:37	12.15		12.8	2.2	0.7			
9:38	12.17		12.7	2.6	0.6			Fuel
9:39	12.01		12.5	2.7	0.5			Landfill Gas
9:40	11.94		12.5	2.6	0.4			
9:41	12.15		12.4	2.7		0.1		
9:42	12.14		12.6	2.7		-0.2		
9:43	12.00		12.2	2.7		-0.3		
9:44	12.16		12.4	2.7		-0.4		
9:45	12.17		12.3	2.6	-0.1			
9:46	12.41		12.1	2.7	0.1			
9:47	12.24		12.4	2.4	0.1			
9:48	12.36		12.3	2.6	0.2			
9:49	12.29		12.4	2.7	0.2			
9:50	12.44		12.2	2.6	0.2			
9:51	12.29		12.3	2.7	0.2			
9:52	12.25		11.8	2.3	0.0			
9:53	12.24		12.1	2.4		-0.2		
9:54	12.33		12.5	2.2		-0.4		
9:55	12.31		12.2	2.4		-0.4		
9:56	12.64		11.8	2.7		-0.4		
9:57	12.47		12.1	2.7		0.0		
9:58	12.21		12.1	2.2	0.2			
9:59	12.29		12.6	2.3	0.3			
10:00	12.27		12.4	2.2	0.3			
ZERO 1	0:28	0.01	0.1	0.0	-0.3	-0.3		
SPAN 1	0:30	21.53	22.8	414.1	88.8	88.8		
Average	12.34		12.4	2.4	0.3	-0.2		
ZERO 1	10:02	0.01	0.1	0.1	-1.3	-1.3		
SPAN 1	10:04	21.56	23.0	410.9	90.7	90.7		
Zero Drift %	0.0%		0.0%	0.0%	-0.9%	-0.9%		
Span Drift %	0.1%		0.7%	-0.6%	1.8%	1.8%		
Corr. Avg	12.27		12.1	2.4	1.4	0.7		

Corrected Average = [(Zero Avg. - 0) / Zero Drift %] * Span Gas Value - [(Zero Avg. - 0) / Zero Drift %] * Zero

Zero Drift % = (Zero - 0) / (Span Gas Value - Zero) * 100

Span Drift % = (Span - 0) / (Span Gas Value - Zero) * 100

DAS CONTINUOUS EMISSIONS MONITORING DATA SHEET

Facility: Vasco Road Landfill
 Location: Flare Outlet (A-3)
 Observers: _____
 Expected Run Time = 30 min
 Cylinder #s: _____

Run #: 3
 Barometric: 29.75
 Personnel: BA
 Std. Temp: 60

Date: 08/08/06
 Leak ✓: OK
 Strat. ✓: OK

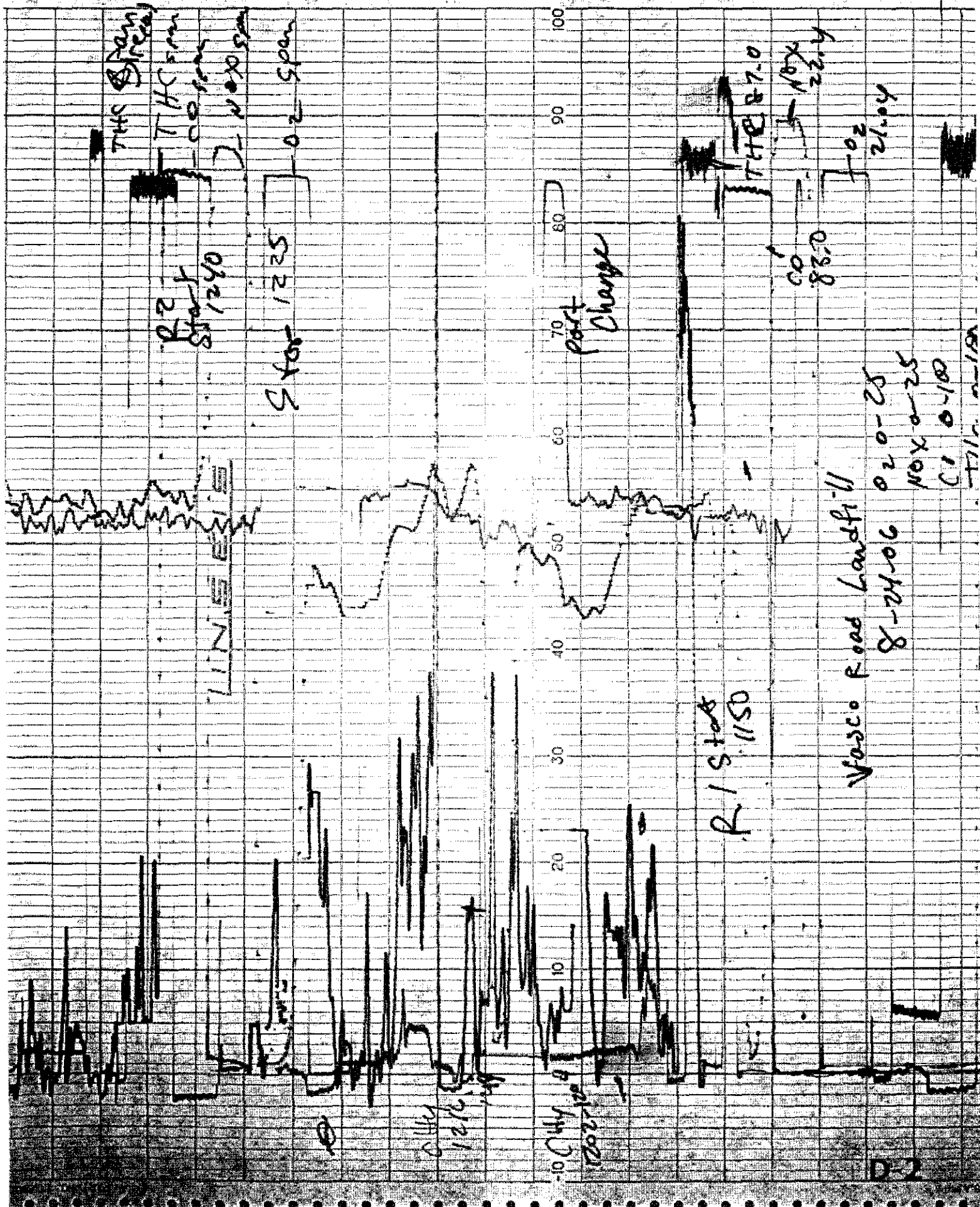
Analyte	O2	CO2	NOx	CO	THC	CH4	timer		
Analyzer	100P		600CLD	48C	500M	300M			
Range	25		25	500	100	100			
Span Value	21.49		22.5	417.9	88.2	88.2			
Time		Comments							
10:07	12.61		11.5	3.4	0.2				
10:08	12.36		12.3	2.2	0.3				
10:09	12.36		12.6	1.8	0.2				Unit #
10:10	12.19		12.2	2.6	0.2				A-3
10:11	12.44		12.6	2.9	0.1				
10:12	12.25		12.3	2.7	0.0				Operating Conditions
10:13	12.29		12.2	3.0	0.0				
10:14	12.33		12.2	2.3	-0.1				
10:15	12.41		12.2	2.2		-0.5			Fuel
10:16	12.26		12.3	2.3		-0.8			Landfill Gas
10:17	12.28		12.2	1.9		-0.8			
10:18	12.44		11.6	2.1		-0.9			
10:19	12.15		12.4	1.7		-0.8			
10:20	12.08		12.9	1.7	-0.5				
10:21	12.32		12.7	1.8	-0.5				
10:22	12.35		12.3	2.4	-0.4				
10:23	12.27		12.3	2.7	-0.5				
10:24	12.26		12.3	2.5	-0.5				
10:25	12.27		12.0	2.2	-0.5				
10:26	12.53		11.9	2.4	-0.5				
10:27	12.65		11.7	3.2	-0.4				
10:28	12.40		12.3	2.5	-0.5				
10:29	12.43		12.2	1.7		-0.7			
10:30	12.23		12.6	1.9		-1.0			
10:31	12.34		12.3	2.2		-0.9			
10:32	12.27		13.1	1.7		-1.1			
10:33	12.39		12.6	1.8		-1.1			
10:34	12.40		12.2	1.6	-1.0				
10:35	12.52		12.1	1.7	-0.7				
10:36	12.49		12.4	2.2	-0.7				
ZERO1	10:02	0.01	0.1	0.1	-1.3	-1.3			
SPANT	10:04	21.56	23.0	410.9	90.7	90.7			
Average	12.36		12.3	2.2	-0.5	-0.9			
ZERO1	10:38	0.00	0.1	0.1	-2.2	-2.2			
SPANT	10:41	21.57	23.0	409.3	89.1	89.1			
Zero Drift %	0.0%		0.0%	0.0%	-0.9%	-0.9%			
Span Drift %	0.1%		0.1%	-0.3%	-1.6%	-1.6%			
Corr. Avg.	12.32		12.0	2.1	1.4	0.9			

