2007 SOURCE TEST REPORT

ANNUAL EMISSION MONITORING OF A LANDFILL GAS-FIRED FLARE AT THE TRI-CITIES RECYCLING AND DISPOSAL FACILITY

LANDFILL GAS CONTROL - FLARE - SOURCE A-3
FACILITY NUMBER 2246

Annual Compliance Test

Test Date: June 19, 2007

Submittal Date: August 16, 2007

Prepared for:

Tri-Cities Recycling and Disposal Facility
Waste Management of Alameda County
7010 Auto Mall Parkway
Fremont, CA 94538

For submittal to:

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

Prepared by:

Shaw™ Shaw Environmental, Inc.
2360 Bering Drive
San Jose, California 95131-1121

Project 127431.01000000

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The material and data in this report were reviewed by the undersigned.

Shaw™ Shaw Environmental, Inc.

William Johnston
Manager, Source Testing

SUMMARY OF 2007 SOURCE TEST INFORMATION

Source Location:	Waste Management, Inc. Tri-Cities Recycling and Disposal Facility 7010 Auto Mall Parkway Fremont, CA 94538 Facility Number 2246
Contact:	Mr. Alan Blake
Source Description:	LFG Specialties Model Number EF945I12, 75 MMBtu/hour, enclosed flare assembly with a total capacity of 2500 scfm.
BAAQMD NST:	NST-1123
Reference:	Major Facility Review Permit A2246 Condition Number 8366 Emission Limits: CO = 0.3 lb/MMBtu NOx = 0.06 lb/MMBtu NMOC = 30 ppmv at 3 percent O_2
Test Results:	*CO = 0.02 lb/MMBtu* *NOx = 0.03 lb/MMBtu* *NMOC = < 2 ppmv at 3 percent O_2*
Agency:	Bay Area Air Quality Management District 939 Ellis Street San Francisco, CA 94109
Source Test Contractor:	Shaw Environmental, Inc. 2360 Bering Drive San Jose, CA 95131
Contact:	Mr. William Johnston: 408-382-5800
Test Date:	June 19, 2007

Notes:
BAAQMD NST = Bay Area Air Quality Management District Notice of Source Test
MMBtu/hour = million British thermal units per hour
scfm = standard cubic feet per minute
CO = carbon monoxide
O_2 = oxygen
NOx = oxides of nitrogen
NMOC = non-methane organic compounds
ppmv = parts per million by volume
lb/MMBtu = pounds per million British thermal units

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1.0 Summary and Overview

1.1 Summary

Shaw Environmental, Inc. (Shaw) performed the source testing of the landfill gas (LFG) flare A-3 at the Tri-Cities Recycling and Disposal Facility (Tri-Cities) located in Fremont, California. This report presents the results of the test program. Table 1-1 summarizes the test results compared to the emission limits. The flare met all compliance criteria.

Table 1-1. Tri-Cities Landfill Gas Flare A-3
Source Test Summary
Test date: June 19, 2007

Parameter	Average Result	Emission Limit	Compliance Status
NOx (lb/MMBtu)	0.03	0.06	In Compliance
CO (lb/MMBtu)	0.02	0.3	In Compliance
NMOC (ppmv @ 3% O_2, dry as methane)	< 2	30	In Compliance

Notes:
NOx = oxides of nitrogen
lb/MMBtu = pounds per million British thermal units
CO = carbon dioxide
NMOC = non-methane organic compounds
ppmv @ 3% O_2 = parts per million by volume at 3 percent oxygen

1.2 Overview

Shaw, an approved California Air Resources Board (ARB) source test contractor, performed the source test program. The Air Quality Group within Shaw reviewed the source test data and report. The test program was designed to demonstrate compliance with the Bay Area Air Quality Management District (BAAQMD) Major Facility Review (MFR) Permit A2246, Condition Number 8366. The source test was performed on the flare exhaust to assess the emissions of NMOC, NOx, CO, and O_2. Additionally, an LFG sample was collected for gas characterization.

The source test was conducted on June 19, 2007. Sampling was performed by Mr. William Johnston and Mr. Jeff Snow of Shaw. The BAAQMD was notified of the test procedures and test date on June 4, 2007. The BAAQMD assigned Notice of Source Test Number (NST)-1123 to the notification. The BAAQMD did not have a representative present for the test. The source test program for collecting the required performance data is discussed in Section 2; the source testing results are presented in Section 3; the source test procedures are presented in Section 4; and data review is discussed in Section 5.

Source test data are located in Appendix A. Continuous emission monitoring system (CEMS) data are located in Appendix B. Process data are located in Appendix C. LFG analytical results are presented in Appendix D. Copies of the Source Test Protocol and of Shaw's ARB Independent Contractor Certification are presented in Appendix E. A copy of Tri-Cities' MFR Permit is located in Appendix F.

1.3 Source Operating Conditions

The flare is a LFG Specialties Model Number EF945I12, 75 million British thermal units per hour (MMBtu/hour), enclosed flare assembly with a total capacity of 2,500 standard cubic feet per minute (scfm). A data acquisition system (DAS) is used to continuously record flare temperatures and the LFG volumetric flow rate. The LFG volumetric flow rate is measured with a LFG mass flow meter. Three thermocouples are installed at the top, middle, and bottom of the flare exhaust stack to provide temperature indications for control of the combustion temperature. The average flare operating temperature was 1,523 degrees Fahrenheit (°F) measured at the top thermocouple with an average LFG flow rate of 1,762 scfm. The LFG flow rate and flare operating temperature are continuously recorded on a DAS and digital chart recorder.

2.0 Source Test Program

The objective of the flare source test was to demonstrate compliance with requirements of Condition Number 8366 for flare operating parameters, O_2, NOx, CO, NMOC emissions, and LFG constituents.

Measurements of the flare's emissions were conducted at the flare exhaust. LFG was sampled at the inlet header. Table 2-1 provides a matrix of the source test methods used at each sample location. U.S. Environmental Protection Agency (EPA), American Society for Testing and Materials (ASTM), and BAAQMD test methods were used. The source test program consisted of three 30-minute runs to measure gaseous emissions in each flare exhaust and three integrated concurrent samples taken at the inlet header. The LFG samples were analyzed for NMOC, British thermal units (Btu), F-Factor, and additional fixed gases.

The outlet volumetric flow rate was calculated using the fuel flow rate, Btu, exhaust gas O_2 content, and the F-Factor according to EPA Method 19.

Table 2-1. Source Test Methods and Instrumentation

Method	Inlet (fuel) Analyte	Exhaust Analyte	Instrumentation/ Laboratory	Principle
ASTM D-1945/D-3588; EPA Method 25 C	Fixed Gases, Btu and F-Factor; NMOC	—	Atmospheric Analysis & Consulting, Inc.	Chromatographic Analysis GC/FID/TCA Analysis
BAAQMD Method ST-6	—	CO	Horiba VIA 510	IR
BAAQMD Method ST-7		THC/CH_4/NMOC	TECO Model 51	FID
BAAQMD Method ST-13A		NOx	Ecophysics Model 70E	Chemiluminescence
BAAQMD Method ST-14		O_2	Teledyne 326A	Fuel Cell
EPA Method 19		Flow rate, dscfm	—	Algorithm

Notes:
dscfm = dry standard cubic feet per minute
FID = flame ionization detection
GC = gas chromatography
TCA = thermal conductivity analyzer
THC = total hydrocarbon
IR = infrared
CH_4 = methane

3.0 Source Test Results

The source tests were performed on the LFG fuel and on the flare emissions measured at the flare exhaust. Compliance with the NMOC limit was demonstrated by verifying that the concentrations of NMOC were less than 30 ppmv at 3 percent O_2 as methane. The source test demonstrated that the flare operates with criteria pollutant emissions below the BAAQMD emission limits.

Table 3-1 presents the results of the LFG fuel analysis. Table 3-2 presents the results of the source tests including the flare operating parameters. Triplicate 30-minute runs were performed on the flare exhaust to assess the NMOC, NOx, and CO emissions. Concurrent with each run, the O_2 content of the exhaust gas was also measured. Concentrations of CO and NOx are reported in units of ppmv corrected to 15 percent O_2 and in lb/MMBtu. Concentrations of NMOC are reported in units of ppmv corrected to 3 percent O_2. NMOC is total hydrocarbons (THC) minus methane. Because the THC values were either at or close to the reporting limit of the test method and well below the compliance limits, the methane content of the stack gas was not measured.

Table 3-1. Tri-Cities
Flare Operating Conditions and LFG Analysis
Test date: June 19, 2007

	Run 1	Run 2	Run 3	Average
Time	0856	0934	1013	—
Heat Input MMBtu/day	1,311	1,311	1,312	1,312
Btu/cubic foot	465	465	468	466
H_2S	65.2	67.7	89.8	74.2
TRS	70.2	72.6	94.9	79.2
O_2 (%)	2.4	2.4	2.3	2.4
CO_2 (%)	35.5	35.6	35.9	35.7
N_2 (%)	16.3	16.2	25.7	19.4
Methane (%)	45.8	45.8	46.2	45.9
NMOC (ppmv)	1,400	1,383	1,601	1,461

Notes:
MMBtu/day = million British thermal units per day
H_2S = hydrogen sulfide
TRS = total reduced sulfurs
CO_2 = carbon dioxide
N_2 = nitrogen

Table 3-2. Tri-Cities
Source Test Results — A-3 Flare Exhaust
Test date: June 19, 2007

	Run 1	Run 2	Run 3	Average	Emission Limit
Flare Parameters					
Time	0856-0926	0934-1004	1013-1043	—	—
Fuel Factor	9,296	9,296	9,296	9,296	—
Flare Temperature (°F)	1,523	1,523	1,523	1,523	—
LFG Fuel Flow Rate (scfm)	1,761	1,762	1,763	1,762	—
Exhaust Results					
Exhaust Flow Rate (dscfm)	21,058	19,449	19,460	19,989	—
O_2 (%)	12.5	11.8	11.8	12.0	—
NOx					
NOx (ppmv)	11.0	12.1	12.1	11.7	—
NOx (ppmv @ 15% O_2)	7.7	7.8	7.8	7.8	—
NOx (lb/MMBtu)	0.030	0.031	0.031	0.031	0.06
CO					
CO (ppmv)	19.4	11.2	11.3	14.0	—
CO (ppmv @ 15% O_2)	13.6	7.3	7.3	9.4	—
CO (lb/MMBtu)	0.033	0.017	0.017	0.022	0.3
Hydrocarbons as Methane					
NMOC (ppmv)	< 1.0	< 1.0	< 1.0	< 1.0	—
NMOC (ppmv corrected to 3% O_2)	< 2	< 2	< 2	< 2	30
NMOC Removal Efficiency (%)	> 99.1	> 99.2	> 99.3	>99.2	—

4.0 Test Procedures

Shaw conducted the source test according to ASTM, BAAQMD, and EPA test methods as described below.

4.1 Continuous Emissions Monitoring

Shaw measured stack gas constituent concentrations, using its CEMS sampling van, according to BAAQMD methods for NMOC, NOx, CO, and O_2. Figure 4-1 is a schematic diagram of the Shaw CEMS.

