2006 SOURCE TEST REPORT

EMISSION MONITORING OF TWO LANDFILL GAS-FIRED FLARES AT THE REDWOOD LANDFILL

LANDFILL GAS CONTROL - FLARES - SOURCES A-50 AND A-51
FACILITY NUMBER A1179

Test dates: June 7 and 8, 2006

Submittal Date: July 31, 2006

Prepared for:

Waste Management, Inc.
8950 Redwood Highway
Novato, CA 94948

Prepared by:

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Project No.: 121105.01

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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 2006 SOURCE TEST INFORMATION

Source & Location:	Enclosed Gas Flares A-50 and A-51 Waste Management, Inc. 8950 Redwood Highway Novato, CA 94948
Site Contact:	Beth Shiverdecker: 415-892-2851
Source Description:	A-50: Power Strategies EV 4000 enclosed ground flare assembly with a total capacity of 4000 scfm A-51: Perennial Energy Inc., 90 MMBtu/hr, enclosed ground flare assembly with a total capacity of 3000 scfm
Reference:	Major Facility Review Permit Condition Number 19867 Emission Limits: CO = 0.30 lb/MMBtu (123 ppmv at 15% O_2) NOx = 0.6 lb/MMBtu (15 ppmv at 15% O_2) NMOC = 30 ppmv at 3% 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:	William Johnston: 408-382-5800
Test Dates:	June 7 and 8, 2006, for A-50 and A-51, respectively

Notes:
scfm = standard cubic feet per minute
MMBtu/hr = million British thermal units per hour
CO = carbon monoxide
lb/MMBtu = pounds per million British thermal units
ppmv = parts per million by volume
O_2 = oxygen
NOx = oxides of nitrogen
NMOC = non-methane organic compounds

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1.0 Introduction

1.1 Summary

Shaw Environmental, Inc. (Shaw) performed source tests of landfill gas (LFG) Flares A-50 and A-51 at the Redwood Landfill located in Novato, California. This report presents the results of the test program. Tables 1 and 2 summarize the test results for Flares A-50 and A-51, respectively, as compared to the emission limits. The flares met all compliance criteria.

Table 1. Compliance Summary
Redwood Landfill Flare A-50
Test date: June 7, 2006

Condition	Average Result	Emission Limit	Compliance Status
NOx (ppmv @ 15% O_2)	11	15	In Compliance
CO (ppmv @ 15% O_2)	35	123	In Compliance
NMOC (ppmv @ 3% O_2, dry as methane)	4	30	In Compliance

Notes:
NOx = oxides of nitrogen
CO = carbon monoxide
NMOC = non-methane organic compounds
ppmv = parts per million by volume
O_2 = oxygen

Table 2. Compliance Summary
Redwood Landfill Flare A-51
Test date: June 8, 2006

Condition	Average Result	Emission Limit	Compliance Status
NOx (ppmv @ 15% O_2)	13	15	In Compliance
CO (ppmv @ 15% O_2)	12	123	In Compliance
NMOC (ppmv @ 3% O_2, dry as methane)	7	30	In Compliance

1.2 Overview

Shaw, an approved California Air Resources Board (ARB) source test contractor, performed the source test program. The test program was designed to demonstrate compliance with the Bay Area Air Quality Management District (BAAQMD) Major Facility Review Permit (MFRP) A1179, Condition Number 19867. The source test was performed on the flare exhaust to assess the emissions of NMOC, NOx, and CO. Additionally, an LFG sample was collected for gas characterization.

The source tests were conducted on June 7 and 8, 2006 for Flares A-50 and A-51, respectively. Sampling was performed by Mr. Bill Johnston and Mr. Scott Borderieux of Shaw. The BAAQMD was notified of the test via a fax dated May 24, 2006, that included the Source Test Protocol. 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 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 Program certification are presented in Appendix E. Redwood Landfill's MFRP is located in Appendix F. A site picture is located in Appendix G.