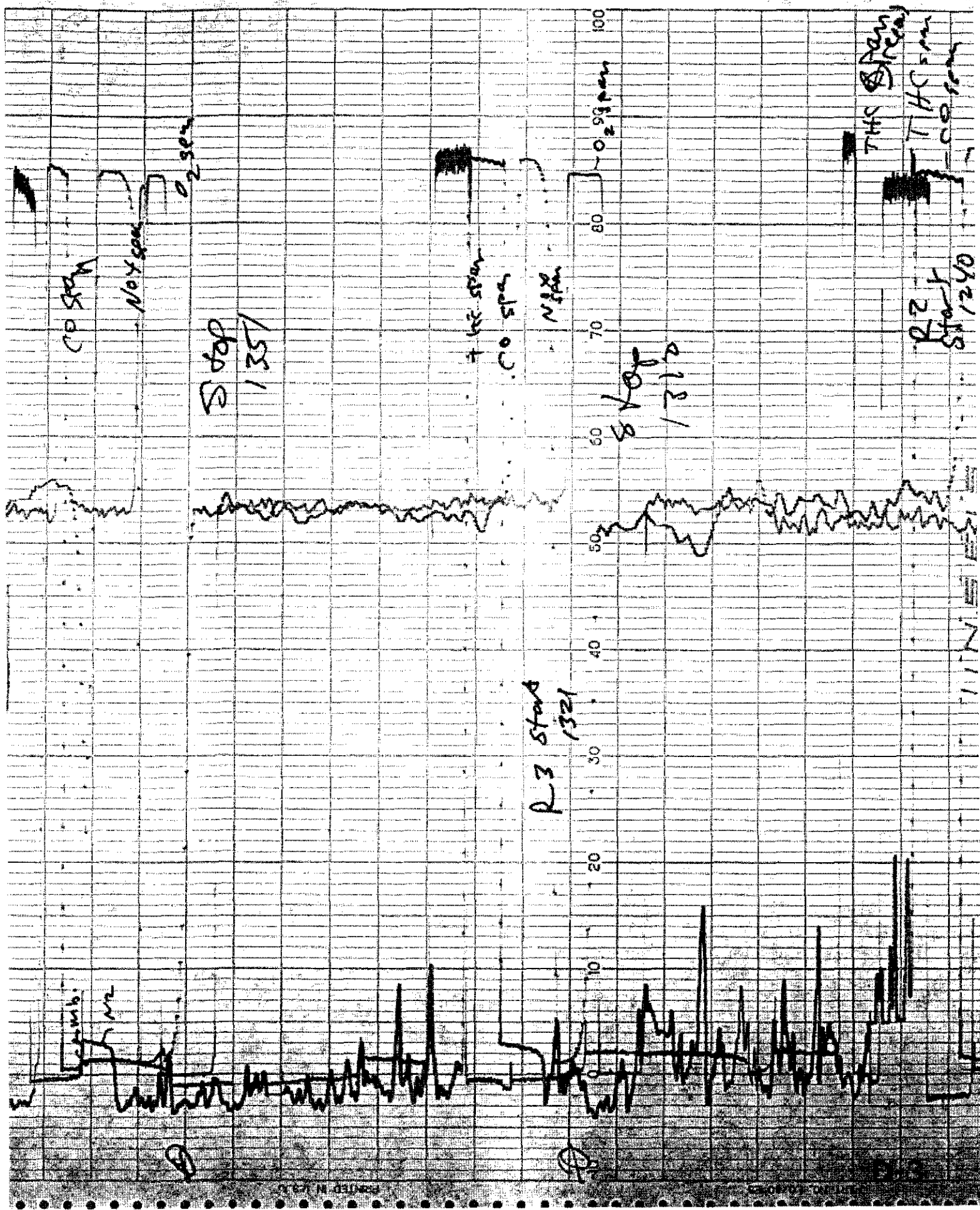
Corrected Average = (Corr Avg - Zdr Z0) / (1 - Zdr) * Span (Corr Avg - Zdr Z0) / (1 - Zdr) = 1.1

Zero Drift % = (Zdr - Z0) / Z0 * 100

Span Drift % = (Zdr - Z0) / Z0 * 100

APPENDIX D
STRIP CHART RECORDS





CO span

NOx span

O2 span

Stop
1351

4 hr span

CO span

NOx span

O2 span

Stop
1312

TMC span

TMC span

CO span

R2 start
1340

R3 start
1321

20

30

40

50

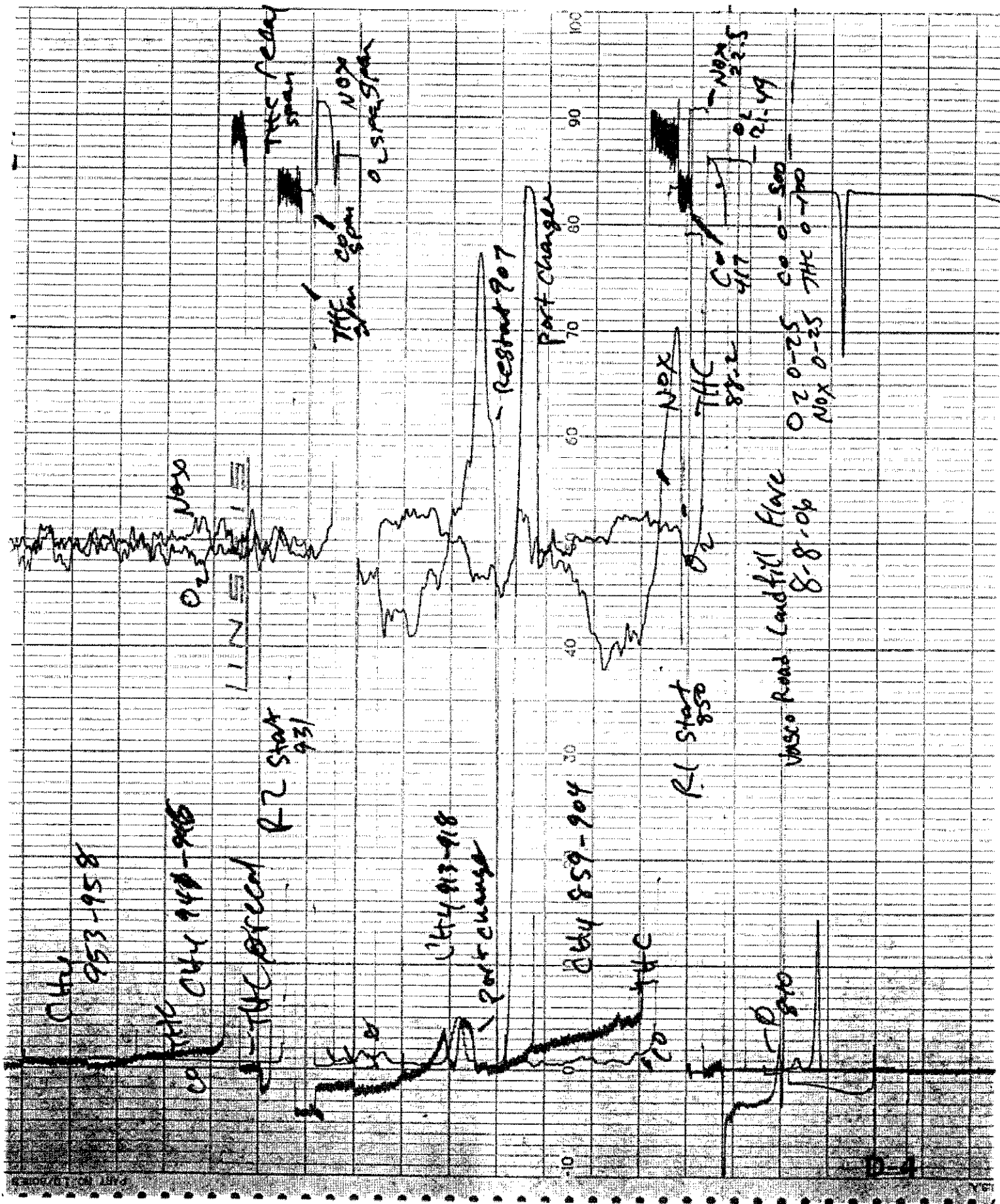
60

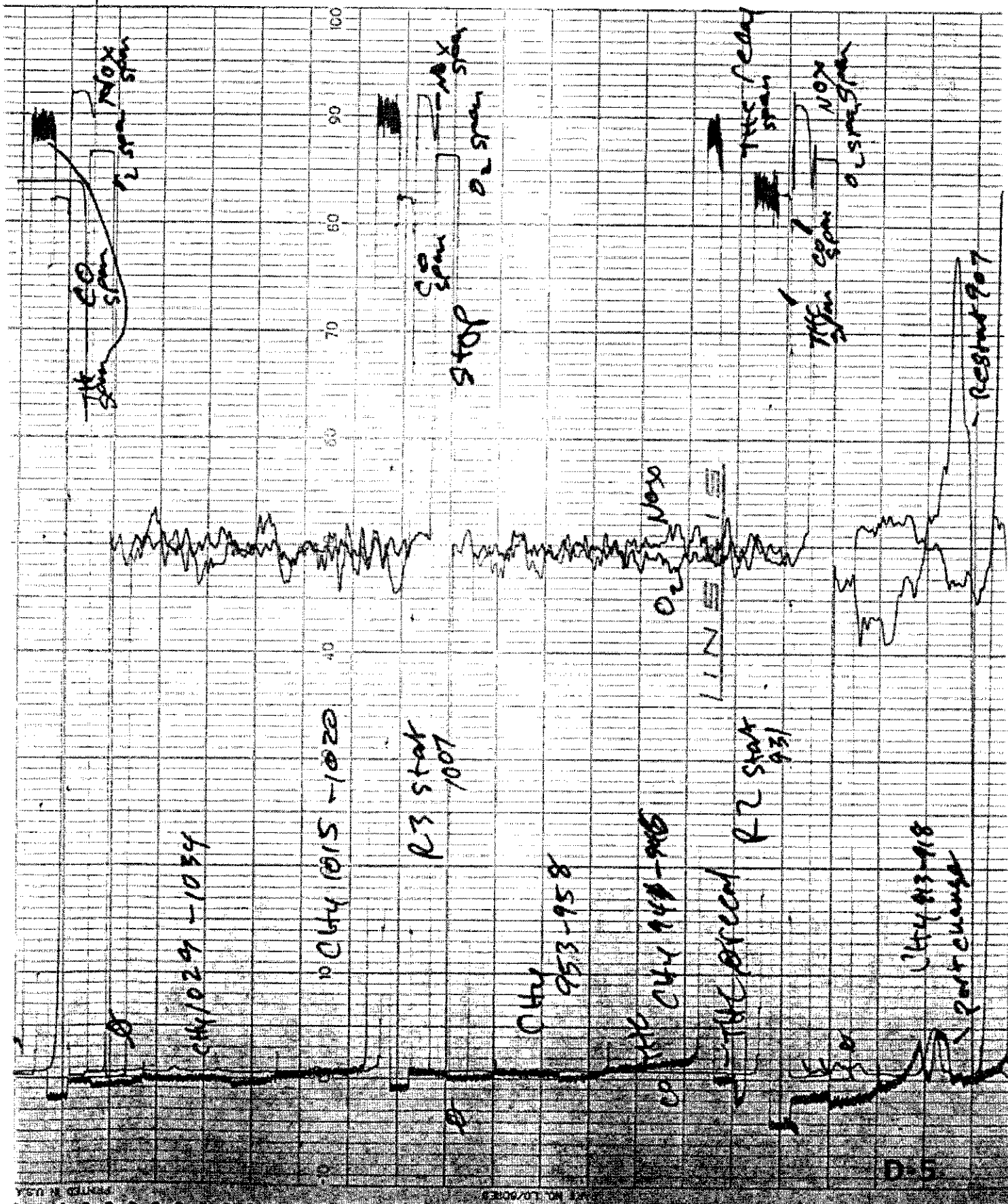
70

80

90

100





CO span
NOX span

stop
CO span
NOX span

stop
CO span
NOX span

0441029-1034

0441015-1020

R3 stat
1001

044
953-958

CO
044 948-950

stop
R2 stat
931

044 913-918
part change

Restart 907

D-5

APPENDIX E
CALIBRATION GAS CERTIFICATES



Praxair
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CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER BEST ENV

P.O. NUMBER 7220

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE (CM)	SRM 2613	8046 1092	21.1 ppm
CARBON DIOXIDE (CD)	SRM 1674	80 95754	5.04 %
OXYGEN (O)	SRM 2659a	ALG 39	21.00 %