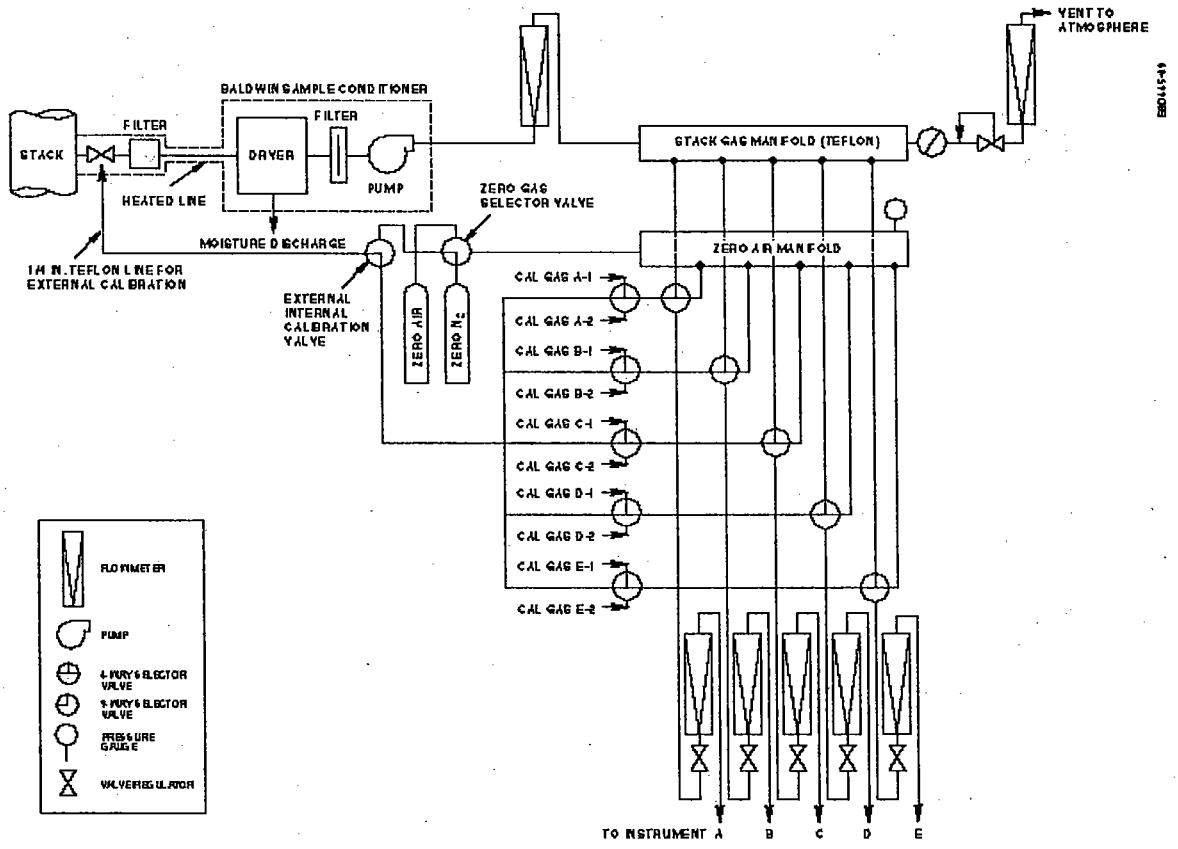


Figure 4-1. Schematic Diagram of the Shaw CEMS

In this source test, a sample pump was used to extract the sample gas continuously from each source through a stainless-steel sampling probe equipped with an in-stack filter, followed by a heated Teflon® sample line and a Baldwin sample conditioner. The sample line between the sample point and the sample conditioner was heated to 250°F to maintain the gas stream temperatures above the water dew point. Gas flow was controlled with a back-pressure regulator. The sample flow rate to each instrument was controlled with individual rotameters. Instrument output was recorded with a strip chart recorder and a digital data logger, the STRATA™ data acquisition system. Table 4-1 lists the specifications of the instruments used in the source test.

Table 4-1. CEMS Instrument Specifications

Gas	Analyzer/Manufacturer	Principle of Operation	Operating Range
O_2	Teledyne 326A	Fuel Cell	0-25%
THC	TECO Model 51	Flame Ionization	0-50 ppmv as CH_4
NOx	Ecophysics 70E	Chemiluminescence	0-50 ppmv
CO	Horiba VIA 510	NDIR	0-1000 ppmv

Note:
NDIR = nondispersive infrared

Before the start of testing, the sampling system was assembled at the site and leak-checked. Calibrations were performed on each of the instruments using certified calibration gases.

A span drift check was performed at the end of each run to measure analyzer drift. The drift check measurement uses a zero gas (N_2) and a high calibration gas. All of the instrument checks conducted for this source test were within the drift limit criterion of 3 percent, as specified in the test methods. Reported values include a correction for the recorded instrument drift, as specified in EPA Method 7E. Copies of data logger printouts, calibration data sheets, strip charts, and gas certificates of analysis are presented in Appendix B.

4.2 Landfill Gas

Shaw measured LFG constituent concentrations according to ASTM test methods. Three LFG samples were collected from a sample port located at the flare inlet header. The samples were collected in 1-liter Tedlar® bags under positive pressure through Teflon® tubing. The sample line was purged with sample gas prior to sampling. The sample flow rate was controlled with rotameters to collect 30-minute integrated samples. The samples were kept out of sunlight and were analyzed within the method holding times. Analytical results are presented in Appendix D.

5.0 Data Review

The Air Quality Group within Shaw performed a quality assurance review of the source test data and report. The review included the following activities:

- Review of the general text
- Check of calculation algorithms for correctness
- Review of CEMS data extraction
- Determination that all supporting documentation is present

A detailed manual review of the data was completed. Based on our data review, Shaw concludes the following:

- The source test procedures were followed, and all data were reduced and entered into the reporting spreadsheets properly.
- The instrument drift and other measures of instrument performance were deemed acceptable.

As a result, the data are considered to be acceptable.

Limitations

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

Appendix A
Test Results

EMISSION RATE CALCULATION

Facility: Tri-Cities
Source : Flare A-3
Test date: 6/19/2007

Temperature Std: 70
Pressure Std: 29.92
O2% correction: 15 NOx & CO
O2% correction: 3 NMOC

Time	0856-0926		0934-1004		1013-1043		Avg		Permit
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Limits
Flare Temp (F)	1,523		1,523		1,523		1,523		
Fuel factor	9,296		9,296		9,296		9,296		
Oxygen (%)		12.5		11.8		11.8		12.0	
Flowrate (dscfm)	1,761	21,058	1,762	19,449	1,763	19,460	1,762	19,989	
Oxides of Nitrogen									
MW = 46									
NOx, ppm		11.0		12.1		12.1		11.7	
NOx, ppm corrected to 15% O2		7.7		7.8		7.8		7.8	
NOx, lb/hr		1.7		1.7		1.7		1.7	
NOx, lb/MMBtu		0.030		0.031		0.031		0.031	0.06
Carbon Monoxide									
MW = 28									
CO, ppm		19.4		11.2		11.3		14.0	
CO, ppm corrected to 15% O2		13.6		7.3		7.3		9.4	
CO, lb/hr		1.77		0.946		0.955		1.225	
CO, lb/MMBtu		0.033		0.017		0.017		0.022	0.3
Hydrocarbons as methane									
MW = 16									
THC, ppm		< 1.0		< 1.0		< 1.0		< 1.0	
NMOC, ppm	1400	< 1.0	1383	< 1.0	1601	< 1.0	1,461	< 1.0	
NMOC, ppm corrected to 3% O2		< 2.1		< 2.0		< 2.0		< 2.0	30
NMOC, lb/hr	6.1	< 0.052	6.0	< 0.048	7.0	< 0.048	< 6.4	< 0.050	
Efficiency %									
NMOC	> 99.1%		> 99.2%		> 99.3%		> 99.2%		98

Calculations

lb/hr = ppm x MW x Qs x 8.223x10-5 / (Tstd + 460)
ppm corrected @ O2 = ppm measured x [(20.9 - O2% correction) / (20.9% O2 - O2 measured)]
lb/MMBtu = F-factor x MW x [1.3711x10-6 / (Tstd + 460)] x [(20.9 /20.9 -O2%)] x ppm
Efficiency (%) = in (lb/hr)-out (lb/hr)/in (lb/hr) x 100
NM = not measured

Stack Gas Flow Rate ---- Fuel Usage

EPA Method 19

Facility Tri-Cities
Source Flare A-3
Date 6/19/2007

		Run 1	Run 2	Run 3	Average
Gross Caloric Value (Btu/ft3)	Btu/ft3	517	517	517	517
Stack Oxygen	%	12.5	11.8	11.8	12.0
Fuel factor @ 68 F	DSCF/MMBtu	9,296	9,296	9,296	9,296
Corrected Fuel Rate (SCFM) @ Tstd	SCFM	1,761	1,762	1,763	1,762
Fuel Flowrate (SCFH) @ Tstd	SCFH	105,660	105,720	105,780	105,720
Million Btu per minute	MMBtu/min	0.910	0.911	0.911	0.911
Heat Input (MMBtu/hr)	MMBtu/hr	54.6	54.7	54.7	54.7
Heat Input (MMBtu/day)	MMBtu/day	1311.0	1311.8	1312.5	1311.8
Stack Gas Flow Rate (dscfm)	dscfm	21,058	19,449	19,460	19,989

Calculations

SCFM = CFM * (Tstd + 460) * gas PSIA) / 14.7 / (gas F + 460)
SCFH = SCFM * 60
MMBtu/min = SCFM * Btu/ft3 / 1,000,000
MMBtu/hr = MMBtu/min * 60
DSCFM = Fuel factor * MMBtu/min * (20.9 / (20.9-O2%)) * (Tstd + 460) / 528

Notes
Corrected Fuel Rate (SCFM) @ Tstd data is from the system data aquistion

Appendix B
Continuous Emission Monitoring

- Strata™ Data Logger Printout
- Strip Chart Records
- Calibration Gas Certificates of Analysis

Run averages corrected for bias

Operator: B Johnston

Plant Name: Tricities Landfill

Location: Flare

Run	O2 %	CO ppm	NOx ppm	THC ppm
1	12.5	19.4	11.0	0.2
2	11.8	11.2	12.1	0.1
3	11.8	11.3	12.1	0.1

STRATA Configuration Page 1
06-19-2007 08:17:53
File Name: C:\STRATA\MASTER.STR

Operator:	B Johnston
Plant Name:	Tricities Landfill
Location:	Flare
Run Length:	30 minutes
Sample Rate:	40 per minute
Average Calibration Results:	1 minutes
Automatic Sequence, Calibration Error:	No
Automatic Sequence, System Bias:	No
Max Response Time:	Manual
Max Response Time:	1 minutes
Traverse During Run:	No

Active	Chan.	Analyte Name	Units	Span Units	Span Volts	Offset Volts
Yes	1	O2	%	25	1	0
Yes	3	CO	ppm	100	1	0
Yes	4	NOx	ppm	50	10	0
Yes	5	THC	ppm	50	~~5~~ 10	0

Measurement System Preparation Table

Gas Name	Reference Cylinder Numbers 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
O2	Z	H														
CO	Z			H	M											
NOx	Z					H	M									
THC	Z								H							

BP 29.94

CEM Leak test 0.1" @19" Vac for 1 min

R1 0856-0926

R2 - 0934 - 1004

R3 1013 - 1043

Gas Name	Zero Reference Cylinder No.	Conc	ID Number	Low Reference Cylinder No.	Conc	ID Number
O2	1	0		99	99	
CO	1	0		99	9999	
NOx	1	0		99	99	
THC	1	0		99	9999	

Gas Name	Mid Reference Cylinder No.	Conc	ID Number	High Reference Cylinder No.	Conc	ID Number
O2	99	3	AAL 16767	2	19	ALM 57219
CO	5	40.3	AAL 7479	4	93.9	AAL 71094
NOx	7	19.9	AAL 7479	6	46.9	AAL 71094
THC	99	99		9	45	AAL 51124

Seq Num	Calibration Error Test Sequence O2	CO	NOx	THC
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Seq Num	Calibration Error Valve Sequence 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																