1.3 Source Operating Conditions

1.3.1 Source A-50

The A-50 flare is a Power Strategies EV 4000 enclosed ground flare assembly with a total capacity of 4000 standard cubic feet per minute (scfm). The flare is utilized as a back-up flare to flare A-51. 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 indication for control of the combustion temperature. The flare was set at an operating temperature of 1,650 degrees Fahrenheit (°F) measured at the top thermocouple for the source test. The average flare temperature was 1,647 °F with an average LFG flow rate of 872 scfm. The LFG landfill gas flow rate and flare operating temperature are continuously recorded on a data acquisition system (DAS) and circular paper chart recorder.

Process data documenting the operation of the flare are contained in Appendix E. A picture of the flares is presented in Appendix G.

1.3.2 Source A-51

The A-51 flare is a Perennial Energy Inc., 90 million British thermal units per hour (MMBtu/hr), enclosed ground flare assembly with a total capacity of 3,000 scfm. The LFG volumetric flow rate is measured with a mass flow meter. Three thermocouples are located at the top, middle, and bottom of the flare exhaust stack to provide temperature indication for control of the combustion temperature. The flare was set at an operating temperature of 1,450 °F measured at the top thermocouple for the source test. The average flare temperature was 1,450 °F with an average LFG flow rate of 2,603 scfm. The LFG landfill gas flow rate and flare operating temperature are continuously recorded on a DAS and strip paper chart recorder.

2.0 Source Test Program

The objective of the flare source tests was to demonstrate compliance with requirements of MFRP Condition Number 19867 for LFG parameters NOx, CO, NMOC, and other gaseous constituents.

Measurements of each flare's emissions were conducted at the flare exhausts. LFG was sampled at the inlet header. Table 3 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 one 30-minute run for the inlet header. The continuous emission monitoring system (CEMS) equipment was leak-checked before sampling began. Each instrument was calibrated before and after each sampling run with EPA protocol calibrated gas standards. The CEMS data are presented in Appendix B.

Concurrent with each flare test, Shaw collected one integrated 1-liter Tedlar® bag sample of the inlet LFG for analysis of NMOC, British thermal units (Btu), F-Factor, and additional fixed gases. The analytical laboratory results are contained in Appendix D.

The flare operating temperature and LFG flow rate were manually recorded on a field data sheet for each run. 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.

Results of the tests for the LFG and flare exhaust are summarized in Section 3. 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 flares operate with criteria pollutant emissions below the BAAQMD emission limits.

Table 3. Source Test Methods and Instrumentation

Method	Inlet (fuel) Analyte	Exhaust Analyte	Instrumentation/ Laboratory	Principle
ASTM D-1945/D-3588, EPA Method 25 C EPA Method TO 15	Fixed Gases, Btu, F-Factor NMOC VOCs	—	Atmospheric Analysis & Consulting, Inc.	Chromatographic Analysis GC/FID/TCA Analysis GC
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	Fuel Cell
EPA Method 19		Flow rate, dscfm	—	Algorithm

Notes:

VOCs = volatile organic compounds
THC = total hydrocarbons
CH_4 = methane
dscfm = dry standard cubic feet per minute
FID = flame ionization detection
GC = gas chromatography
TCA = thermal conductivity analyzer
IR = infrared

3.0 Source Test Results

The source tests were performed on the LFG fuel and at the flare exhausts. Tables 4 and 5 present the results of the LFG fuel analysis and flare operating parameters as recorded by the DAS for Flares A-50 and A-51, respectively. One LFG sample was drawn per flare test for analysis of Btu, F-Factor, and additional fixed gases. Tables 6 and 7 present the results of the source tests for Flares A-50 and A-51, respectively. 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. Concentrations of NMOC are reported in units of ppmv corrected to 3 percent O_2.

One LFG sample was analyzed for compliance with Condition No. 19867, Parts 18 and 31 (the LFG gas characterization).