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	CARBON MONOXIDE (CM)	ANALYZER MAKE-MODEL-S/N	Horiba, VIA 510, S/N 88804115
ANALYTICAL PRINCIPLE	NDIR	LAST CALIBRATION DATE	07/26/06
FIRST ANALYSIS DATE	08/24/06	SECOND ANALYSIS DATE	08/21/06
Z 0.0 R 24.4 C 17.7 CONC. 17.7 Z 0.0 R 24.4 C 17.7 CONC. 17.7			
R 24.4 Z 0.0 C 17.7 CONC. 17.7 R 24.4 Z 0.0 C 17.7 CONC. 17.7			
Z 0.0 C 17.7 R 24.4 CONC. 17.7 Z 0.0 C 17.7 R 24.4 CONC. 17.7			
U/M ppm	MEAN TEST ASSAY 17.7	U/M ppm	MEAN TEST ASSAY 17.7
2. COMPONENT	CARBON DIOXIDE (CD)	ANALYZER MAKE-MODEL-S/N	Siemens Ultramat SR S/N AIR 740
ANALYTICAL PRINCIPLE	NDIR	LAST CALIBRATION DATE	07/26/06
FIRST ANALYSIS DATE	08/24/06	SECOND ANALYSIS DATE	
Z 0.00 R 5.01 C 4.06 CONC. 4.07 Z R C CONC.			
R 5.01 Z 0.00 C 4.06 CONC. 4.06 R Z C CONC.			
Z 0.00 C 4.06 R 5.01 CONC. 4.07 Z C R CONC.			
U/M %	MEAN TEST ASSAY 4.06	U/M %	MEAN TEST ASSAY
3. COMPONENT	NITROGEN (N)	ANALYZER MAKE-MODEL-S/N	Siemens Oxymat SE S/N AIR 610
ANALYTICAL PRINCIPLE	Paramagnetic	LAST CALIBRATION DATE	07/28/06
FIRST ANALYSIS DATE	08/24/06	SECOND ANALYSIS DATE	
Z 0.00 R 21.06 C 21.04 CONC. 21.04 Z R C CONC.			
R 21.06 Z 0.00 C 21.04 CONC. 21.04 R Z C CONC.			
Z 0.00 C 21.04 R 21.06 CONC. 21.04 Z C R CONC.			
U/M %	MEAN TEST ASSAY 21.04	U/M %	MEAN TEST ASSAY

THIS CYLINDER NO. 80 2703

HAS BEEN CERTIFIED ACCORDING TO SECTION

OF TRACEABILITY PROTOCOL NO. Rev 9-97

PROCEDURE 01

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 08/11/06

EXPIRATION DATE 08/11/08 TERM 18 MONTHS

CERTIFIED CONCENTRATION

CARBON MONOXIDE	17.7 ppm
CARBON DIOXIDE	4.06 %
OXYGEN	21.04 %
NITROGEN	BALANCE

VALIDATED NOT VALID BELOW 100 PSIG

ANALYZED BY

STRACIA TRAN

CERTIFIED BY

WIMB THORNTON

IMPORTANT

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CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER BEST ENV.

P.O. NUMBER

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE (CO)	VB 50M40111	CO 34457	24.42 ppm
CARBON DIOXIDE (CO ₂)	VB 50M40621	CO 14767	2.79 %
OXYGEN (O ₂)	VB 50M40650	CO 14931B	21.01 %

ANALYZER READINGS

R = REFERENCE STANDARD

Z = ZERO GAS

C = GAS CANDIDATE

1. COMPONENT CARBON MONOXIDE (CO)				ANALYZER MAKE-MODEL-S/N Siemens Ultramat SE S/N A12-729			
ANALYTICAL PRINCIPLE FIDTR				LAST CALIBRATION DATE 01/04/96			
FIRST ANALYSIS DATE 01/30/96				SECOND ANALYSIS DATE 02/06/96			
Z 0.00	R 24.40	C 18.75	CONC. 18.06	Z 0.0	R 24.40	C 18.38	CONC. 18.40
R 14.10	Z 0.00	C 18.40	CONC. 18.31	R 34.40	Z 0.00	C 18.40	CONC. 19.41
Z 0.00	C 18.40	R 24.40	CONC. 18.41	Z 0.00	C 14.40	R 24.40	CONC. 18.41
UM ppm	MEAN TEST ASSAY 18.13			UM ppm	MEAN TEST ASSAY 18.70		
2. COMPONENT CARBON DIOXIDE (CO2)				ANALYZER MAKE-MODEL-S/N Siemens Ultramat SE S/N A12-710			
ANALYTICAL PRINCIPLE TIA-15				LAST CALIBRATION DATE 01/06/96			
FIRST ANALYSIS DATE 01/30/96				SECOND ANALYSIS DATE			
Z 0.00	R 1.78	C 1.775	CONC. 1.775	Z	R	C	CONC.
R 2.510	Z 0.000	C 1.780	CONC. 1.779	R	Z	C	CONC.
Z 0.000	C 1.780	R 2.510	CONC. 1.779	Z	C	R	CONC.
UM %	MEAN TEST ASSAY 1.777			UM %	MEAN TEST ASSAY		
3. COMPONENT OXYGEN (O2)				ANALYZER MAKE-MODEL-S/N Siemens Oxyrel SE S/N A12-819			
ANALYTICAL PRINCIPLE Paramagnetic				LAST CALIBRATION DATE 01/03/96			
FIRST ANALYSIS DATE 01/30/96				SECOND ANALYSIS DATE			
Z 0.00	R 21.01	C 21.01	CONC. 21.49	Z	R	C	CONC.
R 21.00	Z 0.00	C 21.00	CONC. 21.49	R	Z	C	CONC.
Z 0.00	C 21.00	R 21.00	CONC. 21.49	Z	C	R	CONC.
UM %	MEAN TEST ASSAY 21.49			UM %	MEAN TEST ASSAY		

THIS CYLINDER NO. CO 10042

HAS BEEN CERTIFIED ACCORDING TO SECTION

OF TRACEABILITY PROTOCOL NO. REV 9/91

PROCEDURE 31

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 02/06/96

EXPIRATION DATE 02/06/99 TERM 11 MONTHS

CERTIFIED CONCENTRATION

CARBON MONOXIDE	24.4 ppm
CARBON DIOXIDE	1.78 %
OXYGEN	21.01 %
NITROGEN	BALANCE

VALUES NOT VALID BELOW 100 PSIG

ANALYZED BY

ROBERT GARBER

CERTIFIED BY

HELENA TRAN

This information is provided for informational purposes only. It is not intended to be used as a substitute for professional advice. While we believe that the information is accurate and reliable, we make no warranty or representation as to the accuracy of the information. The information is provided with the understanding that any use of the information is at the user's discretion and risk. The user assumes all liability for any use of the information. Praxair does not warrant the accuracy of the information provided herein or the fitness of the information for any purpose.



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CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER BEST ENVI.

P.O NUMBER

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON MONOXIDE GMS	vs. SRM#1679	CC 159872	101.4 ppm
CARBON DIOXIDE GMS	vs. SRM#2745	SA 15085	15.05 %
OXYGEN GMS	vs. SRM#2659	HA 6878	10.00 %

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT		CARBON MONOXIDE		GMS		ANALYZER MAKE-MODEL-S/N		Siemens Ultramat 5E S/N B01-728	
ANALYTICAL PRINCIPLE		NDIR						LAST CALIBRATION DATE 05/04/05	
FIRST ANALYSIS DATE		05/20/05						SECOND ANALYSIS DATE 05/27/05	
Z 0.0	R 101.4	C 83.0	CONC. 83.0	Z 0.0	R 101.4	C 82.8	CONC. 82.8		
R 101.4	Z 0.0	C 63.2	CONC. 83.2	R 101.4	Z 0.0	C 82.8	CONC. 82.8		
Z 0.0	C 83.2	R 101.4	CONC. 83.2	Z 0.0	C 82.8	R 101.4	CONC. 82.8		
U/M %		MEAN TEST ASSAY 83.1		U/M %		MEAN TEST ASSAY 82.8			
2. COMPONENT		CARBON DIOXIDE		GMS		ANALYZER MAKE-MODEL-S/N		Siemens Ultramat 5E S/N A12-730	
ANALYTICAL PRINCIPLE		NDIR						LAST CALIBRATION DATE 05/04/05	
FIRST ANALYSIS DATE		05/20/05						SECOND ANALYSIS DATE	
Z 0.0	R 15.04	C 12.74	CONC. 12.75	Z	R	C	CONC.		
R 15.00	Z 0.00	C 12.74	CONC. 12.75	R	Z	C	CONC.		
Z 0.00	C 12.74	R 15.05	CONC. 12.74	Z	C	R	CONC.		
U/M %		MEAN TEST ASSAY 12.75		U/M %		MEAN TEST ASSAY			
3. COMPONENT		OXYGEN		GMS		ANALYZER MAKE-MODEL-S/N		Siemens Oxymat 5E S/N A12-839	
ANALYTICAL PRINCIPLE		Paramagnetic						LAST CALIBRATION DATE 05/03/05	
FIRST ANALYSIS DATE		05/20/05						SECOND ANALYSIS DATE	
Z 0.00	R 10.00	C 8.60	CONC. 8.60	Z	R	C	CONC.		
R 10.00	Z 0.00	C 8.60	CONC. 8.60	R	Z	C	CONC.		
Z 0.00	C 8.60	R 10.00	CONC. 8.60	Z	C	R	CONC.		
U/M %		MEAN TEST ASSAY 8.60		U/M %		MEAN TEST ASSAY			

THIS CYLINDER NO.	SGAL 2830	CERTIFIED CONCENTRATION
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA 600/R97/121	CARBON MONOXIDE 83.0 ppm
OF TRACEABILITY PROTOCOL NO.	Rev. 9/97	CARBON DIOXIDE 12.75 %
PROCEDURE	G1	OXYGEN 8.60 %
CERTIFIED ACCURACY	± 1 % NIST TRACEABLE	NITROGEN BALANCE
CYLINDER PRESSURE	2000 PSIG	
CERTIFICATION DATE	05/27/05	Values not valid below 150 psig. CO & O2
EXPIRATION DATE	05/27/08	TERMS 36 MONTHS
		CONCS. WERE CORRECTED FOR CO2 INTERFERENCE.