Seq Num	System Bias Check Sequence O2	CO	NOx	THC
1	Zero	Zero	Zero	Zero
2	High	High	High	High
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

Seq Num	System Bias Valve Sequence 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	X															
2		X	X	X	X											
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																

STRATA Configuration End

Test Run 1 STRATA Version 1.1

	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 08:56:21	12.789	13.12	10.639	0.268
Begin calculating run averages				
06-19-2007 08:57:22	13.018	13.36	10.331	0.628
06-19-2007 08:58:21	12.806	9.66	10.591	0.345
06-19-2007 08:59:21	12.727	20.57	10.710	0.176
06-19-2007 09:00:22	12.769	23.60	10.459	0.133
06-19-2007 09:01:21	12.804	23.64	10.279	0.152
06-19-2007 09:02:22	12.996	62.08*	10.016	0.671
06-19-2007 09:03:21	12.721	19.26	10.507	0.115
06-19-2007 09:04:22	12.705	24.21	10.557	0.054
06-19-2007 09:05:21	12.708	16.18	10.591	0.044
06-19-2007 09:06:21	12.739	18.82	10.413	0.044
06-19-2007 09:07:22	12.573	13.06	10.854	0.048
06-19-2007 09:08:21	12.710	18.48	10.601	0.028
06-19-2007 09:09:22	12.580	20.26	10.707	0.070
06-19-2007 09:10:21	12.832	38.06*	10.079	0.132
06-19-2007 09:11:21	12.375	16.89	11.336	0.051
06-19-2007 09:12:22	12.280	15.97	10.869	0.059
06-19-2007 09:13:21	12.168	20.79	11.611	0.066
06-19-2007 09:14:22	12.071	18.28	11.599	0.040
06-19-2007 09:15:22	12.112	14.77	11.350	-0.003
06-19-2007 09:16:21	12.639	22.96	11.075	0.128
06-19-2007 09:17:22	12.805	43.73	10.288	0.122
06-19-2007 09:18:21	12.930	25.47	10.372	0.037
06-19-2007 09:19:21	12.912	19.00	10.408	0.036
06-19-2007 09:20:22	12.162	7.81	11.814	-0.027
06-19-2007 09:21:21	11.862	6.88	12.158	-0.057
06-19-2007 09:22:22	11.959	12.28	11.752	-0.082
06-19-2007 09:23:22	12.006	13.15	11.720	-0.074
06-19-2007 09:24:21	11.890	11.94	11.847	-0.071
06-19-2007 09:25:22	11.686	6.37	12.447	-0.093
06-19-2007 09:26:21	11.770	8.09	12.377	-0.062

Run Averages	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 09:26:45	12.460	19.45*	11.011	0.082

Operator: B Johnston
Plant Name: Tricities Landfill
Location: Flare
Test Run 1 End

Final System Bias Check, Run 1 STRATA Version 1.1

	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 09:27:47	4.246	1.98	0.892	-0.058
06-19-2007 09:28:46	0.066	0.32	-0.001	-0.093
06-19-2007 09:29:47	2.543	26.47	17.200	13.021
06-19-2007 09:30:48	18.021	95.67	47.147	44.995
06-19-2007 09:31:47	18.877	94.73	47.166	45.251

Final System Bias Check for Run 1
Operator: B Johnston
Plant Name: Tricities Landfill
Location: Flare

	Reference Cylinder Numbers	
	Zero	Span
O2		ALM 57219
CO		AAL 71094
NOx		AAL 71094
THC		AAL 51124

Date/Time 06-19-2007 09:32:25 PASSED

Analyte	O2	CO	NOx	THC
Units	%	ppm	ppm	ppm
Zero Ref Cyl	0.000	0.00	0.000	0.000
Zero Cal	0.000	0.00	0.000	0.000
Zero Avg	0.005	0.22	-0.001	-0.093
Zero Bias%	0.0%	0.2%	0.0%	0.2%
Zero Drift%	-0.2%	0.4%	0.0%	0.0%
Span Ref Cyl	19.000	93.90	46.900	45.000
Span Cal	19.000	93.90	46.900	45.000
Span Avg	18.909	94.35	47.190	45.310
Span Bias%	0.4%	0.4%	0.6%	0.6%
Span Drift%	-0.3%	0.3%	0.6%	-0.8%
Ini Zero Avg	0.052	-0.21	0.001	-0.091
Ini Span Avg	18.981	94.06	46.885	45.693
Run Avg	12.460	19.45	11.011	0.082
Co	0.029	0.00	0.000	-0.092
Cm	18.945	94.20	47.038	45.502
Correct Avg	12.486	19.38	10.979	0.172

System Bias Check End

Test Run 2 STRATA Version 1.1

	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 09:33:26	13.984	42.81	15.992	5.583
Begin calculating run averages				
06-19-2007 09:34:27	11.647	3.96	10.939	-0.094
06-19-2007 09:35:26	11.748	17.40	12.195	-0.040
06-19-2007 09:36:26	11.756	14.07	12.095	-0.093
06-19-2007 09:37:27	11.816	6.50	12.124	-0.062
06-19-2007 09:38:26	12.051	20.12	11.387	0.134
06-19-2007 09:39:26	12.030	22.74	11.938	-0.017
06-19-2007 09:40:25	12.086	21.78	11.363	-0.070
06-19-2007 09:41:26	11.727	9.76	12.509	-0.082
06-19-2007 09:42:27	11.653	9.62	12.113	-0.083
06-19-2007 09:43:26	11.761	10.42	12.604	-0.093
06-19-2007 09:44:26	11.374	11.06	12.768	-0.023
06-19-2007 09:45:27	11.624	18.75	12.063	-0.004
06-19-2007 09:46:26	11.772	10.34	12.100	-0.062
06-19-2007 09:47:26	11.855	8.87	12.052	-0.091
06-19-2007 09:48:25	11.665	10.31	12.435	-0.073
06-19-2007 09:49:26	11.481	12.49	12.516	-0.002
06-19-2007 09:50:27	11.830	7.33	12.214	0.050
06-19-2007 09:51:26	11.792	6.27	12.245	0.023
06-19-2007 09:52:26	11.798	6.07	12.287	-0.091
06-19-2007 09:53:27	11.875	8.05	11.872	-0.070
06-19-2007 09:54:26	11.925	10.60	12.161	-0.094
06-19-2007 09:55:26	11.617	6.68	12.519	-0.092
06-19-2007 09:56:25	11.645	9.11	12.430	-0.035
06-19-2007 09:57:26	11.517	8.21	12.568	0.036
06-19-2007 09:58:27	11.674	7.99	12.356	0.012
06-19-2007 09:59:26	11.634	7.91	12.541	-0.090
06-19-2007 10:00:26	11.892	10.66	11.937	-0.086
06-19-2007 10:01:25	11.936	17.90	11.508	0.038
06-19-2007 10:02:26	11.450	9.62	13.064	-0.049
06-19-2007 10:03:27	11.540	9.53	12.569	-0.056
06-19-2007 10:04:25	11.661	14.97	12.280	-0.062

Run Averages	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 10:04:26	11.739	11.48	12.227	-0.041

Operator: B Johnston
Plant Name: Tricities Landfill
Location: Flare
Test Run 2 End

Final System Bias Check, Run 2 STRATA Version 1.1

	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 10:05:31	4.436	5.05	1.222	-0.056
06-19-2007 10:06:30	0.065	0.43	-0.002	-0.026
06-19-2007 10:07:31	-0.022	0.21	-0.002	-0.095
06-19-2007 10:08:32	11.134	70.81	40.792	35.799
06-19-2007 10:09:31	18.731	94.61	47.225	45.474
06-19-2007 10:10:31	18.867	94.57	47.269	45.654

Final System Bias Check for Run 2
Operator: B Johnston
Plant Name: Tricities Landfill
Location: Flare

	Reference Cylinder Numbers	
	Zero	Span
O2		ALM 57219
CO		AAL 71094
NOx		AAL 71094
THC		AAL 51124

Date/Time 06-19-2007 10:11:24 PASSED

Analyte	O2	CO	NOx	THC
Units	%	ppm	ppm	ppm
Zero Ref Cyl	0.000	0.00	0.000	0.000
Zero Cal	0.000	0.00	0.000	0.000
Zero Avg	-0.023	0.20	-0.002	-0.095
Zero Bias%	0.1%	0.2%	0.0%	0.2%
Zero Drift%	-0.1%	0.0%	0.0%	0.0%
Span Ref Cyl	19.000	93.90	46.900	45.000
Span Cal	19.000	93.90	46.900	45.000
Span Avg	18.886	94.50	47.281	45.685
Span Bias%	0.5%	0.6%	0.8%	1.4%
Span Drift%	-0.1%	0.2%	0.2%	0.7%
Ini Zero Avg	0.005	0.22	-0.001	-0.093
Ini Span Avg	18.909	94.35	47.190	45.310
Run Avg	11.739	11.48	12.227	-0.041
Co	-0.009	0.21	-0.002	-0.094
Cm	18.897	94.43	47.236	45.498
Correct Avg	11.806	11.23	12.142	0.052

System Bias Check End

Test Run 3 STRATA Version 1.1

	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 10:12:25	14.213	38.67	15.590	5.996
Begin calculating run averages				
06-19-2007 10:13:26	11.620	6.19	12.937	0.023
06-19-2007 10:14:25	11.662	14.17	12.447	0.086
06-19-2007 10:15:25	11.433	11.51	12.564	0.129
06-19-2007 10:16:24	11.802	16.02	12.124	0.092
06-19-2007 10:17:25	11.971	10.46	11.898	0.050
06-19-2007 10:18:26	11.804	12.27	12.187	-0.033
06-19-2007 10:19:25	11.789	7.20	12.369	-0.090
06-19-2007 10:20:25	11.743	12.32	12.260	-0.069
06-19-2007 10:21:26	11.853	10.57	12.111	-0.030
06-19-2007 10:22:25	11.590	7.98	12.574	-0.066
06-19-2007 10:23:25	11.562	7.42	12.830	-0.058
06-19-2007 10:24:24	11.883	13.66	11.742	-0.066
06-19-2007 10:25:25	11.649	5.80	12.410	-0.097
06-19-2007 10:26:26	11.822	12.26	12.107	-0.044
06-19-2007 10:27:25	11.737	10.85	12.078	-0.074
06-19-2007 10:28:25	11.777	17.44	12.085	-0.029
06-19-2007 10:29:24	11.772	10.16	11.931	-0.029
06-19-2007 10:30:25	11.664	13.10	12.461	0.068
06-19-2007 10:31:26	11.761	8.97	12.105	-0.059
06-19-2007 10:32:25	11.538	9.83	12.577	-0.096
06-19-2007 10:33:25	11.892	13.11	11.639	-0.071
06-19-2007 10:34:26	11.880	12.00	11.960	0.063
06-19-2007 10:35:25	11.868	8.67	12.019	0.043
06-19-2007 10:36:25	11.630	9.96	12.240	-0.003
06-19-2007 10:37:24	11.565	13.30	12.629	-0.033
06-19-2007 10:38:25	11.797	10.62	11.820	0.047
06-19-2007 10:39:26	11.575	19.76	12.154	0.146
06-19-2007 10:40:25	11.808	14.21	12.286	0.045
06-19-2007 10:41:25	11.834	12.43	11.783	0.045
06-19-2007 10:42:26	11.452	6.59	12.749	0.037
Run Averages	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 10:43:23	11.724	11.50	12.218	-0.002
Operator:	B Johnston			
Plant Name:	Tricities Landfill			
Location:	Flare			
Test Run 3 End				