Table 4. Redwood Landfill
Flare A-50, Operating Conditions and LFG Analysis
Test date: June 7, 2006

	Run 1	Run 2	Run 3	Average
Time	0811-0841	0852-0922	0931-1001	—
Flare Temperature (°F)	1,647	1,647	1,648	1,647
Recorded Fuel Flow Rate (scfm)	874	872	870	872
Heat Input (MMBtu/day)	653	652	650	652
O_2 (%)[1]	—	2.5	—	—
CO_2 (%)[1]	—	34	—	—
N_2 (%)[1]	—	13	—	—
Methane (%)[1]	—	51.2	—	—
H_2S (ppmv)[1]	—	92	—	—
NMOC (ppmv)[1]	—	456	—	—

[1] Only one sample of landfill gas was collected and analyzed for this value
CO_2 = carbon dioxide
N_2 = nitrogen
H_2S = hydrogen sulfide

Table 5. Redwood Landfill
Flare A-51, Operating Conditions and LFG Analysis
Test date: June 8, 2006

	Run 1	Run 2	Run 3	Average
Time	0852-0922	0933-1003	1014-1044	—
Flare Temperature (°F)	1,448	1,452	1,451	1,450
Recorded Fuel Flow Rate (scfm)	2,618	2,601	2,591	2,603
Heat Input (MMBtu/day)	1,866	1,854	1,847	1,856
O_2 (%)[1]	—	3.2	—	—
CO_2 (%)[1]	—	33	—	—
N_2 (%)[1]	—	15	—	—
Methane (%)[1]	—	48.8	—	—
H_2S (ppmv)[1]	—	327	—	—
NMOC (ppmv)[1]	—	213	—	—

[1] Only one sample of landfill gas was collected and analyzed for this value.

Table 6. Redwood Landfill
Source Test Results — Landfill Flare Exhaust A-50
Test date: June 7, 2006

	Run 1	Run 2	Run 3	Average	Emission Limit
Time	0811-0841	0852-0922	0931-1001	—	—
Fuel Factor	9,147	9,147	9,147	9,147	—
Flare Temperature (°F)	1,647	1,647	1,648	1,647	—
Landfill Gas Fuel Flow Rate (scfm)	874	872	870	872	—
Exhaust Flow Rate (dscfm)	8,849	8,739	8,899	8,829	—
O_2 (%)	11.1	11.0	11.2	11.1	—
NOx					
NOx (ppmv)	18.7	18.3	18.1	18.4	—
NOx (ppmv @ 15% O_2)	11.3	10.9	11.0	11.1	15
NOx (lb/hr)	1.2	1.1	1.1	1.2	—
NOx (lb/MMBtu)	0.043	0.042	0.042	0.043	0.06
CO					
CO (ppmv)	53.7	53.6	65.0	57.4	—
CO (ppmv @ 15% O_2)	32.3	31.9	39.5	34.6	123
CO (lb/hr)	2.1	2.0	2.5	2.2	—
CO (lb/MMBtu)	0.076	0.075	0.093	0.081	0.30
Hydrocarbons as Methane					
NMOC (ppmv)	1.1	1.8	3.7	2.2	—
NMOC (ppmv corrected to 3% O_2)	2.0	3.3	6.8	4.0	30
NMOC Removal Efficiency (%)[1]	—	96.0	—	—	98 [2]

[1] Only one sample of landfill gas was analyzed to calculate this value.

[2] The efficiency requirement is utilized only if the outlet NMOC concentration is greater than 30 ppmv @ 3% oxygen.

Table 7. Redwood Landfill
Source Test Results — Landfill Flare Exhaust A-51
Test date: June 8, 2006

	Run 1	Run 2	Run 3	Average	Emission Limit
Time	0852-0922	0933-1003	1014-1044	—	—
Fuel Factor	9,158	9,158	9,158	9,158	—
Flare Temperature (°F)	1,448	1,452	1,451	1,450	—
Landfill Gas Fuel Flow Rate (scfm)	2,618	2,601	2,591	2,603	—
Exhaust Flow Rate (dscfm)	31,397	30,804	32,300	31,500	—
O_2 (%)	13.0	12.9	13.3	13.1	—
NOx					
NOx (ppmv)	17.0	17.2	15.7	16.6	—
NOx (ppmv @ 15% O_2)	12.7	12.7	12.2	12.5	15
NOx (lb/hr)	3.8	3.8	3.6	3.7	—
NOx (lb/MMBtu)	0.049	0.049	0.047	0.048	0.06
CO					
CO (ppmv)	13.7	11.6	21.3	15.5	—
CO (ppmv @ 15% O_2)	10.2	8.6	16.5	11.8	123
CO (lb/hr)	1.9	1.6	3.0	2.1	—
CO (lb/MMBtu)	0.024	0.020	0.039	0.028	0.30
Hydrocarbons as Methane					
NMOC (ppmv)	2.3	1.3	5.0	2.9	—
NMOC (ppmv corrected to 3% O_2)	5.2	2.9	11.8	6.6	30
NMOC Removal Efficiency (%)[1]	—	92.8	—	—	98 [2]

[1] Only one sample of landfill gas was analyzed to calculate this value.