ANALYZED BY

ISMAR. BANGSIYABOON

CERTIFIED BY

PHU TIEN NGUYEN

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CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER BEST ENV

P.O NUMBER 7079

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
NITRIC OXIDE GM15	VHSRM#16840	EA 20477	89.9 ppm
CARBON MONOXIDE GM15	SRM#16802	CC 106603	492 ppm

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZEPO GAS

C=GAS CANDIDATE

1. COMPONENT	NITRIC OXIDE	ANALYZER MAKE-MODEL-S/N	BECKMAN 951A 0000010001		
ANALYTICAL PRINCIPLE	CHEMILUMINESCENCE	LAST CALIBRATION DATE	11/01/05		
FIRST ANALYSIS DATE	10/29/05	SECOND ANALYSIS DATE	11/02/05		
Z 0.0	R 617.0	C 512.9	CONC. 88.0		
R 613.8	Z 0.0	C 509.9	CONC. 82.9		
Z 0.0	C 610.2	R 615.7	CONC. 82.8		
U/M mv	MEAN TEST ASSAY	82.9 ppm	U/M mv	MEAN TEST ASSAY	80.4 ppm
2. COMPONENT	CARBON MONOXIDE	GM15	ANALYZER MAKE-MODEL-S/N	Siemens Muxamat 58 S/N A12 720	
ANALYTICAL PRINCIPLE	NDIR	LAST CALIBRATION DATE	11/01/05		
FIRST ANALYSIS DATE	10/29/05	SECOND ANALYSIS DATE	11/02/05		
Z 0	R 498	C 417	CONC. 417		
R 498	Z 0	C 417	CONC. 417		
Z 0	C 417	R 498	CONC. 417		
U/M ppm	MEAN TEST ASSAY	417 ppm	U/M ppm	MEAN TEST ASSAY	417 ppm

NDIR values for reference only. VA test not valid below 100 ppm

THIS CYLINDER NO.	CC 141532	CERTIFIED CONCENTRATION	
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA-401/297.17	NITRIC OXIDE	89.9 ppm
OF TRACEABILITY PROTOCOL NO.	REV 5/97	CARBON MONOXIDE	417 ppm
PROCEDURE	G1	NITROGEN	BALANCE
CERTIFIED ACCURACY	± 1	NOX	88.9 ppm
CYLINDER PRESSURE	2000 PSIG		
CERTIFICATION DATE	11/02/05		
EXPIRATION DATE	11/02/07	TERM	24 MONTHS

ANALYZED BY

CHRIS VO

CERTIFIED BY

VICTOR DOMIN

DISCLAIMER

Information contained herein has been prepared at your request by qualified experts within Praxair Global and, while we believe that the information is accurate and of the highest quality, we make no warranty or representation as to the accuracy or reliability of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. Praxair Global and its subsidiaries are not liable for any use of the information for purposes not intended by Praxair Global.

E-5



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

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER PETERSBURG

P.O. NUMBER

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
NITROGEN	SRM 980	CC 117445	24.70 ppm

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

I. COMPONENT		ANALYZER MAKE-MODEL-S/N		THERMO ENV. 422 S/N 0918112457					
ANALYTICAL PRINCIPLE	CHROM. COLUMN	CHROM. COLUMN	LAST CALIBRATION DATE	02/24/95					
FIRST ANALYSIS DATE	02/27/95	SECOND ANALYSIS DATE	02/27/95						
Z 0.0	R 24.6	C 22.3	CONC.	22.3	Z 0.0	R 25.0	C 22.3	CONC.	22.4
R 24.6	Z 0.0	C 24.3	CONC.	22.4	R 25.0	Z 0.0	C 22.3	CONC.	22.4
Z 0.0	C 22.3	R 24.6	CONC.	22.4	Z 0.0	C 22.3	R 25.0	CONC.	22.4
U/M	ppm	MEAN TEST ASSAY	22.4	U/M	ppm	MEAN TEST ASSAY	22.4		

VALUES NOT VALID - BELOW 150 PPB
REF. VALUE FOR REFERENCE USE ONLY

THIS CYLINDER NO.	CC 117445	CERTIFIED CONCENTRATION	
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA-821-R-93-010	METHOD	24.70 ppm
OF TRACEABILITY PROTOCOL NO.	REV. 1/97	NITROGEN	24.70 ppm
PROCEDURE	G.	NOX	24.70 ppm
CERTIFIED ACCURACY	± 1 % NIST TRACEABLE		
CYLINDER PRESSURE	2500 PSIG		
CERTIFICATION DATE	02/27/95		
EXPIRATION DATE	02/27/98	TERM	24 MONTHS

ANALYZED BY

Henry Krung

CERTIFIED BY

Jack F.

IMPORTANT: Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee accompanied for providing such information.



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

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER BEST ENV

P.O. NUMBER

REFERENCE STANDARD

COMPONENT

NIST SRM NO.

CYLINDER NO.

CONCENTRATION

NITRIC OXIDE (NO)

SRM#1927a

CO 13744

24.33 ppm

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT NITRIC OXIDE (NO)

ANALYZER MAKE-MODEL-S/N

Thermo 430 S/N 0518112467

ANALYTICAL PRINCIPLE

Chemiluminescence

LAST CALIBRATION DATE

12/11/05

FIRST ANALYSIS DATE

12/28/05

SECOND ANALYSIS DATE

12/12/05

Z 0.0

R 25.0

C 22.4

CONC. 22.4

Z 0.0

R 24.7

C 22.3

CONC. 22.3

R 25.0

Z 0.0

C 22.4

CONC. 22.4

R 24.7

Z 0.0

C 22.4

CONC. 22.4

Z 0.0

C 22.7

R 25.0

CONC. 22.4

Z 0.0

C 22.3

R 24.7

CONC. 22.3

U/M ppm

MEAN TEST ASSAY 22.4

U/M ppm

MEAN TEST ASSAY 22.3

VALUES NOT VALID BELOW 100 PPM
MAX VALUE FOR REFERENCE USE ONLY.

THIS CYLINDER NO. SA 11291

CERTIFIED CONCENTRATION

HAS BEEN CERTIFIED ACCORDING TO SECTION

AAA-661/227/121

NITRIC OXIDE

22.4 ppm

OF TRACEABILITY PROTOCOL NO.

BBV 9197

NITROGEN

BALANCE

PROCEDURE (G)

NOx

22.5 ppm

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2000 PSIG

CERTIFICATION DATE 12/12/05

EXPIRATION DATE 12/12/07 TERM 24 MONTHS

ANALYZED BY

Henry Kovich

CERTIFIED BY

John F.

IMPORTANT

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. (Who) we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analysis performed. We make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.



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Los Angeles, CA 90058
Telephone: (323) 585-2154
Facsimile: (714) 542-6689

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER WEST ENV.

P.O. NUMBER

REFERENCE STANDARD

COMPONENT

NIST SRM NO.

CYLINDER NO.

CONCENTRATION

PROPANE

GMIS

SRM 8881647

SA 5183

49.3 ppm

ANALYZER READINGS

R = REFERENCE STANDARD

Z = ZERO GAS

C = GAS CANDIDATE

I. COMPONENT	PROPANE	GMIS	ANALYZER MAKE & MODEL-S/N	HORIBA, VIA-510, S/N 576876015
ANALYTICAL PRINCIPLE	GMIS	GMIS		LAST CALIBRATION DATE 09/01/05
FIRST ANALYSIS DATE	09/19/05			SECOND ANALYSIS DATE
Z 0.0	R 135.4	C 79.4	CONC. 29.0	Z R C CONC.
R 135.4	Z 0.0	C 79.9	CONC. 29.0	R Z C CONC.
Z 0.0	C 79.8	R 137.0	CONC. 29.0	Z C R CONC.
U/M ppm		MEAN TEST ASSAY 29.0	U/M ppm	MEAN TEST ASSAY

VALUES NOT VALID BELOW 1.0 PP10.

THIS CYLINDER NO. 01 145517

CERTIFIED CONCENTRATION

HAS BEEN CERTIFIED ACCORDING TO SECTION

EPA-600 R97/131

PROPANE

29.0 ppm

OF TRACEABILITY PROTOCOL NO.

REV 9/97

AIR

BALANCE

PROCEDURE 01

CERTIFIED ACCURACY ± 1 % NIST TRACEABLE

CYLINDER PRESSURE 2500 PSIG

CERTIFICATION DATE 09/19/05

EXPIRATION DATE 09/19/08 TERM 36 MONTHS

87.0 T4C

ANALYZED BY

HOLENA TRAN

CERTIFIED BY

LENNEL HAINES/TARRANT

IMPORTANT

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall the liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

E-8



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

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER BSCF

P.O NUMBER

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
PROPANE CMIS	VA SRM166a	SA 5175	29.9 ppm

ANALYZER READINGS

R=REFERENCE STANDARD

Z=ZERO GAS

C=GAS CANDIDATE

1. COMPONENT	PROPANE	CMIS	ANALYZER MAKE-MODEL-S/N	HOSIBA	FIA-510	8-1175123		
ANALYTICAL PRINCIPLE	Flame Ionization Detector							
FIRST ANALYSIS DATE	06/15/96					06/01/96		
Z 0.0	R 19.0	C 75.4	CONC.	29.4	Z	R	C	CONC.
R 75.0	Z 0.0	C 75.5	CONC.	29.3	R	Z	C	CONC.
Z 1.0	C 75.5	R 76.7	CONC.	29.4	Z	C	R	CONC.
U/M	ppm	MEAN TEST ASSAY	29.4	U/M	ppm	MEAN TEST ASSAY		

Values are stated below 150 ppm

THIS CYLINDER NO.	02 241035	CERTIFIED CONCENTRATION	
HAS BEEN CERTIFIED ACCORDING TO SECTION	EPA-801/897/121	PROPANE	29.4 ppm
OF TRACEABILITY PROTOCOL NO.	REV. 9/97	ACR	BALANCE
PROCEDURE	G1		
CERTIFIED ACCURACY	± 1	% NIST TRACEABLE	
CYLINDER PRESSURE	2000	PSIG	
CERTIFICATION DATE	06/15/96		
EXPIRATION DATE	06/15/99	TERM	16 MONTHS