Final System Bias Check, Run 3 STRATA Version 1.1

	O2	CO	NOx	THC
	%	ppm	ppm	ppm
06-19-2007 10:44:26	3.924	2.15	0.624	0.078
06-19-2007 10:45:26	0.036	0.32	-0.005	0.022
06-19-2007 10:46:25	-0.039	0.16	-0.005	0.024
06-19-2007 10:47:26	3.508	31.40	20.978	16.476
06-19-2007 10:48:27	18.226	94.60	47.156	45.750
06-19-2007 10:49:26	18.842	94.51	47.131	45.836

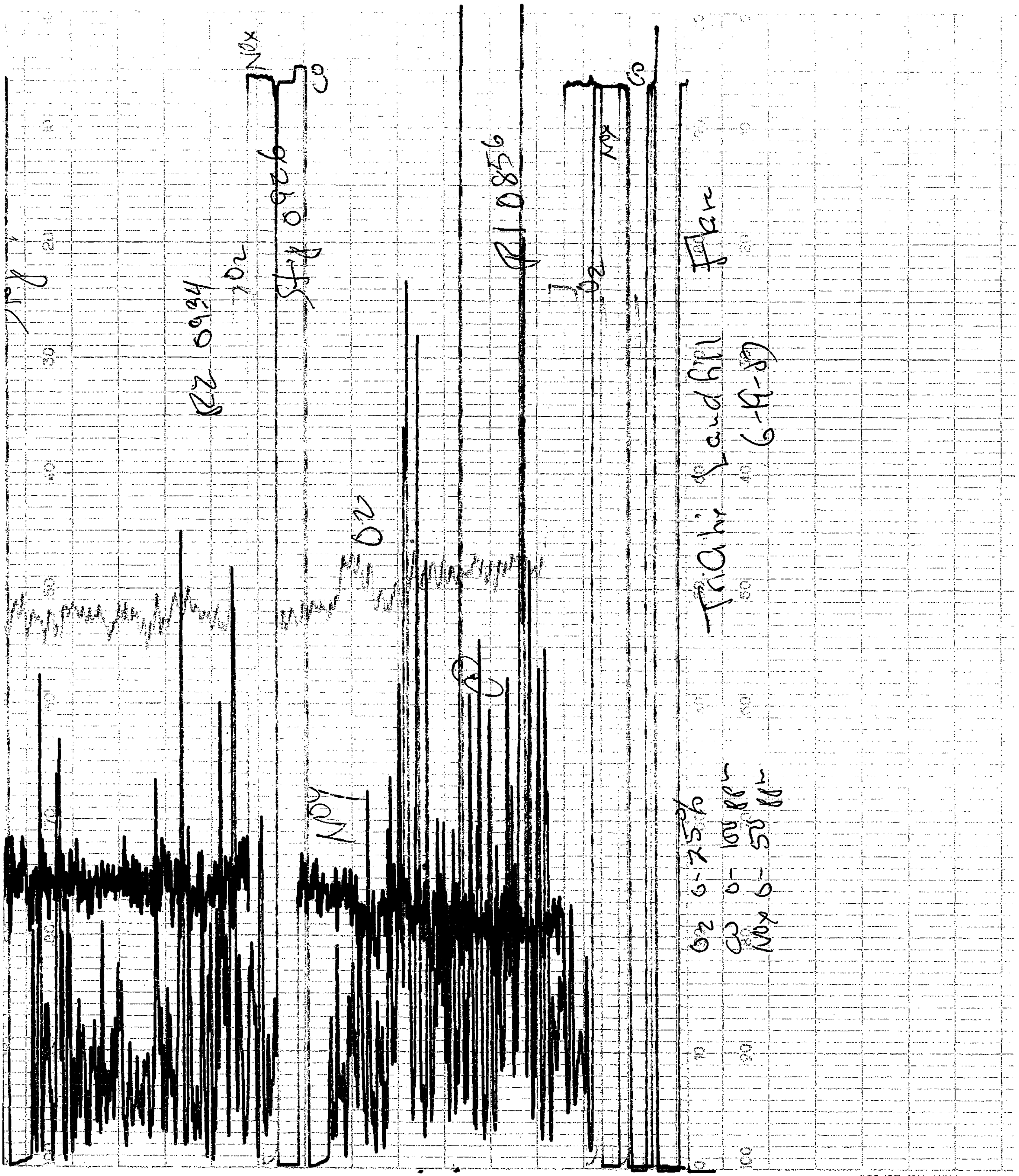
Final System Bias Check for Run 3
Operator: B Johnston
Plant Name: Tricities Landfill
Location: Flare

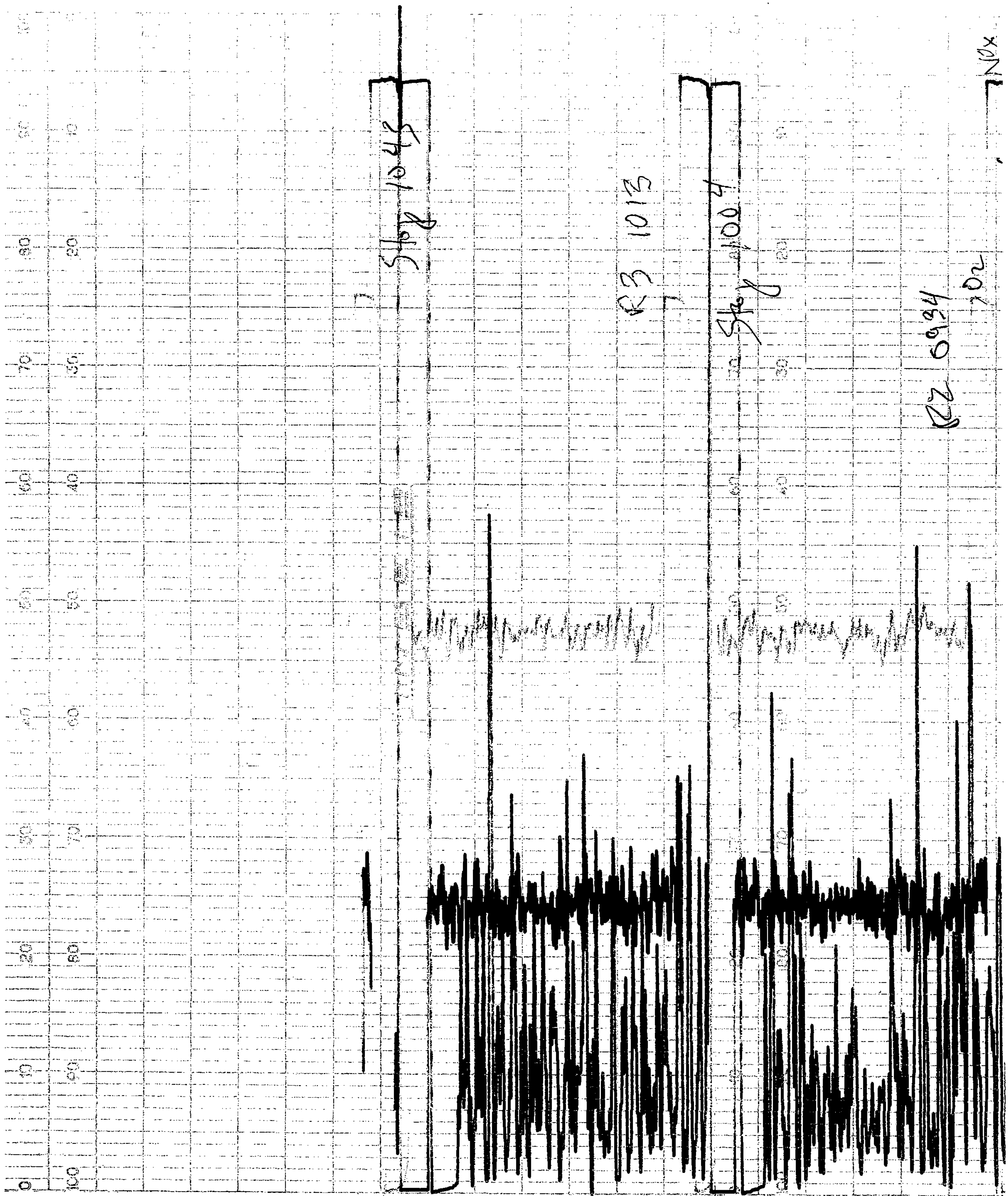
	Reference Cylinder Numbers	
	Zero	Span
O2		ALM 57219
CO		AAL 71094
NOx		AAL 71094
THC		AAL 51124

Date/Time 06-19-2007 10:49:51 PASSED

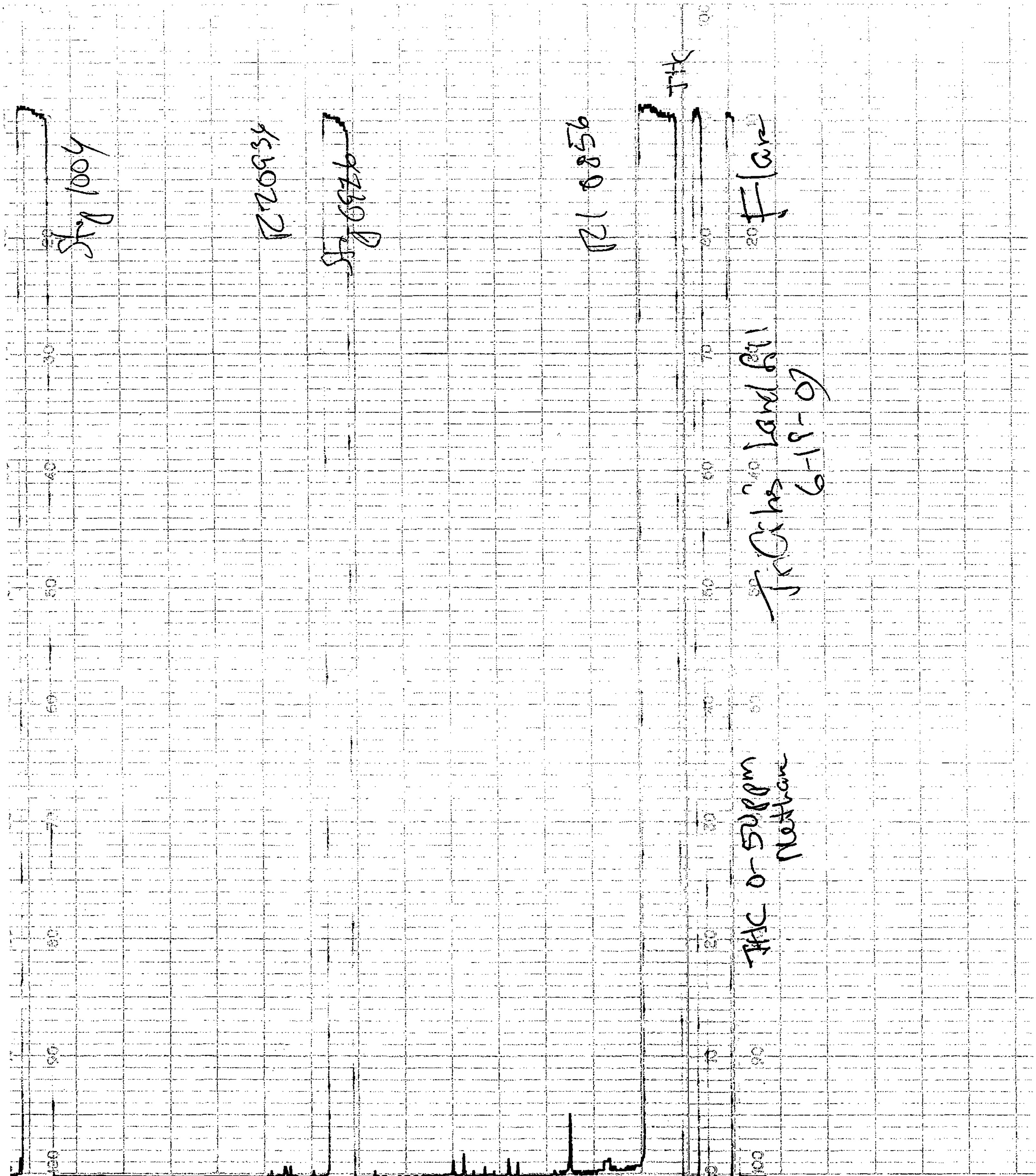
Analyte	O2	CO	NOx	THC
Units	%	ppm	ppm	ppm
Zero Ref Cyl	0.000	0.00	0.000	0.000
Zero Cal	0.000	0.00	0.000	0.000
Zero Avg	-0.046	0.09	-0.005	-0.012
Zero Bias%	0.2%	0.1%	0.0%	0.0%
Zero Drift%	-0.1%	-0.1%	0.0%	0.2%
Span Ref Cyl	19.000	93.90	46.900	45.000
Span Cal	19.000	93.90	46.900	45.000
Span Avg	18.860	94.48	47.106	45.919
Span Bias%	0.6%	0.6%	0.4%	1.8%
Span Drift%	-0.1%	0.0%	-0.4%	0.5%
Ini Zero Avg	-0.023	0.20	-0.002	-0.095
Ini Span Avg	18.886	94.50	47.281	45.685
Run Avg	11.724	11.50	12.218	-0.002
Co	-0.035	0.15	-0.003	-0.054
Cm	18.873	94.49	47.194	45.802
Correct Avg	11.816	11.30	12.145	0.051