[2] The efficiency requirement is utilized only if the outlet NMOC concentration is greater than 30 ppmv @ 3% oxygen.

Table 8. Summary of Results, Redwood Landfill
Landfill Gas Analysis
Test date: June 8, 2006

Compound	Measured Concentration (ppbv)	Permit Concentration Limit (ppbv)
Organic Compounds[1]		
Acrylonitrile	< 1.0	280
Benzene	328	340
Carbon Tetrachloride	< 1.0	70
Chlorobenzene	< 1.0	—
Chlorodifluoromethane	575	—
Chloroethane	< 1.0	—
Chloroform	< 1.0	70
1,1-Dichloroethane	< 1.0	150
1,1-Dichloroethene	< 1.0	—
1,2-Dichloroethane	< 1.0	70
1,4,Dichlorobenzene	< 1.0	400
Dichlorodifluoromethane	642	—
Dichlorofluoromethane	< 1.0	—
Ethylbenzene	1,790	—
1,2-Dibromethane	< 1.0	70
Fluorotrichloromethane	< 1.0	—
Hexane	471	—
Isopropanol	269	—
Methyl Ethyl Ketone	1,200	—
Methylene Chloride	< 1.0	320
Perchloroethylene (Tetrachloroethylene)	< 1.0	450
Toluene	4,200	—
1,1,1-Trichloroethane	< 1.0	—
1,1,2,2-Tetrachloroethane	< 1.0	70
Trichloroethylene	< 1.0	250
Vinyl Chloride	431	880
Xylenes	2500	—
Compound	**Measured Concentration (ppmv)**	**Permit Concentration Limit (ppmv)**
Sulfur Compounds[1]		
Carbon Disulfide	< 0.05	—
Carbonyl Sulfide	< 0.05	—
Dimethyl Sulfide	< 0.05	—
Ethyl Mercaptan	< 0.05	—
Total Reduced Sulfur as Hydrogen Sulfide	327	1,300
Methyl Mercaptan	< 0.05	—
NMOC		
NMOC (as Hexane)	76	750

Notes:
ppbv = parts per billion by volume
ppmv = parts per million by volume
[1]For compounds reported as non-detected, a less than (<) sign is used and the method reporting limit value is reported.

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 1 is a schematic diagram of the Shaw CEMS.