The 85.2 ppm

ANALYZED BY

HELENA CHAN

CERTIFIED BY

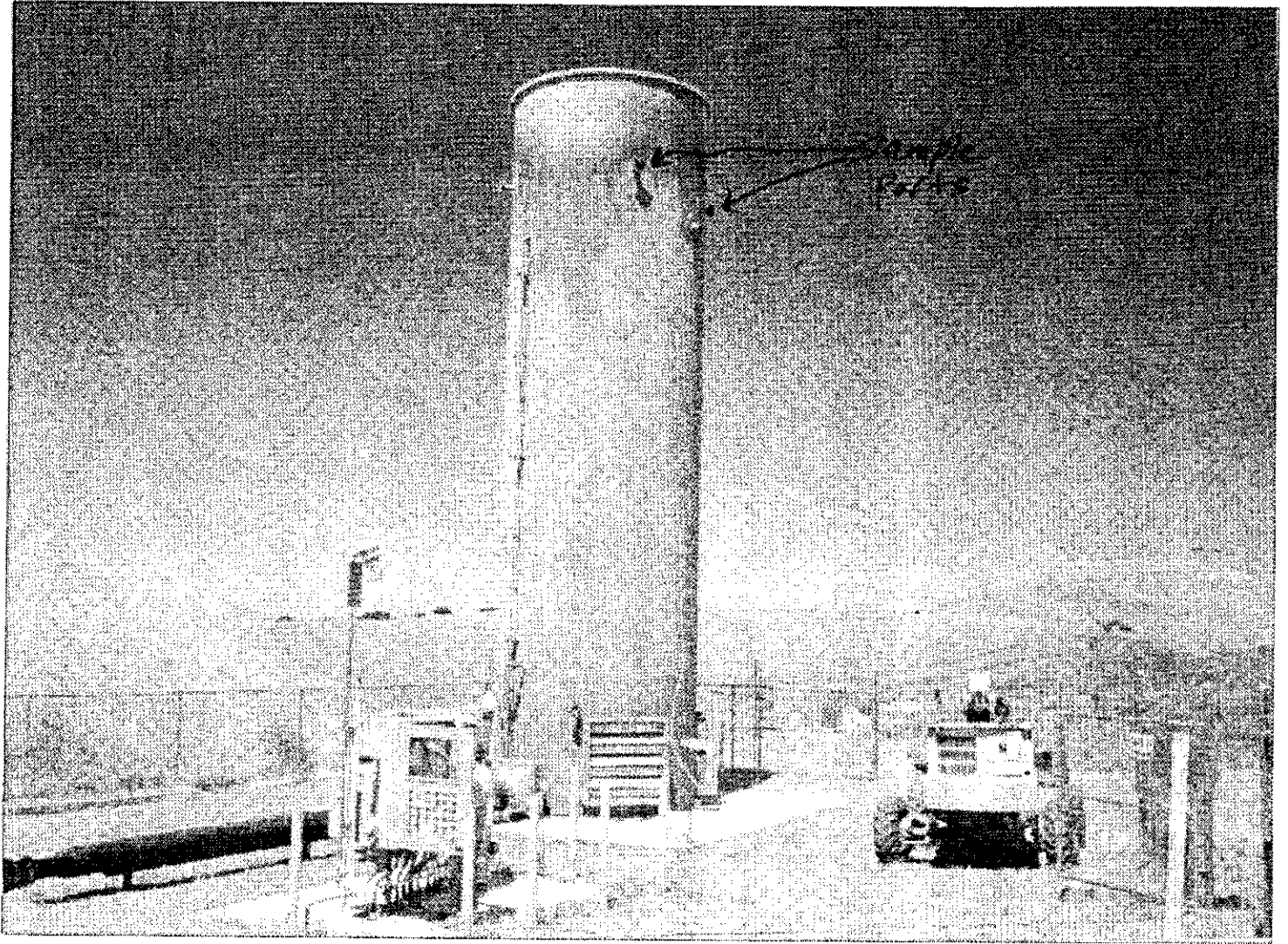
PHIL TIER NORTON

IMPORTANT

Information contained herein has been prepared at your request by qualified experts within Praxair Distribution, Inc. While we believe that the information is accurate within the limits of the analytical methods employed and is complete to the extent of the specific analyses performed, we make no warranty or representation as to the suitability of the use of the information for any particular purpose. The information is offered with the understanding that any use of the information is at the sole discretion and risk of the user. In no event shall liability of Praxair Distribution, Inc., arising out of the use of the information contained herein exceed the fee established for providing such information.

APPENDIX F

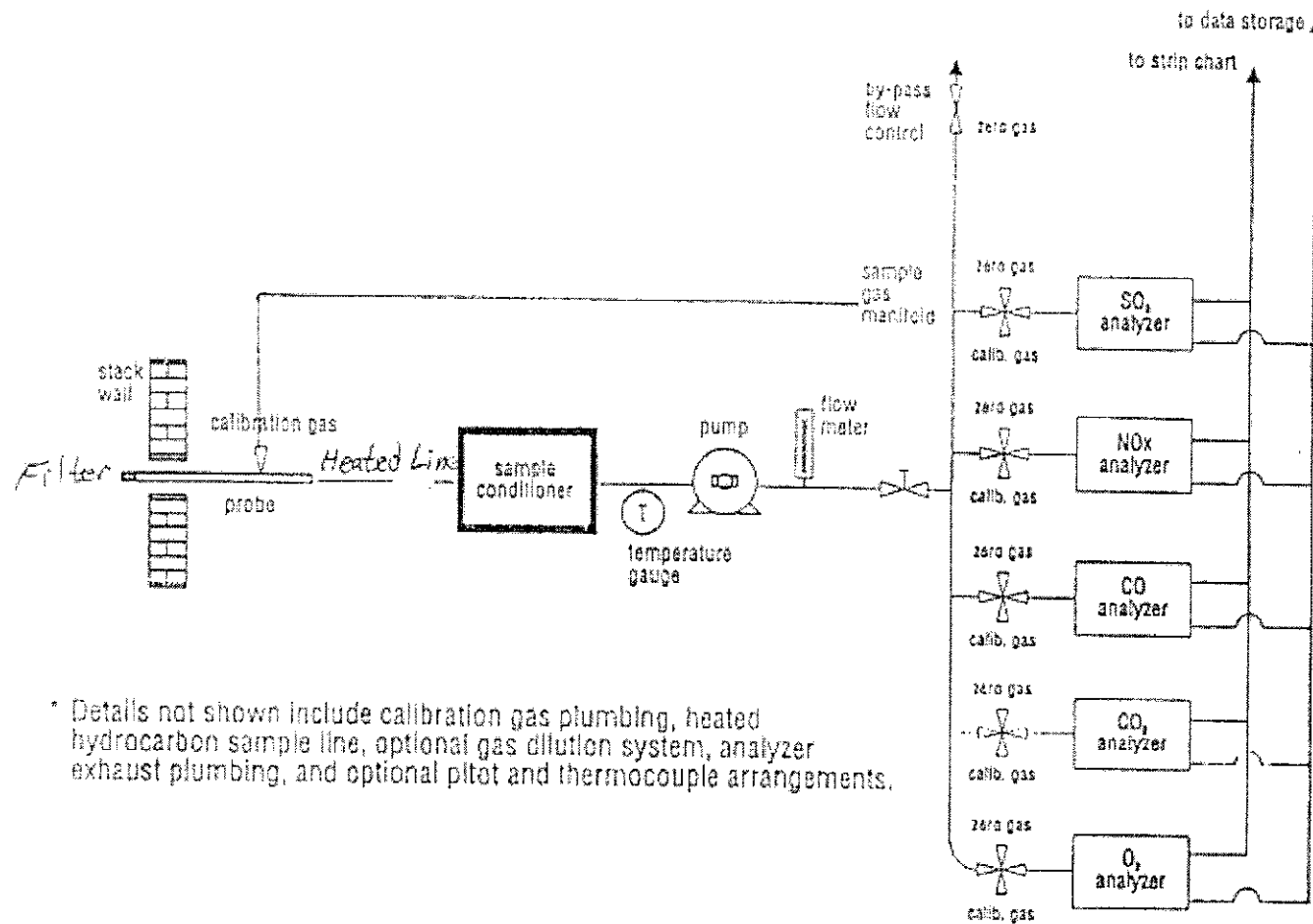
STACK DIAGRAMS



Vasco Road Landfill
Flare A-3

APPENDIX G
SAMPLING SYSTEM DIAGRAMS

Method 100 Sample Train Assembly



* Details not shown include calibration gas plumbing, heated hydrocarbon sample line, optional gas dilution system, analyzer exhaust plumbing, and optional pitot and thermocouple arrangements.

APPENDIX H

SOURCE TEST PLAN

BEST ENVIRONMENTAL

6261 SOUTHFRONT ROAD
LIVERMORE, CALIFORNIA 94551
(925) 455-9474 FAX (925) 455-9479
E-Mail bestair@sbcglobal.net

August 3, 2006

Attn: Ken Kunaniec
BAAQMD
939 Ellis Street
San Francisco, CA 94019

RE: Compliance emissions Monitoring of one flare (A-3) located at Vasco Road Landfill, 4001 North Vasco Road, Livermore, California. (Regulation #8-34-301.3 & 412 Plant 5095, Cond.#818).

Dear Ken:

Best Environmental (BE) proposes the following methodology for compliance testing the above referenced source.

- Triplicate thirty-minute test runs will be performed at the flare exhaust using BAAQMD Methods ST-13A (NO_x), ST-6 (CO), ST-7 (THC's = CH₄ & NMOC), and ST-14 (O₂).
- A single integrated fuel sample will be collected at the inlet for the landfill gas organic and sulfur compounds (analyzed using a modified EPA Method TO-14 & D-5504), plus triplicate compliance fuel gas analysis (BTU/CF, hydrocarbons C1-C6, O₂, CO₂, N₂ etc.) analyzed using ASTM Method D-1945 and D-3588
- Triplicate integrated bag samples will be collected at the flare inlet for TNMHC (NMOC) and analyzed using EPA Method 25C.
- Fuel flow rate will be recorded and the fuel analysis data will be used to calculate outlet volumetric flow rate using EPA Method 19. Flare temperature will also be recorded and included in the final report.

An overview of the sampling program is summarized in the table below

Parameter	Location	Method(s)	Duration	# of Runs
THC, CH ₄ , NMOC, NO _x , CO & O ₂	Exhaust	BAAQMD ST-7, 13A, 14, 6	30 mins	3
Flow Rate & Fuel	Exhaust	EPA 19	30 mins	3
LFG organics	Inlet	EPA TO14/TO15 & D-5504	30 mins	1
C1-C6, O ₂ , N ₂ & BTU	Inlet	ASTM D-1945/3588	30 mins	3
Flow Rate	Inlet	Flare Gas Metering System	30 mins	3
NMOC	Inlet	EPA 25C	30 mins	3

- Three copies of the technical compliance report will be submitted to Vasco Road Landfill within approximately four weeks of testing. The report will present a test narrative; emission concentrations, emission rates, NMOC destruction efficiency and landfill gas organic & sulfur compound characterization. Analysis will be performed

by Columbia Analytical and/or Air Toxics Ltd.. for Method 25C. All supporting documents (strip charts, field data sheets, laboratory reports, calibrations, calculations, process information, etc) will also be included.

The test program is scheduled for August 8, 2006 with BE's tentative site arrival time set for 8:00am. Ms. Diana Ratto from Vasco Road Landfill is coordinating the test program and she can be reached at (925) 447-0491 ext. 0.

If there are any questions, please contact me at (925) 455-9474 X 104.