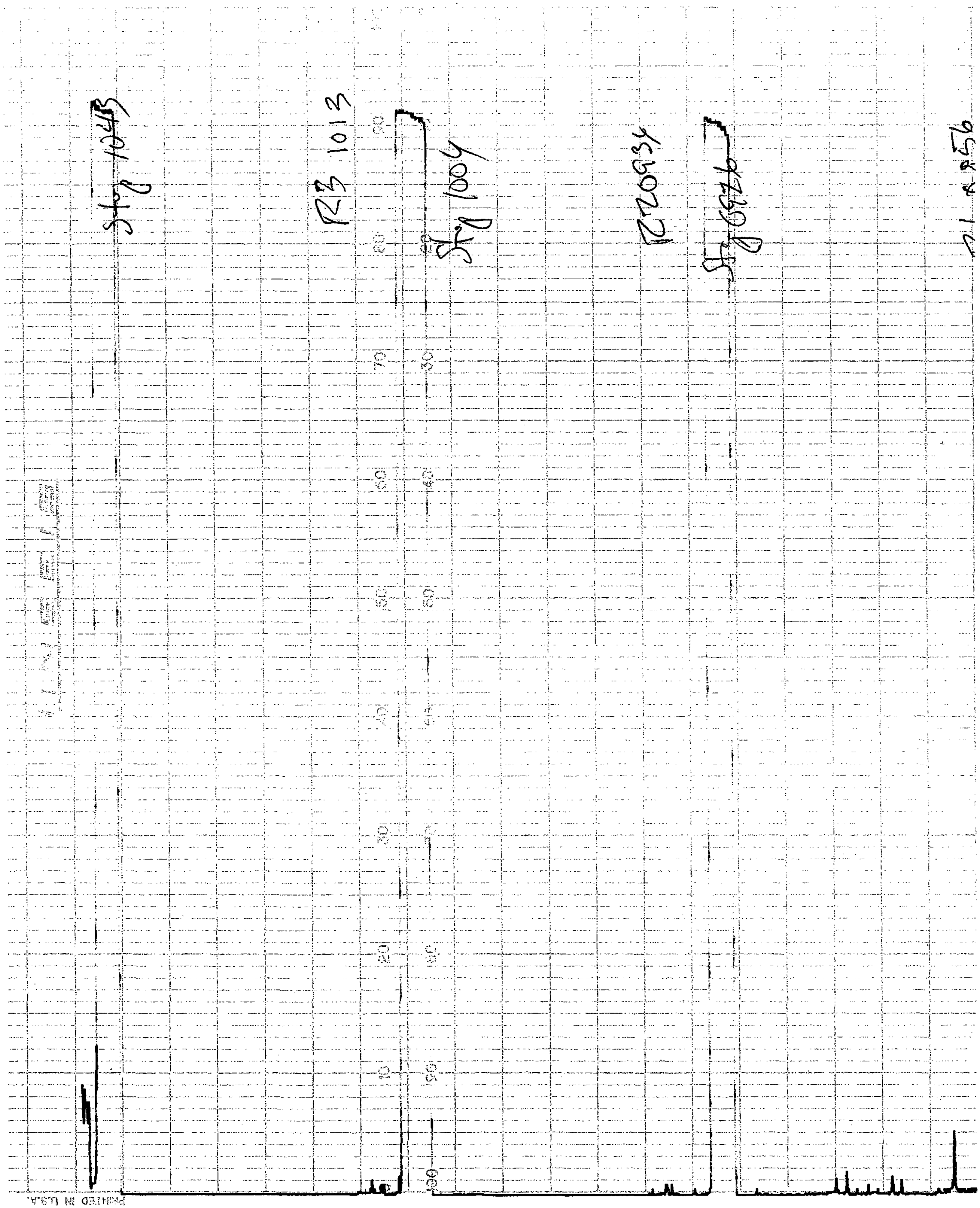
System Bias Check End


Stby
RZ 0934
O2
NOx
Stby 0926
CO
NOy
O2
C
R1 0856
O2
NOx
CO
O2 0-25%
CO 0-100 ppm
NOx 0-50 ppm
TriCahr Landfill Flare
(6-19-89)



Page 2


Stg 1004
R2 0934
Stg 0926
R1 0856
THC
Flare
TriCities Land fill
6-19-07
THC 0-50ppm
Methane


RB 1013
Std 1004
PRINTED IN U.S.A.

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

500 WEAVER PARK RD,LONGMONT,CO 80501 Phone: 888-253-1635 Fax: 303-772-767

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
500 WEAVER PARK RD
LONGMONT,CO 80501

P.O. No.: 252520
Project No.: 08-47348-002

Customer

SHAW ENVIRONMENTAL & INFRASTRUCTURE

2360 BERING DRIVE
SAN JOSE CA 95131

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM051124 **Certification Date:** 30Mar2007 **Exp. Date:** 29Mar2010
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
METHANE	45.0	PPM	+/- 1%	Direct NIST and NMi
AIR		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 2751	01Nov2010	K015025	100.2 PPM	METHANE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HP/6890/US00006537	30Mar2007	FID

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis | **Second Triad Analysis** | **Calibration Curve**

METHANE

First Triad Analysis		
Date: 30Mar2007	Response Unit:AREA	
Z1=0.00000	R1=1011154.	T1=454578.0
R2=1014202.	Z2=0.00000	T2=454537.0
Z3=0.00000	T3=454206.0	R3=1013328.
Avg. Concentration:	44.98	PPM

Calibration Curve	
Concentration=A+Bx+Cx2+Dx3+Ex4	
r=0.999997	
Constants:	A=1.47-
B=9.92	C=
D=	E=

APPROVED BY: _____
JON WITZAK

RATA CLASS

Dual-Analyzed Calibration Standard

Scott Specialty Gases
500 WEAVER PARK RD,LONGMONT,CO 80501 Phone: 888-253-1635 Fax: 303-772-7678

CERTIFICATE OF ACCURACY: Interference Free™ Multi-Component EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
500 WEAVER PARK RD
LONGMONT,CO 80501

P.O. No.: 252520
Project No.: 08-47805-001

Customer
SHAW ENVIRONMENTAL & INFRASTRUCTURE

2360 BERING DRIVE
SAN JOSE CA 95131

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: AAL071094 **Certification Date:** 10Apr2007 **Exp. Date:** 09Apr2009
Cylinder Pressure*:** 1843 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON MONOXIDE	93.9	PPM	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	46.6	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	46.9	PPM		Reference Value Only

*** Do not use when cylinder pressure is below 150 psig.
** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1679	01May2011	ALM030187	94.90 PPM	CARBON MONOXIDE
NTRM 1683	15Aug2009	AAL070675	49.82 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000929062	06Apr2007	FTIR
FTIR//000929062	06Apr2007	FTIR

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis | **Second Triad Analysis** | **Calibration Curve**

CARBON MONOXIDE

Date: 02Apr2007 Response Unit:PPM
Z1=-0.04164 R1=95.43174 T1=94.56615
R2=95.46012 Z2=-0.02067 T2=94.58026
Z3=-0.00640 T3=94.61235 R3=95.51140
Avg. Concentration: 94.02 PPM

Date: 10Apr2007 Response Unit: PPM
Z1=-0.02549 R1=95.61306 T1=94.60235
R2=95.87823 Z2=0.03034 T2=94.70005
Z3=0.03553 T3=95.04495 R3=95.99304
Avg. Concentration: 93.86 PPM

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99996E-1
Constants: A=0.00000E+0
B=9.78601E-1 C=8.08000E-4
D=1.00000E-6 E=0.00000E+0

NITRIC OXIDE

Date: 02Apr2007 Response Unit:PPM
Z1=-0.18839 R1=49.60519 T1=46.34825
R2=49.87688 Z2=-0.15096 T2=46.42634
Z3=0.02605 T3=46.52152 R3=49.97247
Avg. Concentration: 46.44 PPM

Date: 10Apr2007 Response Unit: PPM
Z1=-0.27505 R1=49.50018 T1=46.46666
R2=49.56434 Z2=-0.07495 T2=46.49148
Z3=-0.07240 T3=46.56233 R3=49.89693
Avg. Concentration: 46.67 PPM

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99980E-1
Constants: A=0.00000E+0
B=9.90681E-1 C=2.88000E-4
D=0.00000E+0 E=0.00000E+0

APPROVED BY: _____
Sam Bennett

RATA CLASS

Scott Specialty Gases

Dual-Analyzed Calibration Standard

500 WEAVER PARK RD,LONGMONT,CO 80501 Phone: 888-253-1635 Fax: 303-772-767

CERTIFICATE OF ACCURACY: EPA Protocol Gas

Assay Laboratory

SCOTT SPECIALTY GASES
500 WEAVER PARK RD
LONGMONT,CO 80501

P.O. No.: 252520
Project No.: 08-49498-001

Customer

SHAW ENVIRONMENTAL & INFRASTRUCTURE

2360 BERING DRIVE
SAN JOSE CA 95131

ANALYTICAL INFORMATION

This certification was performed according to EPA Traceability Protocol For Assay & Certification of Gaseous Calibration Standards; Procedure G-1; September, 1997.