Sincerely,



Bobby Asfour
Project Manager

cc: Diana Ratto, Vasco Road Landfill

FAXDate 08/09/06Number of pages including cover sheet: 3TO: Ken Kuraniec/Tim UnderwoodCompany: BAAQMDFax phone: #4CC: Diana Ratto/David ZeigerCompany: Vasco Road LandfillFax phone: 925 477-0499/510 282-1656From: Regan BestPhone: (925) 455-9474 x 104Fax phone: (925) 455-9479Original Being Mailed? Yes ☐ No ☒To APCD ☐ Not Yet ☐

REMARKS: ☐ Quotation Follows ☒ Source Test Plan Follows ☐ Per Your Request ☐ Please Respond
☐ As We Discussed ☐ For Your Review ☐ Reply ASAP ☐ Preliminary Draft

Testing of the LFG flare was performed yesterday as in our original STP dated August 3. However Vasco Road Landfill has decided to disregard this test and perform another with the 14 day STP notification requirement given in their PTO. We are resubmitting STP at their request to satisfy this requirement.

BEST ENVIRONMENTAL

6261 SOUTHFRONT ROAD
LIVERMORE, CALIFORNIA 94551
(925) 455-9474 FAX (925) 455-9479
E-Mail bestair@sbcglobal.net

August 9, 2006

Attn: Ken Kunaniec
BAAQMD
939 Ellis Street
San Francisco, CA 94019

RE: Compliance emissions Monitoring of one flare (A-3) located at Vasco Road Landfill, 4001 North Vasco Road, Livermore, California. (Regulation #8-34-301.3 & 412 Plant 5095, Cond.#818).

Dear Ken:

Best Environmental (BE) proposes the following methodology for compliance testing the above referenced source.

- Triplicate thirty-minute test runs will be performed at the flare exhaust using BAAQMD Methods ST-13A (NO_x), ST-6 (CO), ST-7 (THC's = CH₄ & NMOC), and ST-14 (O₂).
- A single integrated fuel sample will be collected at the inlet for the landfill gas organic and sulfur compounds (analyzed using a modified EPA Method TO-14 & D-5504), plus triplicate compliance fuel gas analysis (BTU/CF, hydrocarbons C1-C6, O₂, CO₂, N₂ etc.) analyzed using ASTM Method D-1945 and D-3588
- Triplicate integrated bag samples will be collected at the flare inlet for TNMHC (NMOC) and analyzed using EPA Method 25C.
- Fuel flow rate will be recorded and the fuel analysis data will be used to calculate outlet volumetric flow rate using EPA Method 19. Flare temperature will also be recorded and included in the final report.

An overview of the sampling program is summarized in the table below

Parameter	Location	Method(s)	Duration	# of Runs
THC, CH ₄ , NMOC, NO _x , CO & O ₂	Exhaust	BAAQMD ST-7, 13A, 14, 6	30 mins	3
Flow Rate & Fuel	Exhaust	EPA 19	30 mins	3
LFG organics	Inlet	EPA TO14/TO15 & D-5504	30 mins	1
C1-C6, O ₂ , N ₂ & BTU	Inlet	ASTM D-1945/3588	30 mins	3
Flow Rate	Inlet	Flare Gas Metering System	30 mins	3
NMOC	Inlet	EPA 25C	30 mins	3

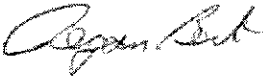
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by Columbia Analytical and/or Air Toxics Ltd.. for Method 25C. All supporting documents (strip charts, field data sheets, laboratory reports, calibrations, calculations, process information, etc) will also be included.

The test program is scheduled for **August 24**, 2006 with BE's tentative site arrival time set for 8:00am. Ms. Diana Ratto from Vasco Road Landfill is coordinating the test program and she can be reached at (925) 447-0491 ext. 0.

If there are any questions, please contact me at (925) 455-9474 X 104.

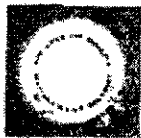
Sincerely,



 Bobby Asfour
Project Manager

cc: Diana Ratto, Vasco Road Landfill

APPENDIX I
PERMIT TO OPERATE



BAY AREA AIR QUALITY MANAGEMENT DISTRICT

830 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109
(415) 771-8000

PERMIT TO OPERATE

Plant# 5095

Page: 1

Expires: APR 1, 2007

This document does not permit the holder to violate any District regulation or other law.

Eric Horton
Republic Services Vasco Road, LLC
4001 N Vasco Road
Livermore, CA 94550

Location: 4001 N Vasco Road
Livermore, CA 94550

S#	DESCRIPTION	[Schedule]	PAID
1	CHEM> Landfill with gas collection system, Multi-material Landfill with Gas Collection System (97 Vert & 5 Hor Wells) (K) Abated by: A3 Flare Emissions at: P3 Stack		1375
5	MISC-HDLG> Mixing , Burns Diesel fuel, 740 in3 displ, 95 hp Pugmill Mixing of Sludge and Ash <i>No source 5</i>	[F]	150
6	MISC-HDLG> Storage Flyash Silo (for storing ash) <i>No source 6</i> Abated by: A6 Baghouse, Shaking	[F]	150
7	Service Station G9551, 1 gasoline nozzles, Vehicle Non-Retail GDP #9551 <i>Gas Boy</i>	[D]	36
8	Reciprocating Engine, Elect Gen, 740 in3 displ, 95 hp Diesel Engine Powering S-5 (Pugmill)	[B]	137
9	Reciprocating Engine, Elect Gen, 740 in3 displ, 94 hp Tipper no. 1 (TP-905), Perkins 94 hp diesel engine	[B]	137
10	STANDBY, Reciprocating Engine, Elect Gen, 700 in3 displ, 77 hp Generator (Pugmill control panel)	[B]	137

7 Permit Sources, 0 Exempt Sources

*** See attached Permit Conditions ***

The operating parameters described above are based on information supplied by permit holder and may differ from the limits set forth in the attached conditions of the Permit to Operate. The limits of operation in the permit conditions are not to be exceeded. Exceeding these limits is considered a violation of District regulations subject to enforcement action.



**BAY AREA AIR QUALITY
MANAGEMENT DISTRICT**

939 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

**PERMIT
TO OPERATE**

Plant# 5095

Page 2

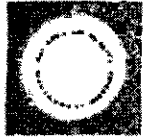
Expires: APR 1, 2007

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***** PERMIT CONDITIONS *****

=====

Source# 1	subject to Condition ID# 918
Source# 2	subject to Condition ID# 12203
Source# 3	subject to Condition ID# 12204
Source# 7	subject to Condition ID# 7523
Source# 8	subject to Condition ID# 20396
Source# 9	subject to Condition ID# 20511
Source# 10	subject to Condition ID# 20512



**BAY AREA AIR QUALITY
MANAGEMENT DISTRICT**

999 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94108
(415) 771-8000

**PERMIT
TO OPERATE**

Plant# 5095

Page: 3

Expires: APR 1, 2007

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***** PERMIT CONDITIONS *****

CONDITION ID #818

FOR: S-1 VASCO ROAD LANDFILL WITH GAS COLLECTION SYSTEM;
FOR: A-3 LANDFILL GAS FLARE
FOR: A-4 LANDFILL GAS FLARE

1. All collected landfill gas shall be vented to the properly operating Landfill Gas Flares (A-3 and A-4). Raw landfill gas shall not be vented to the atmosphere except for unavoidable landfill gas emissions, which occur during collection system installation, maintenance, or repair that is performed in compliance with Regulation 8, Rule 34, Sections 113, 116, 117, or 118 and inadvertent component or surface leaks that do not violate 8-34-301.2 or 8-34-303.
(basis: Regulations 8-34-301 and 8-34-303)
2. The Permit Holder shall apply for and receive an Authority to Construct before modifying the landfill gas collection system described in Parts 2a-b below. Increasing or decreasing the number of wells or collectors, changing the length of collectors, or changing the locations of wells or collectors are all considered to be modifications that are subject to the Authority to Construct requirement.
 - a. The Permit Holder has been issued a Permit to Operate for the landfill gas collection system components listed below.

	Required Components
Total Number of Vertical Wells:	83
Total Number of Horizontal Collectors:	5
 - b. The Permit Holder has been issued an Authority to Construct (Application Number: 2244) for the additional landfill gas collection system components listed below.

Total Number of Vertical Wells:	46
---------------------------------	----

Wells installed pursuant to subpart b shall be added to subpart a in accordance with the procedures identified in Regulations 2-6-414 or 2-6-415. The Permit Holder shall maintain records of the initial operation date for each new well.
(basis: Regulations 2-1-301, 8-34-301.1, 8-34-304, 8-34-305)
3. a. The landfill gas collection system described in



**BAY AREA AIR QUALITY
MANAGEMENT DISTRICT**

939 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

**PERMIT
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Plant# 5095

Page: 4

Expires: APR 1, 2007

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***** PERMIT CONDITIONS *****

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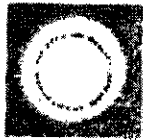
Part 2a shall be operated continuously, as defined in Regulation 8-34-219 and Part 3b below. Wells shall not be shut off, disconnected or removed from operation without written authorization from the APCO, unless the Permit Holder complies with all applicable requirements of Regulation 8, Rule 34, Sections 113, 116, 117, and 118.

(basis: Regulation 8-34-301.1)

- b. For the specified wells and collectors listed below, the gas collection system operating requirements listed in Parts 3b(i-ii) shall replace the wellhead requirements identified in Regulation 8-34-305.2 through 8-34-305.4. All wells and collectors remain subject to the Regulation 8-34-305.1 requirement to maintain vacuum on each wellhead and to the Regulation 8-34-505 monthly monitoring requirements. The specified wells and collectors shall be deemed to be operating continuously, if the components are complying with Regulation 8-34-305.1 and any applicable limits in Part 3b(i-ii). In addition, Part 3b(iii) clarifies the applicable limits for vaults containing gas collection system components. If the Permit Holder discovers an excess of a Part 3b(i-iii) limit and corrects the excess in accordance with the Regulation 8-34-414 repair schedule, the excess shall not be deemed a violation of this part.

(basis: Regulations 8-34-301.1, 8-34-301.2, 8-34-303, and 8-34-305)

- i. The Regulation 8-34-305.2 temperature limit shall not apply to the wells or collectors listed below. The landfill gas temperature in each of the components listed below shall not exceed 140 degrees F.
OEW-HA, OEW-HB, OEW-14, EW-9, EW-33A, EW-43, EW-44, EW-45, EW-52, EW-53, EW-54, EW-57, and EW-58.
- ii. The Regulation 8-34-305.3 nitrogen concentration limit and the Regulation 8-34-305.4 oxygen concentration limit shall not apply to the wells listed below, provided that the oxygen concentration in the landfill gas at the main header does not exceed 5% O₂ by volume (dry basis) and the methane



**BAY AREA AIR QUALITY
MANAGEMENT DISTRICT**

939 ELLIS STREET
SAN FRANCISCO, CALIFORNIA 94109
(415) 771-6000

**PERMIT
TO OPERATE**

Plant# 5095

Page: 5

Expires APR 1, 2007

This document does not permit the holder to violate any District regulation or other law.