Cylinder Number: ALM057219 **Certification Date:** 17May2007 **Exp. Date:** 16May2010
Cylinder Pressure*:** 2000 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ANALYTICAL ACCURACY**	TRACEABILITY
CARBON DIOXIDE	18.1	%	+/- 1%	Direct NIST and NMi
OXYGEN	19.0	%	+/- 1%	Direct NIST and NMi
NITROGEN		BALANCE		

*** Do not use when cylinder pressure is below 150 psig.

** Analytical accuracy is based on the requirements of EPA Protocol Procedure G1, September 1997.

REFERENCE STANDARD

TYPE/SRM NO.	EXPIRATION DATE	CYLINDER NUMBER	CONCENTRATION	COMPONENT
NTRM 1675	04Jul2008	K018062	13.93 %	CARBON DIOXIDE
NTRM 2658	02Oct2010	ALM065037	9.930 %	OXYGEN

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
HPGC/5890/3115A34624	23Apr2007	TCD
HPGC/5890/3115A34624	17May2007	TCD

ANALYZER READINGS

(Z=Zero Gas R=Reference Gas T=Test Gas r=Correlation Coefficient)

First Triad Analysis **Second Triad Analysis** **Calibration Curve**

CARBON DIOXIDE

Date: 17May2007	Response Unit:AREA	
Z1=0.00000	R1=308660.0	T1=394934.0
R2=308535.0	Z2=0.00000	T2=395331.0
Z3=0.00000	T3=395000.0	R3=308392.0
Avg. Concentration:	18.06	%

Concentration=A+Bx+Cx2+Dx3+Ex4
r=1.000000
Constants: A=0.00263474
B=4.28 C=4.78
D= E=

OXYGEN

Date: 17May2007	Response Unit:AREA	
Z1=0.00000	R1=182478.0	T1=345557.0
R2=182357.0	Z2=0.00000	T2=344828.0
Z3=0.00000	T3=345007.0	R3=182375.0
Avg. Concentration:	18.98	%

Concentration=A+Bx+Cx2+Dx3+Ex4
r=0.999989
Constants: A=0.05641131-
B=5.51 C=
D= E=

APPROVED BY: JW
JON WITZAK

Appendix C
Process Data

TRI-CITIES SOURCE TEST 06/19/2007

		Temperature, F		LFG Flow, SCFM	
Date	Time	MIN	MAX	MIN	MAX
2007/06/19	08:56:00	1518	1528	1739	1784
2007/06/19	08:58:00	1516	1530	1734	1783
2007/06/19	09:00:00	1516	1528	1748	1779
2007/06/19	09:02:00	1517	1528	1750	1782
2007/06/19	09:04:00	1518	1530	1743	1774
2007/06/19	09:06:00	1515	1532	1739	1779
2007/06/19	09:08:00	1515	1532	1737	1775
2007/06/19	09:10:00	1519	1528	1743	1782
2007/06/19	09:12:00	1515	1529	1743	1782
2007/06/19	09:14:00	1517	1529	1746	1773
2007/06/19	09:16:00	1520	1526	1732	1773
2007/06/19	09:18:00	1515	1530	1746	1776
2007/06/19	09:20:00	1518	1525	1753	1779
2007/06/19	09:22:00	1518	1529	1747	1782
2007/06/19	09:24:00	1518	1528	1749	1780
2007/06/19	09:26:00	1518	1525	1749	1776
Avg		1517	1529	1744	1779
$Avg_{MIN,MAX}$		1523		1761	

2007/06/19	09:34:00	1515	1528	1746	1776
2007/06/19	09:36:00	1518	1528	1746	1781
2007/06/19	09:38:00	1517	1528	1749	1779
2007/06/19	09:40:00	1517	1532	1752	1783
2007/06/19	09:42:00	1517	1530	1748	1778
2007/06/19	09:44:00	1519	1528	1747	1774
2007/06/19	09:46:00	1519	1526	1731	1781
2007/06/19	09:48:00	1519	1527	1738	1775
2007/06/19	09:50:00	1519	1525	1746	1776
2007/06/19	09:52:00	1518	1528	1745	1776
2007/06/19	09:54:00	1519	1530	1751	1783
2007/06/19	09:56:00	1517	1528	1740	1778
2007/06/19	09:58:00	1518	1530	1740	1774
2007/06/19	10:00:00	1519	1530	1738	1785
2007/06/19	10:02:00	1515	1530	1752	1780
2007/06/19	10:04:00	1518	1530	1745	1779
Avg		1518	1529	1745	1779
$Avg_{MIN,MAX}$		1523		1762	

TRI-CITIES SOURCE TEST 06/19/2007

		Temperature, F		LFG Flow, SCFM	
Date	Time	MIN	MAX	MIN	MAX
2007/06/19	10:12:00	1517	1528	1751	1777
2007/06/19	10:14:00	1521	1528	1743	1777
2007/06/19	10:16:00	1519	1527	1746	1781
2007/06/19	10:18:00	1521	1527	1749	1780
2007/06/19	10:20:00	1518	1527	1746	1776
2007/06/19	10:22:00	1522	1528	1748	1778
2007/06/19	10:24:00	1516	1528	1748	1778
2007/06/19	10:26:00	1519	1530	1750	1777
2007/06/19	10:28:00	1517	1528	1746	1780
2007/06/19	10:30:00	1515	1527	1745	1779
2007/06/19	10:32:00	1517	1530	1741	1787
2007/06/19	10:34:00	1520	1527	1748	1782
2007/06/19	10:36:00	1518	1527	1743	1782
2007/06/19	10:38:00	1518	1530	1747	1784
2007/06/19	10:40:00	1517	1527	1743	1782
2007/06/19	10:42:00	1520	1527	1743	1785
2007/06/19	10:44:00	1518	1530	1743	1782
Avg		1518	1528	1746	1780
$Avg_{MIN,MAX}$		1523		1763	

Appendix D
Analytical Results

Atmospheric Analysis & Consulting, Inc.

CLIENT	: Shaw Environmental, Inc.
PROJECT NAME	: Tricities landfill
AAC PROJECT NO.	: 070619
REPORT DATE	: 06/28/2007

On June 20, 2007, Atmospheric Analysis & Consulting, Inc. received three (3) Tedlar Bags for BTU analysis which includes: C_1-C_6^+ analysis by EPA Method 18, TRS analysis by ASTM D-5504 and fixed gases analysis by EPA Method 3C. Upon receipt the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab ID
LFG R1	070619-26274
LFG R2	070619-26275
LFG R3	070619-26276

EPA 18 Analysis - Up to a 1 ml aliquot of samples is injected into the GC/FID for analysis following EPA 18 as specified in the SOW.

EPA 3C Analysis - Up to a 1 ml aliquot of samples is injected into the GC/TCD for analysis following EPA 3C as specified in the SOW.

ASTM D-5504 – Up to a 1ml aliquot of sample is injected into the GC/SCD for analysis following ASTM D-5504 as specified in the SOW.

No problems were encountered during receiving, preparation and/ or analysis of these samples. The test results included in this report meet all requirements of the NELAC Standards and/or AAC SOP# AACI-ASTM D-5504, EPA 18 and EPA 3C.

I certify that this data is technically accurate, complete and in compliance with the terms and conditions of the contract. The Laboratory Director or his designee, as verified by the following signature, has authorized the release of the data contained in this hardcopy data package.

If you have any questions or require further explanation of data results, please contact the undersigned.

Sucha S. Parmar, PhD
Technical Director

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This report consists of _____ pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate #E87837

1534 Eastman Avenue • Suite A • Ventura, California 93003 (805) 650-1642 • FAX (805) 650-1644

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

Client	**: Shaw Environmental, Inc.**	**Sampling Date**	**: 06/19/2007**
Project No.	**: 070619**	**Receiving Date**	**: 06/20/2007**
Matrix	**: AIR**	**Analysis Date**	**: 06/20/2007**
Units	**: ppmv**	**Report Date**	**: 06/28/2007**

EPA Method 25C

Detection Limit:		1.0 ppmv
Client Sample ID	**AAC ID**	**NMHC****
LFG R1	**070619-26274**	1400.3
LFG R2	**070619-26275**	1383.3
LFG R3	**070619-26276**	1601.2

****Non-Methane Hydrocarbons as Methane**

Estimated results are based upon M18 data

Dr. Sucha Parmar
Technical Director

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT : Shaw Environmental, Inc.
PROJECT NO. : 070619
MATRIX : AIR

SAMPLING DATE : 06/19/2007
RECEIVING DATE : 06/20/2007
ANALYSIS DATE : 06/20/2007
REPORT DATE : 06/28/2007

Client ID:	LFG R1	LFG R2	LFG R3	Detection Limits
AAC ID:	070619-26274	070619-26275	070619-26276	
Compounds, Units				
H_2S, ppmv	65.2	67.7	89.8	0.01 ppmv
Carbonyl Sulfide, ppmv	ND	ND	ND	0.01 ppmv
Methyl Mercaptan, ppmv	1.8	2.1	1.9	0.01 ppmv
Ethyl Mercaptan, ppmv	ND	ND	ND	0.01 ppmv
Propyl Mercaptan, ppmv	ND	ND	ND	0.01 ppmv
Carbon Disulfide, ppmv	0.4	0.2	1.1	0.01 ppmv
Dimethyl sulfide, ppmv	1.5	1.4	1.5	0.01 ppmv
Allyl Sulfide, ppmv	ND	ND	ND	0.01 ppmv
Propyl Sulfide, ppmv	ND	ND	ND	0.01 ppmv
Allyl Disulfide, ppmv	ND	ND	ND	0.01 ppmv
Butyl Sulfide, ppmv	ND	ND	ND	0.01 ppmv
Ethyl Methyl Sulfide, ppmv	ND	ND	ND	0.01 ppmv
Thiophene, ppmv	ND	ND	ND	0.01 ppmv
Dimethyl Disulfide, ppmv	ND	ND	ND	0.01 ppmv
Butyl Mercaptan, ppmv	ND	ND	ND	0.01 ppmv
Allyl mercaptan, ppmv	ND	ND	ND	0.01 ppmv
C1 hydrocarbons, ppmv	457656	457718	460775	0.3 ppmv
C2 hydrocarbons, ppmv	68.5	54.7	78.5	0.3 ppmv
C3 hydrocarbons, ppmv	55.4	46.2	35.3	0.3 ppmv
C4 hydrocarbons, ppmv	25.9	16.6	23.7	0.3 ppmv
C5 hydrocarbons, ppmv	25.4	30.8	29.6	0.3 ppmv
C6 hydrocarbons, ppmv	21.8	24.8	27.2	0.3 ppmv
C6 + hydrocarbons, ppmv	147.7	152.9	184.5	0.3 ppmv
CO_2, %	35.5	35.6	35.9	0.1 %
CO, %	ND	ND	ND	0.1 %
O_2, %	2.4	2.4	2.3	0.1 %
N_2, %	16.3	16.2	15.7	0.1 %
H_2, %	ND	ND	ND	0.1 %
F Factor(dscf Exhaust/MM Btu)	9346	9347	9354	
Total Wt.% Adjusted Sp. Gravity	0.9819	0.9825	0.9831	
FUEL GAS BTU per LBM	10936	10937	11011	
FUEL GAS BTU per CU. FT	464.9	465.0	468.3	

Dr. Sucha Parmar
Technical Director

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Atmospheric Analysis & Consulting, Inc.

LABORATORY ANALYSIS REPORT

Client	**: Shaw Environmental, Inc.**	**SAMPLING DATE :**	**06/19/2007**
Project No.	**: 070619**	**RECEIVING DATE :**	**06/20/2007**
Matrix	**: Air**	**ANALYSIS DATE :**	**06/20/2007**
Units	**: ppmv**	**REPORT DATE :**	**06/28/2007**

Total Reduced Sulfur Compounds Analysis by ASTM D-5504

Client ID.	LFG R1	LFG R2	LFG R3	MDL
AAC ID	**070619-26274**	**070619-26275**	**070619-26276**	
Analysis Dilution Factor	**100, 2000**	**50, 2000**	**50, 2000**	
Can Dilution Factor	**1.0**	**1.0**	**1.0**	
H_2S	65.24	67.68	89.85	0.50
Carbonyl Sulfide	<PQL	<PQL	<PQL	0.50
SO2	<PQL	<PQL	<PQL	0.50
Methyl Mercaptan	1.83	2.09	1.92	0.50
Ethyl Mercaptan	<PQL	<PQL	<PQL	0.50
Dimethyl Sulfide	1.52	1.40	1.46	0.50
n-Butyl mercaptan	<PQL	<PQL	<PQL	0.50
Carbon Disulfide	<PQL	<PQL	1.08	0.50
Allyl Sulfide	<PQL	<PQL	<PQL	0.50
Propyl Sulfide	<PQL	<PQL	<PQL	0.50
Allyl disulfide	<PQL	<PQL	<PQL	0.50
Isopropyl Mercaptan	0.60	<PQL	<PQL	0.50
t-Butyl mercaptan	<PQL	<PQL	<PQL	0.50
Propyl Mercaptan	<PQL	<PQL	<PQL	0.50
Butyl Sulfide	<PQL	<PQL	<PQL	0.50
Ethyl methyl sulfide	<PQL	<PQL	<PQL	0.50
Thiophene	<PQL	<PQL	<PQL	0.50
Isobutyl mercaptan	<PQL	<PQL	<PQL	0.50
Dimethyl disulfide	<PQL	<PQL	<PQL	0.50
Allyl mercaptan	<PQL	<PQL	<PQL	0.50
3-Methylthiophene	<PQL	<PQL	<PQL	0.50
Tetrahydrothiophene	<PQL	<PQL	<PQL	0.50
Diethyl sulfide	<PQL	<PQL	<PQL	0.50
2-Ethylthiophene	<PQL	<PQL	<PQL	0.50
2,5-Dimethylthiophene	<PQL	<PQL	<PQL	0.50
Diethyl disulfide	<PQL	<PQL	<PQL	0.50
Total Unidentified Sulfurs as H_2S	0.61	0.77	<PQL	0.50
Total Sulfurs as H_2S	70.15	72.61	94.85	0.50

PQL = Practical Quantitation Limit (MDL x Analysis Dilution factor)
All compounds concentrations expressed in terms of H_2S.

Dr. Sucha Parmar
Technical Director

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

Client:	**: Shaw Environmental, Inc.**	**Sampling Date**	**: 06/19/2007**
Project No.	**: 070619**	**Receiving Date**	**: 06/20/2007**
Matrix	**: Air**	**Analysis Date**	**: 06/20/2007**
Units	**: %**	**Report Date**	**: 06/28/2007**

EPA Method 3C

Detection Limit: 0.1 %		Analyte					
Client ID	AAC ID	Hydrogen	Oxygen	Nitrogen	CO	Methane	CO2
LFG R1	070619-26274	<PQL	2.4	16.3	<PQL	45.8	35.5
LFG R2	070619-26275	<PQL	2.4	16.2	<PQL	45.8	35.6
LFG R3	070619-26276	<PQL	2.3	15.7	<PQL	46.1	36.0

Dr. Sucha Parmar
Technical Director

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Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT:	**: Shaw Environmental, Inc.**	**Sampling Date**	**: 06/19/2007**
PROJECT NO.	**: 070619**	**Receiving Date**	**: 06/20/2007**
MATRIX	**: AIR**	**Analysis Date**	**: 06/20/2007**
UNITS	**: PPMV**	**Report Date**	**: 06/28/2007**

C1 to C6+ Hydrocarbons by EPA Method 18

Client ID	AAC ID	*ANALYSIS METHOD*		*EPA Method 18*				
		Detection Limit		*0.3 ppmv*				
		C1 *	C2	C3	C4	C5	C6	C6+
LFG R1	070619-26274	NA	68.6	55.4	25.9	25.4	21.9	147.8
LFG R2	070619-26275	NA	54.7	46.2	16.6	30.8	24.8	153.0
LFG R3	070619-26276	NA	78.5	35.3	23.7	29.6	27.2	184.6

** C1 reported off of the EPA 3C report*

Dr. Sucha Parmar
Technical Director

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 06/20/07 **Instrument ID: SCD#2**
Analyst: RJ **Units: PPMV**

I - Method Blank - ASTM D-5504

AAC ID	Analyte	MB Conc.
Method Blank	H2S	ND

II-Laboratory Control Spike & Duplicate - ASTM D-5504

Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec *	LCSD % Rec *	% RPD***
H2S	0.050	0.050	0.050	100	100	0.0

III-Matrix Spike & Duplicate- ASTM D-5504 (070619-26274 x2000)

Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD***
H2S	0.016	0.025	0.043	0.041	107	99	4.8

IV - Duplicate Analysis - ASTM D-5504 (070619-26274 x2000)

Analyte	Sample Concentration	Duplicate Concentration	Mean	% RPD***
H2S	0.033	0.032	0.033	3.1

** Must be 90-110%*

*** Must be 85-115%*

**** Must be < 10%*

Dr. Sucha Parmar
Technical Director

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Quality Control/Quality Assurance Report

Date Analyzed: 6/20/2007
Analyst: RJ
Calibration Date: 5/29/2007

Instrument ID: SCD#2
Units: PPMV

Opening Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery*
H2S	0.050	0.048	**96**

Closing Calibration Verification Standard

Analyte	Std. Conc.	Result	%Recovery*
H2S	0.050	0.051	**102**

* Must be 90-110%

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 6/20/2007
Analyst: TT/RJ
Instrument ID: TCD#1
Units: %

I - Method Blank-EPA Method 3C

AAC ID	Analyte	MB Concentration
Method Blank	Hydrogen	ND
	Oxygen	ND
	Nitrogen	ND
	CO	ND
	Methane	ND
	CO2	ND

II-Laboratory Control Spike & Duplicate - EPA Method 3C

AAC ID	Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec *	LCSD % Rec *	% RPD***
Lab Control Standards	Hydrogen	20.0	19.6	19.4	98	97	1.3
	Nitrogen	20.0	20.9	21.3	104	106	1.9
	CO	20.0	19.0	19.0	95	95	0.2
	Methane	20.0	18.5	18.6	93	93	0.2
	CO2	20.0	19.0	19.1	95	95	0.3

III - Duplicate Analysis - EPA Method 3C

AAC ID	Analyte	Sample Concentration	Duplicate Concentration	Mean	% RPD***
070619-26274	Hydrogen	0.0	0.0	0.0	0.0
	Oxygen	2.3	2.3	2.3	2.5
	Nitrogen	15.2	15.4	15.3	1.1
	CO	0.0	0.0	0.0	0.0
	Methane	43.1	42.9	43.0	0.3
	CO2	33.4	33.2	33.3	0.5

IV-Matrix Spike & Duplicate- EPA Method 3C

AAC ID	Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD***
070619-26274	Hydrogen	0.0	10.0	8.9	9.6	89	96	7.5
	Nitrogen	7.7	10.0	18.0	19.5	104	118	13.2
	CO	0.0	10.0	9.6	10.1	96	101	4.6
	Methane	21.5	10.0	31.3	32.6	98	111	12.1
	CO2	16.7	10.0	26.2	27.7	95	111	15.0

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*

Dr. Sucha Parmar
Technical Director

1534 Eastman Avenue • Suite A • Ventura, California 93003 (805) 650-1642 • FAX (805) 650-1644

Quality Control/Quality Assurance Report

Date Analyzed: 6/20/2007 **Instrument ID: TCD#1**

Analyst: TT/RJ **Calibration Date: 09/27/06**

Opening Calibration Verification Standard

Analyte	xLR**	LR	%RPD*
Hydrogen	2128	1981	**7.1**
Oxygen* **	58037	57159	**1.5**
Nitrogen	62209	68141	**9.1**
Carbon Monoxide	69067	62478	**10.0**
Methane	59891	54284	**9.8**
Carbon Dioxide	93158	84750	**9.5**

Closing Calibration Verification Standard

Analyte	xLR**	LR	%RPD*
Hydrogen	2128	2134	**0.3**
Nitrogen	62209	63448	**2.0**
Carbon Monoxide	69067	67073	**2.9**
Methane	59891	57524	**4.0**
Carbon Dioxide	93158	90853	**2.5**

* Must be <15%

** Linear Response Factor from Initial Calibration Curve

*** Oxygen from Lab Air

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed: 6/20/2007
Analyst: RJ
Instrument ID: FID#3
Units: PPMV

I - Method Blank-EPA Method 18

AAC ID	Analyte	MB Concentration
Method Blank	Methane	ND
	Ethane	ND
	Propane	ND
	Butane	ND
	Pentane	ND
	Hexane	ND

II-Laboratory Control Spike & Duplicate - EPA Method 18

AAC ID	Analyte	Spike Added	LCS Result	LCSD Result	LCS % Rec *	LCSD % Rec *	% RPD***
Lab Control Standards	Methane	100.4	99.2	97.6	98.8	97.2	**1.7**
	Ethane	100.2	102.4	112.0	102.2	111.7	**8.9**
	Propane	100.2	103.9	106.5	103.7	106.3	**2.4**
	Butane	100.4	105.7	107.6	105.3	107.2	**1.8**
	Pentane	100.0	104.0	109.0	104.0	109.0	**4.8**
	Hexane	99.4	108.9	113.0	109.5	113.7	**3.7**

III - Duplicate Analysis - EPA Method 18

AAC ID	Analyte	Sample Concentration	Duplicate Concentration	Mean	% RPD***
070616-26266 (10x)	Methane	N/A	N/A	N/A	N/A
	Ethane	0.0	0.0	**0.0**	**0.0**
	Propane	23.7	22.6	**23.1**	**4.6**
	Butane	7.5	7.4	**7.4**	**1.3**
	Pentane	2.2	2.2	**2.2**	**1.0**
	Hexane	4.7	5.1	**4.9**	**8.1**

IV-Matrix Spike & Duplicate- EPA Method 18

AAC ID	Analyte	Sample Concentration	Spike Added	MS Result	MSD Result	MS % Rec **	MSD % Rec **	% RPD***
070616-26266 (10x)	Methane	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Ethane	0.0	50.0	50.0	49.5	100	99	**1.1**
	Propane	1.2	50.0	52.0	50.0	102	98	**3.9**
	Butane	0.4	50.0	51.2	53.4	102	106	**4.2**
	Pentane	0.1	50.0	51.3	54.7	102	109	**6.5**
	Hexane	0.2	50.0	51.5	57.3	103	114	**10.6**

** Must be 85-115%*
*** Must be 75-125%*
**** Must be < 25%*

Dr. Sucha Parmar
Technical Director

1534 Eastman Avenue • Suite A • Ventura, California 93003 (805) 650-1642 • FAX (805) 650-1644

Quality Control/Quality Assurance Report

Date Analyzed: 6/20/2007 **Instrument ID: FID#3**

Analyst: RJ **Calibration Date: 03/14/07**

Opening Calibration Verification Standard

Analyte	xCF**	CF	%RPD*
C1	691	700	**1.3**
C2	1275	1391	**8.6**
C3	1915	2077	**8.1**
C4	2523	2719	**7.5**
C5	3101	3305	**6.4**
C6	3538	3739	**5.5**

Closing Calibration Verification Standard

Analyte	xCF**	CF	%RPD*
C1	691	658	**4.9**
C2	1275	1334	**4.5**
C3	1915	2027	**5.7**
C4	2523	2668	**5.6**
C5	3101	3257	**4.9**
C6	3538	3807	**7.3**

* Must be <15%

** Average Calibration Factor from Initial Calibration Curve

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Laboratory

AAC
1534 Eastman Ave
Ventura, CA 93003

Shaw Environmental Chain Of Custody Record

070619

CLIENT: Tricity's Landfill

DATE: 6-19-07

PAGE: 1 of 1

SAMPLING COMPANY: Shaw Environmental, Inc.