***** PERMIT CONDITIONS *****

=====

concentration in the landfill gas at the main header is not less than 35% CH₄ by volume (dry basis). The permit holder shall monitor the landfill gas from the main header for oxygen and methane on a monthly basis to demonstrate compliance with this part.

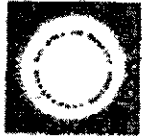
OEW-6, OEW-10, OEW-11, OEW-13, OEW-14, OEW-HA, OEW-HB, EW-9, EW-15, EW-16, EW-26, EW-27, EW-29, EW-29A, EW-31, EW-32, EW-32A, EW-33, EW-33A, EW-35, EW-36, EW-36A, EW-38, EW-40, EW-41, EW-42A, EW-43, EW-51, and EW-58.

- iii. This subpart applies to vaults containing gas collection system equipment, where the top of the vault is located at or near the surface of the landfill. The vault shall be monitored at both 1 cm from the vault (for comparison to the component leak limit of Regulation 8-34-301.2) and 2 inches above the vault (for comparison to the surface leak limit of Regulation 8-34-303).

(a) If during an inspection the District's monitored readings show compliance with both the component leak limit and the surface leak limit, the vault and components within shall be deemed to be in compliance with Regulations 8-34-301.2 and 8-34-303. No further testing is necessary.

(b) If the District's monitored readings show an excess of either the component leak limit or the surface leak limit, the operator shall comply with the Regulation 8-34-415 Repair Schedule for Landfill Surface Leak Excesses, until the source of the leak can be identified. The vault shall be opened and allowed to air out for at least 10 minutes. The collection system components within the vault shall be re-monitored at 1 cm from the components and the landfill surface surrounding the vault shall be re-monitored at 2 inches above the surface.

(c) If the re-monitoring (after airing the



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vault for 10 minutes) shows no component leaks and no surface leaks, the vault and components within shall be deemed to be in compliance with Regulations 8-34-301.2 and 8-34-303.

(d) If the re-monitoring shows a component leak, or the operator's further evaluation determines that the source of the emissions excess was a collection system component, then a violation of 8-34-301.2 shall be deemed to have occurred; and the operator shall take all necessary corrective action and shall comply with all applicable reporting requirements.

(e) If the re-monitoring shows a surface leak but not a component leak, the operator shall continue to comply with all applicable provisions of the Regulation 8-34-415 Repair Schedule for Landfill Surface Leak Excesses.

4. A temperature monitor with readout display and continuous recorder shall be installed and maintained on each of the Flares A-3 and A-4). One or more thermocouples shall be placed in the primary combustion zone of each of the flares and shall accurately indicate flare combustion temperature at all times. Temperature charts showing continuous combustion zone temperature shall be retained for at least five years and made readily available to District staff upon request. (basis: Regulations 8-34-501.3 and 507)
5. The combustion temperature of the Flare (A-3) shall be maintained at a minimum of 1650 degrees F, averaged over any 3-hour period. The combustion temperature of the Flare A-4) shall be maintained at a minimum of 1400 Degrees F, averaged over any 3-hour period. If a source test demonstrates compliance with all applicable requirements at a different temperature, the APCO may revise the minimum combustion zone temperature limit, in accordance with the

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procedures identified in Regulation 2-6-414 or 2-6-415, based on the following criteria. The minimum combustion zone temperature for the flare shall be equal to the average combustion zone temperature measured during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature shall not be less than 1400 degrees F. (basis: RACT for CO, Toxic Risk Management Policy, and Regulation 8-34-301.3)

6. Each of the Flares (A-3 and A-4) shall be equipped with auto restart capability, a local alarm system, and automatic temperature controlled louvers. (basis: Regulation 8-34-301 and RACT for CO)
7. Each of the Flares (A-3 and A-4) shall be fired on landfill gas. No landfill gas condensate or leachate may be burned in the A-3 or A-4 Flares. Propane or other similar clean burning fuels may be used during flare start-up. (basis: Cumulative Increase)
8. The concentration of nitrogen oxides (NOx) in the flue gas from the Landfill Gas Flares (A-3 and A-4) shall not exceed 11 ppmv of NOx, corrected to 15% oxygen, dry basis. This is equivalent to 0.050 pounds of NOx (calculated as NO2) per million BTU. (basis: RACT)
9. The emissions of nitrogen oxide (calculated as NO2) from the A-3 Flare shall not exceed 92.0 pounds per day. The emissions of nitrogen oxide (calculated as NO2) from the A-4 Flare shall not exceed 141.1 pounds per day. (basis: Offsets)
10. The emissions of carbon monoxide (CO) from the A-3 Flare shall not exceed 460.1 pounds per day. The emissions of carbon monoxide (CO) from the A-4 Flare shall not exceed 547.2 pounds per day. (basis: Cumulative Increase)



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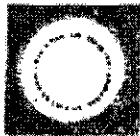
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11. The emissions of PM10 from the A-3 Flare shall not exceed 37.5 pounds per day. The emissions of PM10 from the A-4 Flare shall not exceed 63.4 pounds per day. (basis: Cumulative Increase)
 12. The hydrogen sulfide content of the landfill gas shall not exceed 80 ppmv, dry basis. The total reduced sulfur content of the landfill gas shall not exceed 320 ppmv, reported as H2S, dry basis. (basis: RACT for SO2 and Regulation 9-1-302)
 13. The Heat Input to the A-3 Landfill Gas Flare shall not exceed 1704 million BTU per day nor 621,960 million BTU per year. The Heat Input to the A-4 Landfill Gas Flare shall not exceed 2880 million BTU per day nor 1,051,200 million BTU per year. In order to demonstrate compliance with this part, the Permit Holder shall calculate and record on a monthly basis the maximum daily and total monthly heat input to the flare based on the landfill gas flow rate recorded pursuant to Part 22g, the average methane concentration in the landfill gas based on the most recent source test, and a high heating value for methane of 1013 BTU/ft3 at 60 OF. (basis: Regulation 2-1-301)
 14. The Permit Holder shall comply with the following waste acceptance and disposal limits and shall obtain the appropriate New Source Review permit, if one of the following limits is exceeded:
 - a. Total amount of solid waste (as defined in Regulation 8-34-202) accepted at the landfill shall not exceed 2,518 tons in any day (except during temporary emergency situations approved by the Local Enforcement Agency). Vehicle traffic that is transporting incoming or outgoing solid waste or other materials shall not exceed 625 vehicles per day. (Basis: Regulation 2-1-301)
 - b. The total cumulative amount of all waste



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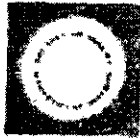
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placed in the landfill shall not exceed 23.8 million tons. Exceedance of the cumulative tonnage limit is not a violation of the permit and does not trigger the requirement to obtain a New Source review permit, if the operator can, within 30 days of the date of discovery of the exceedance, provide documentation to the District demonstrating, in accordance with BAAQMD Regulation 2-1-234.3, that the limit should be higher. (Basis: Regulation 2-1-234.3)

c. The maximum design capacity of the landfill (total volume of all wastes and cover materials placed in the landfill, excluding final cover) shall not exceed 31.65 million cubic yards.

(Basis: Regulation 2-1-301)

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15. This facility is not subject to Regulation 8, Rule 40 because the landfill does not accept contaminated soil (soil containing more than 50 ppmw of volatile organic compounds, VOCs). The following types of materials may be accepted:
- a. Metal-laden soil (soil containing metals above naturally occurring background concentrations), VOC-laden soil (soil containing VOCs that is not "contaminated" soil), or other materials for which the Permit Holder has appropriate documentation demonstrating that either the organic content of the soil or the organic concentration above the soil is below the "contaminated" level (as defined in Regulation 8, Rule 40, Sections 205, 207, and 211).
 - b. Materials for which the Permit Holder has no documentation to prove that soil is not contaminated, but the source of the soil is known and there is no reason to suspect that the soil might contain organic compounds or metal compounds at other than naturally occurring



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background concentrations.

- c. Materials which the Permit Holder plans to test in order to determine the VOC contamination level in the soil, provided that the material is sampled within 24 hours of receipt by this site and is handled as if the soil were contaminated until the Permit Holder receives the test results. The Permit Holder shall collect soil samples in accordance with Regulation 8-40-601.

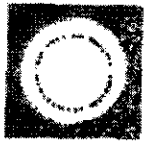
The organic content of the collected soil samples shall be determined in accordance with Regulation 8-40-602.

- i. If these test results indicate that the soil is contaminated or if the soil was not sampled within 24 hours of receipt by the facility, the Permit Holder must continue to handle the soil in accordance with Regulation 8, Rule 40, until the soil has been removed from this site. For the purposes of Regulations 8-40-306.3-306.5, storing soil in a temporary stockpile or pit and co-mingling, blending, or mixing of soil lots are not considered treatment.

- ii. If these test results indicate that the soil, as received at this site, has an organic content of 50 ppmw or less, then the soil may be considered to be not contaminated and need not be handled in accordance with Regulation 8, Rule 40 any longer. (basis: Regulation 8-40-301)

- 16. The total amount of metal-laden and VOC-laden soil used as cover material shall not exceed 180,000 tons during any consecutive 12 month period. The metal concentrations of any metal-laden soil shall not exceed the following limits:

Metals	Maximum Concentration (ppmw)
Arsenic	130
Beryllium	75



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Cadmium	100
Chromium VI	7
Copper	2500
Lead	1000
Mercury	20
Nickel	2000
Selenium	100
Zinc	5000

Parts a. and b. below identify the maximum usage rates and maximum allowed concentrations of toxic compounds that may be present in the two types of VOC-laden soil used that may be used as cover material at this site.

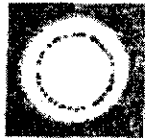
- a. For soil containing high concentrations of certain chlorinated compounds, the amount used as cover material shall not exceed 10,000 tons during any consecutive 12 month period. Soil shall be subject to this throughput limit if the soil contains chlorinated compounds in amounts exceeding any of the following concentrations:

- 0.05 ppmw of carbon tetrachloride,
- 0.05 ppmw of chloroform,
- 0.40 ppmw of 1,4 dichlorobenzene,
- 0.05 ppmw of 1,2 dichloroethane,
- 0.40 ppmw of tetrachloroethylene, or
- 0.05 ppmw of vinyl chloride.

Under no circumstances shall the Permit Holder use soil for cover, which contains organic compounds in excess of the following concentrations:

- 0.50 ppmw of benzene,
- 0.50 ppmw of carbon tetrachloride,
- 6.00 ppmw of chloroform,
- 7.50 ppmw of 1,4 dichlorobenzene,
- 0.50 ppmw of 1,2 dichloroethane,
- 0.70 ppmw of tetrachloroethylene,
- 0.50 ppmw of trichloroethylene, or
- 0.20 ppmw of vinyl chloride.

- b. For soil containing low concentrations of certain chlorinated compounds, the



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amount used as cover material shall not exceed 170,000 tons during any consecutive 12 month period. Soil shall be subject to this throughput limit if the soil contains organic compounds in amounts less than or equal to all of the following concentrations:

- 0.50 ppmw of benzene,
- 0.05 ppmw of carbon tetrachloride,
- 0.05 ppmw of chloroform,
- 0.40 ppmw of 1,4 dichlorobenzene,
- 0.05 ppmw of 1,2 dichloroethane,
- 0.40 ppmw of tetrachloroethylene,
- 0.50 ppmw of trichloroethylene, and
- 0.05 ppmw of vinyl chloride.

(basis: Offsets, Toxic Risk Management Policy, and Regulation 8-2-301)

- *17. Material produced at the S-5 Pugmill and used as alternative daily cover material at S-1 shall be covered with refuse or clean soil within 48 hours of spreading the alternative daily cover material across the working face of the landfill.
(Basis: Regulation 1-301)

18. In order to demonstrate compliance with Parts 15 and 16, the Permit Holder shall maintain the following records in an APCO approved log book.

- a. For any metal-laden or VOC-laden soil that will be used as daily or intermediate cover material, the Permit Holder shall record the following:
- (i) soil lot number (or other means of tracking the soil on-site),
 - (ii) date and time the soil was received,
 - (iii) amount of soil received,
 - (iv) total VOC content measured by the waste generator, and
 - (v) concentrations in the soil of benzene, carbon tetrachloride, chloroform, 1,4 dichlorobenzene, 1,2 dichloroethane, tetrachloroethylene, trichloroethylene and vinyl chloride,

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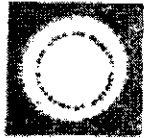
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- b. For any material subject to Part 15c:
- (i) soil lot number,
 - (ii) date and time that the soil was resampled on-site,
 - (iii) total VOC concentration in the resampled soil.
- c. For each soil lot number of metal-laden or VOC-laden soil received at the landfill, the owner/operator of S-1 shall record the following.
- (i) date and time that any of the soil in the lot was used for cover material,
 - (ii) describe the location where the soil was placed,
 - (iii) specify whether the soil was used for daily or intermediate cover,
 - (iv) record, on a daily basis, the amount of soil placed as cover material,
 - (v) summarize, on a daily basis, the total amount of metal-laden and VOC-laden soil used for cover (if multiple soil lots were placed during any one day), and
 - (vi) summarize, on a monthly basis, the total amount of metal-laden and VOC-laden soil used for daily or intermediate cover.

All logs, sampling records, analytical results, and notification records shall be made available to District staff upon request and shall be kept on site for a minimum of 5 years from the date of entry. (basis: Offsets, Toxic Risk Management Policy, and Regulation 8-2-301)

19. Water and/or dust suppressants shall be applied to all unpaved roadways and active soil removal and fill areas associated with this landfill as necessary to prevent visible particulate emissions. Paved roadways at the facility shall be kept sufficiently clear of dirt and debris as necessary to prevent visible particulate emissions from vehicle traffic or wind. (basis: Regulations 2-1-403, 6-301, and 6-305)



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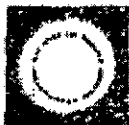
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20. In order, to demonstrate compliance with Parts 5 and 8-13 and Regulation 8, Rule 34, Sections 301.3 and 412, the Permit Holder shall ensure that a District approved source test is conducted annually on each of the Landfill Gas Flares (A-3 and A-4). The annual source test shall determine the following:
- a. landfill gas flow rate to the flare (dry basis);
 - b. concentrations (dry basis) of carbon dioxide (CO₂), nitrogen (N₂), oxygen (O₂), total hydrocarbons (THC), methane (CH₄), and total non-methane organic compounds (NMOC) in the landfill gas;
 - c. stack gas flow rate from the flare (dry basis);
 - d. concentrations (dry basis) of NO_x, CO, THC, CH₄, NMOC, and O₂ in the flare stack gas;
 - e. the NMOC destruction efficiency achieved by the flare; and
 - f. the average combustion temperature in the flare during the test period.
- Each annual source test shall be conducted no sooner than 9 months and no later than 12 months after the previous source test. The Source Test Section of the District shall be contacted to obtain approval of the source test procedures at least 14 days in advance of each source test. The Source Test Section shall be notified of the scheduled test date at least 7 days in advance of each source test. The source test report shall be submitted to the Compliance and Enforcement Division within 45 days of the test date. (basis: RACT, Offsets, Cumulative Increase, Toxic Risk Management Policy, and Regulations 8-34-301.3 and 8-34-412)
21. To demonstrate compliance with Part 12 above and Regulations 8-34-412 and 9-1-302, the Permit Holder shall conduct a characterization of the landfill gas concurrent with the annual source test required by Part 20 above. The landfill gas sample shall



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be drawn from the main landfill gas header. In addition to the compounds listed in part 20b, the landfill gas shall be analyzed for all the organic and sulfur compounds listed below. All concentrations shall be reported on a dry basis. The test report shall be submitted to the Compliance and Enforcement Division within 45 days of the test date.
(basis: Toxic Risk Management Policy, AB-2538 Air Toxic Hot Spots Act, RACT for SO₂, and Regulations 8-34-412 and 9-1-302)

Organic Compounds

Acrylonitrile
Benzene
benzyl chloride
carbon tetrachloride
chlorobenzene
chlorodifluoromethane
chloroethane
chloroform
1,1 dichloroethane
1,1,1 dichloroethen
1,2 dichloroethane
1,4 dichlorobenzene
dichlorodifluoromethane
dichlorofluoromethane

Organic Compounds

ethylbenzene
ethylene dibromide
fluorotrichloromethane
hexane
isopropyl alcohol
methyl ethyl ketone
methylene chloride
perchloroethylene
toluene
1,1,1 trichloroethane
1,1,2,2 tetrachloroethane
trichloroethylene
vinyl chloride
xylenes

Sulfur Compounds

carbon disulfide
carbonyl sulfide
dimethyl sulfide
ethyl mercaptan
hydrogen sulfide
methyl mercaptan

22. The Permit Holder shall maintain the following records in an APCO approved log book.
- Record the total amount of solid waste received at S-1 and the total number of vehicles transporting solid waste or other materials to and from the site on a daily basis. Summarize these daily waste



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- acceptance and vehicle traffic records for each calendar month.
- b. For each area or cell that is not controlled by a landfill gas collection system, maintain a record of the date that waste was initially placed in the area or cell. Record the cumulative amount of waste placed in each uncontrolled area or cell on a monthly basis.
 - c. If the Permit Holder plans to exclude an uncontrolled area or cell from the collection system requirement, the Permit Holder shall also record the types and amounts of all non-decomposable waste placed in the area and the percentage (if any) of decomposable waste placed in the area.
 - d. Record of the dates, locations, and frequency per day of all watering activities on unpaved roads or active soil or fill areas. Record the dates, locations, and type of any dust suppressant applications. Record the dates and description of all paved roadway cleaning activities. Written documentation of standard watering procedures combined with completion of daily check lists may satisfy these daily record keeping requirements. All records shall be summarized on monthly basis.
 - e. Record the initial operation date for each new landfill gas well and collector.
 - f. Maintain an accurate map of the landfill, which indicates the locations of all refuse boundaries and the locations of all wells and collectors (using unique identifiers) that are required to be operating continuously pursuant to part 2a. Any areas containing only non-decomposable waste shall be clearly identified. This map shall be updated at least once a year to indicate changes in refuse boundaries and to include any newly installed wells and collectors.



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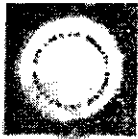
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- g. Record the operating times and the landfill gas flow rate to each of the Landfill Gas Flares (A-3 and A-4) on a daily basis. Summarize these records on a monthly basis. Calculate and record the heat input to each of the Flares (A-3 and A-4), pursuant to Part 13.
- h. Maintain records of all test dates and test results performed to maintain compliance Parts 8-13, 15-16, or 20-21 or to maintain compliance with any applicable rule or regulation.

All records shall be maintained on site or shall be made readily available to District staff upon request for a period of at least 5 years from the date of entry. These record keeping requirements do not replace the record keeping requirements contained in any applicable rules or regulations. (basis: RACT, Offsets, Cumulative Increase, Toxic Risk Management Policy, Regulations 2-1-301, 2-6-501, 6-301, 6-305, 8-2-301, 8-34-301, 8-34-304, and 8-34-501)

- 23. The annual report required by BAAQMD Regulation 8-34-411 shall be submitted in two semi-annual increments. The reporting period for the first increment of the Regulation 8-34-411 annual report that is submitted subsequent to the issuance of the MFR Permit for this site shall be from December 1, 2003 through July 31, 2004. This first increment report shall be submitted by August 31, 2004. The reporting periods and report submittal due dates for all subsequent increments of the Regulation 8-34-411 report and for all semi-annual increments of MSW Landfill NESHAP report (required pursuant to 40 CFR Part 63.1980(a)) shall be synchronized with the reporting periods and report submittal due dates for the semi-annual MFR Permit monitoring reports that are required by Section I.F. of the MFR Permit for this site. A single report may be submitted to satisfy the requirements of



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Section I.F, Regulation 8-34-411, and 40 CFR Part 63.1980(a), provided that all items required by each applicable reporting requirement are included in the single report.
(basis: Regulation 8-34-411 and 40 CFR Part 63.1980(a))

CONDITION ID #7523

Pursuant to BAAQMD Toxic Section Policy, this facility's annual gasoline throughput shall not exceed 400,000 gallons in any consecutive 12 month period.
(Basis: Toxic Risk Management Policy)

CONDITION ID #12203

FOR: S-5 PUGMILL (MIXING OF SLUDGE AND ASH)

1. All biosolids sludge stockpiles shall be covered in accordance with the requirements of Regulation 8-40-303, except when material is being added or removed. Any biosolids sludge stockpiles deemed to be odorous by a District inspector shall be removed within 24 hours.
(Basis: Regulations 1-301 and 8-40-303)
2. The total throughput of biosolids sludge to the S-5 Pugmill and to the Alternative Daily Cover Operation at S-1 shall not exceed 15,000 dry tons during any consecutive 12 month period and shall not exceed 50 dry tons during any one day. (Basis: Cumulative Increase)
3. The total throughput of alternative daily cover material (mixture of ash and sludge) from S-5 and to S-1 shall not exceed 60,000 dry tons during any consecutive 12 month period and shall not exceed 200 dry tons during any one day. (Basis: Cumulative Increase)