LOG CODE:

SITE ADDRESS (Street and City):

ADDRESS: 2360 Bering San Jose, CA 95131

EDF DELIVERABLE TO (Responsible Party or Designee):

PHONE NO.:

E-MAIL:

CONSULTANT PROJECT NO.:

PROJECT CONTACT (Hardcopy or PDF Report to): Bill Johnston

SAMPLER NAME(S) (Print):

TELEPHONE: 408.382.5800

FAX: 408.433.1912

E-MAIL:

TURNAROUND TIME (BUSINESS DAYS):
☐ 10 DAYS ☐ 5 DAYS ☐ 72 HOURS ☐ 48 HOURS ☒ 24 HOURS ☐ LESS THAN 24 HOURS

SPECIAL INSTRUCTIONS OR NOTES:

Report NMOC as Methane

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	C_1-C_6	HHV & F-factor	Fixed gases O2, CO2, N2	VOCs, TO 15	Sulfurs, ASTM D5504	H2S	LFG NMOC, EPA 25C			EPA table 2.4-1 list of compounds except acetone and mercury		FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes
	LFG-R1	6-19	1000	Bag	1	X	X	X		X							Landfill Gas 26274
	R2	↓	1030		1	X	X	X		X							~45% Methane 26275
	R3	↓	1100		1	X	X	X		X							26276

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) 6-19-07	Received by: (Signature)	Date: 6/20/07 S	Time: 825

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Appendix E
Source Test Plan and
ARB Independent Contractor Certification

Shaw Environmental, Inc.
2360 Bering Drive
San Jose, California 95131
408-382-5800
FAX: 408-433-1912

Shaw™ Shaw Environmental, Inc.

To: BAAQMD Source Test Group

Date: June 4, 2007

SOURCE TEST PROTOCOL

TRICITIES WASTE MANAGEMENT FACILITY

FLARE A-3

Shaw Environmental, Inc. will perform compliance testing on a landfill gas flare (A-3) located at the Tri-Cities Waste Management Recycling and Disposal facility (TRDF) in Fremont, California. The purpose of the test is to demonstrate the performance of the landfill gas flare as specified by the Bay Area Air Quality Management District (BAAQMD) Title V permit and Regulation 8, Rule 34. This protocol is to inform the BAAQMD of the planned testing procedures.

Source Test Information

Test Location:	Tri-Cities Waste Management Recycling and Disposal Facility 7010 Auto Mall Parkway Fremont , CA BAAQMD Facility #A2246	Contact: Colleen Cassidy Tel: 510-624-5928
Source Tested:	Flare (A-3)	
Test Objective:	Determine compliance with Title V and Regulation 8, Rule 34 Permit condition #8366	Emission Limits: NMOC: 30 ppm as methane @3% O_2 or 98% removal by weight NOx: < 0.06 lb/MMBtu CO: < 0.3 lb/MMBtu
Test Performed By:	Shaw Environmental, Inc. 2360 Bering Drive San Jose, CA 95131	Contact: William R. Johnston Tel: (408) 382-5822
Test date:	June 19, 2007	
Test Parameters:	Inlet O_2, CO_2, N_2, BTU, HHV CH_4, NMOC, f-factor Volumetric flow rate	Outlet CH_4, NMOC, NOx, CO, O_2, Volumetric flow rate

SCOPE OF WORK

The source test will demonstrate the performance of the landfill gas flare as specified by the BAAQMD Title V permit condition #8366. The flare source test shall determine the following parameters to satisfy the permit requirements.

- Landfill gas flow rate (dry basis);
- The landfill gas shall be analyzed for Carbon Dioxide (CO_2), Nitrogen (N_2), Oxygen (O_2), Methane (CH_4), Non-methane Organic Compounds (NMOC), fuel factor All concentrations shall be reported on a dry basis;
- Stack gas flow rate from the flare, calculated from landfill gas analysis and f-factor;
- Concentrations (dry basis) of CH_4, NMOC, Carbon Monoxide (CO), Nitrogen Oxides (NO_x), and O_2 in the flare stack gas;
- NMOC destruction efficiency achieved by the flare;
- The average combustion temperature in the flare during the test period.

The source test will demonstrate the following limits from the flare exhaust.

- Emissions of NOx shall not exceed 0.06 pounds per million British Thermal Units (lb/MMBtu).
- Emissions of CO shall not exceed 0.30 lb/MMBtu.
- The flare destruction efficiency of NMOC shall not be less than 98 percent by weight, unless the outlet NMOC concentration is less than 30 ppmv, expressed as methane at 3 percent oxygen on a dry basis.

TEST PROCEDURES

The source test matrix identified below presents the test parameters and source test methods (each compliant with the requirements of the BAAQMD) that will be utilized to determine the emissions from the flare.

Landfill Gas Fuel Analysis

Integrated Tedlar bag samples will be collected at the inlet to the flare. Samples will be collected concurrently with the outlet sampling.

Continuous Emission Monitoring

Single point sampling will be performed at the center of the stack. All analyzers will be checked for calibration before and after each run. Emission monitoring data will be recorded on strip charts and a data logger. Methane concentrations will be determined by passing sample gas through an activated carbon scrubber prior to the hydrocarbon analyzer. Hydrocarbon emissions will be measured and reported as methane.

Process Parameters

Flare process parameters including the fuel gas flow rate and the flare operating temperature will be measured and recorded during each run using the flare gas measurement system.

Test Matrix TriCities Landfill
LFG and Flare A-3

Sample Parameter	Test Method	Runs	Test Duration
LFG Parameters- Flare Inlet			
Gas flow rate	DAS & flow meter	3	Concurrent
Flare temperature	DAS & thermocouple	3	Concurrent
Fuel factor	EPA Method 19	1	30 Minutes
Fixed gases	ASTM D1945, EPA Method 18	1	
NMOC	EPA Method 25 C	1	30 Minutes
Source Parameters-Flare Exhaust			
Volumetric flow rate	EPA Method 19	3	30 Minutes
O_2	BAAQMD ST-14	3	30 Minutes
NMOC	BAAQMD ST-7	3	30 Minutes
CO	BAAQMD ST-6	3	30 Minutes
NOx	BAAQMD ST-13A	3	30 Minutes

REPORT

The final report is due to the BAAQMD 60 days after testing has occurred. The report will describe the tests that were conducted, the operating conditions of the source during the test, and the emission results. All raw data and sample calculations used to obtain the reported results will be included so that the accuracy of the reported results can be verified from the report. The flare process information will be submitted in the report.

Johnston, William

From: Tim Underwood [tunderwood@baaqmd.gov]
Sent: Monday, June 04, 2007 11:59 AM
To: Johnston, William
Subject: NST-1123: Source Test Notification, TriCities Flare

NST-1123 has been assigned the pending work referenced below.

From: Johnston, William [mailto:william.johnston@shawgrp.com]
Sent: Monday, June 04, 2007 10:33 AM
To: Tim Underwood
Subject: Source Test Notification, TriCities Flare

Tim
Source test notification for TrCities Landfill flare test

Thanks

Bill Johnston
Shaw Environmental, Inc.
2360 Bering Drive
San Jose, CA 95131
Tel 408-382-5822
Fax 408-433-1912
e-mail william.johnston@shawgrp.com

State of California

Air Resources Board

Approved Independent Contractor

Shaw Environmental, Inc.

This is to certify that the company listed above has been approved by the Air Resources Board to conduct compliance testing pursuant to section 91207, title 17, California Code of Regulations, until June 30, 2007 for those test methods listed below:

ARB Source Test Methods:
1, 2, 3, 4, 5, 8, 100 (CO, CO_2, NO_x, O_2, SO_2, THC)
Visible Emissions Evaluation

William V. Loscutoff, Chief
Monitoring and Laboratory Division

90 56165

Appendix F
Major Facility Review Permit

Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Proposed

MAJOR FACILITY REVIEW PERMIT

Issued To:
TriCities Waste Management
Facility #A2246

Facility Address:
7010 Auto Mall Parkway
Fremont, CA 94538

Mailing Address:
7010 Auto Mall Parkway
Fremont, CA 94538

Responsible Official	**Facility Contact**
James Devlin	~~Brian Bowen~~Colleen Cassidy
North Bay Market Area Manager	Environmental Protection ~~Manager~~Specialist
(510) 430-8509	~~(916) 448-4675~~(510) 624-5928

Type of Facility:	Municipal Solid Waste Landfill	BAAQMD Permit Division Contact:
Primary SIC:	4953	Ted Hull, Senior Air Quality Engineer
Product:	Landfill Operations	

ISSUED BY THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Jack P. Broadbent, Executive Officer/Air Pollution Control Officer _____ Date

VI. Permit Conditions

Condition # 8366
FOR S-1: LANDFILL WITH GAS COLLECTION SYSTEM AND A-3: LANDFILL GAS FLARE

6. The combustion zone temperature of the flare shall be maintained at a minimum temperature of 1450 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 this minimum temperature limit in accordance with the 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 determined during the most recent complying source test minus 50 degrees F, provided that the minimum combustion zone temperature is not less than 1400 degrees F. (Basis: Regulation 8-34-301, Toxic Risk Management Policy, RACT, and 40 CFR 60.758(c)(1)(i))

7. The Landfill Gas Flare A-3 shall be equipped with a combustion temperature readout monitor and continuous recorder to measure and record the temperature in the combustion zone. (Basis: Regulation 8-34-507)

8. Emissions of Nitrogen Oxides (NOx) from the Flare A-3 shall not exceed 0.06 pounds per million BTU (calculated as NO_2). (basis: RACT and Offsets)

9. Emissions of Carbon Monoxide (CO) from the Flare A-3 shall not exceed 0.3 pounds per million BTU. (basis: RACT and Offsets).

10. In order to demonstrate compliance with Regulation 8, Rule 34, Section 301.3, Regulation 9, Rule 1, Section 302, 40 CFR 60 .752(b)(2)(iii)(B), and the above requirements, the Permit Holder shall ensure that a District approved source test is conducted annually on the Landfill Gas Flare (A-3). The annual source test shall determine the following:
    a. Landfill gas flow rate to the flare (dry basis)
    b. Concentrations (dry basis) of methane (CH_4) 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 nitrogen oxides (NOx), carbon monoxide (CO), CH_4, NMOC, and O_2 in the flare stack gas
    e. The NMOC destruction efficiency achieved by the flare
    f. The average combustion temperature in the flare during the test period.

VI. Permit Conditions

Condition # 8366
FOR S-1: LANDFILL WITH GAS COLLECTION SYSTEM AND A-3: LANDFILL GAS FLARE

Annual source tests 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 its 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 60 days after the test date. (Basis: Regulations 8-34-301.3 and 8-34-412 and 40 CFR 60.752(b)(2)(iii)(B))

11. The heat input to the A-3 Flare shall not exceed 1,800 million BTU per day or 657,000 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 Part10, 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/scf. The records shall be retained for five years and shall be made available to the District staff upon request. (Basis: Regulation 2-1-301)

12. Total reduced sulfur compounds in the collected landfill gas shall be monitored as a surrogate for monitoring sulfur dioxide in control systems exhaust. The concentration of total reduced sulfur compounds in the collected landfill gas shall not exceed 1300 ppmv (dry). In order to demonstrate compliance with this part, the Permit Holder shall measure the total sulfur content in collected landfill gas on a quarterly basis using a draeger tube. The landfill gas sample shall be taken from the main landfill gas header. The Permit Holder shall follow the manufacturer's recommended procedures for using the draeger tube and interpreting the results. The Permit Holder shall conduct the first draeger tube test no later than 3 months after the issue date of the MFR Permit and quarterly thereafter.
(Basis: Regulations 9-1-302 and 2-6-503)

13. On rainless operating days, water shall be applied as necessary and at least 2 times per full operational day to all unpaved roadways and active soil removal and fill areas associated with this facility to suppress dust emissions. On operating days when rain has fallen in the last 24 hours, water shall be applied as necessary to prevent visible dust emissions. (Basis: Regulations 6-301 and 1-301)

14. Paved roadways at the facility shall be kept sufficiently clear of dirt and debris as to prevent visible particulate emissions from vehicle traffic or wind. (Basis: Regulations 6-301 and 1-301)