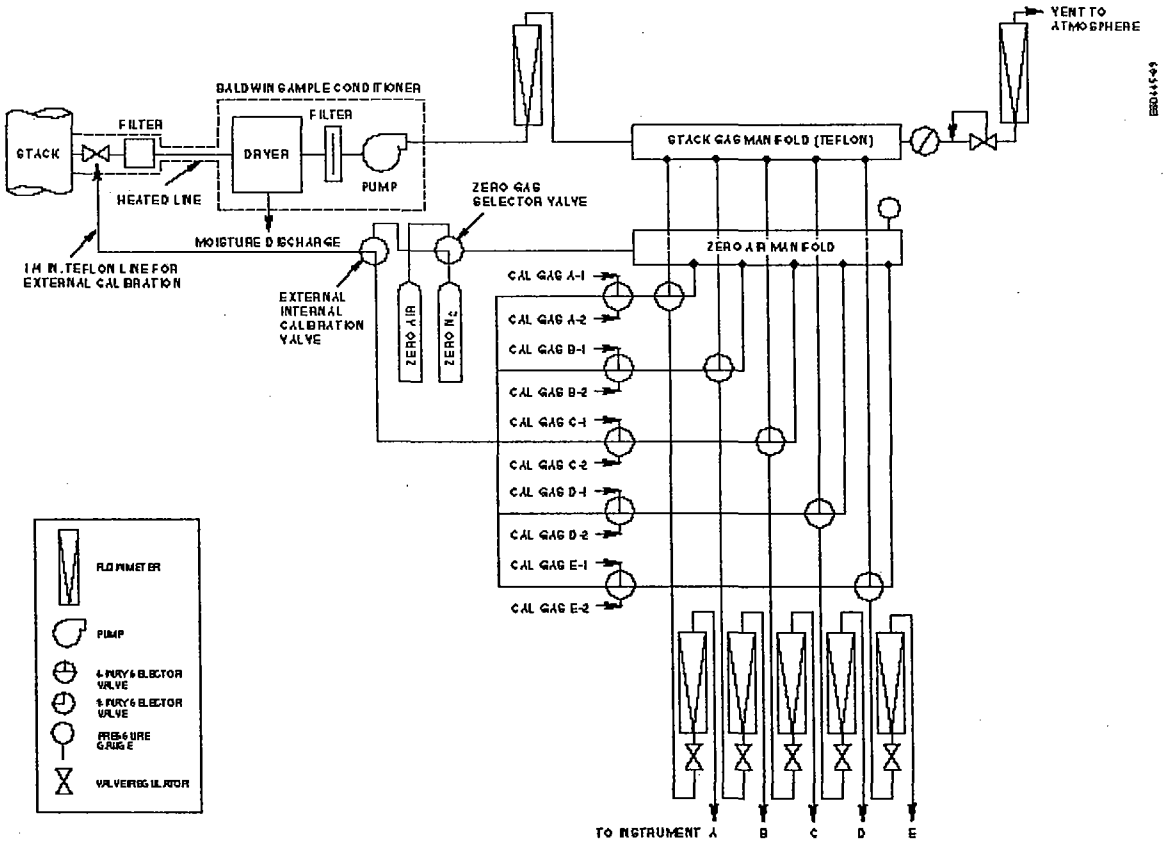


Figure 1. Schematic Diagram of the Shaw CEMS

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 6 lists the specifications of the instruments used in the source test.

Table 9. 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	0-100 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 6C. 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 EPA and ASTM test methods. The sample was collected from a sample port located at the inlet header. The sample was collected in a 1-liter Tedlar® bag through Teflon™ tubing. The sample line was purged with sample gas prior to sampling. The sample flow rate was controlled with rotameters to collect a 30-minute integrated sample. The sample was kept out of sunlight and 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: Redwood Landfill
Source : Flare A-50
Test date: 6/7/2006

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

Time	0811-0841 Run 1		0852-0922 Run 2		0931-1001 Run 3		Avg		Permit Limits
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
Flare Temp (F)	1,647		1,647		1,648		1,647		
LFG rate	874		872		870		872		
Fuel factor	9,147		9,147		9,147		9,147		
Oxygen (%)		11.1		11.0		11.2		11.1	
Flowrate (dscfm)	874	8,849	872	8,739	870	8,899	872	8,829	
Oxides of Nitrogen									
MW = 46									
NOx, ppm		18.7		18.3		18.1		18.4	
NOx, ppm corrected to 15% O2		11.3		10.9		11.0		11.1	15
NOx, lb/hr		1.2		1.1		1.1		1.2	
NOx, lb/MMBtu		0.043		0.042		0.042		0.043	0.06
Carbon Monoxide									
MW = 28									
CO, ppm		53.7		53.6		65.0		57.4	
CO, ppm corrected to 15% O2		32.3		31.9		39.5		34.6	123
CO, lb/hr		2.1		2.0		2.5		2.2	
CO, lb/MMBtu		0.076		0.075		0.093		0.081	0.30
Hydrocarbons as methane									
MW = 16									
THC, ppm	NM	1.1	512186	1.8	NM	3.7		2.2	
THC, lb/hr		0.02	1,109	0.04		0.08		0.05	
Methane, ppm	NM	NM	511,730	NM	NM	NM			
NMOC, ppm	NM	1.1	456	1.8	NM	3.7		2.2	
NMOC, ppm corrected to 3% O2		2.0		3.3		6.8		4.0	30
NMOC, lb/hr	NM	0.02	1.0	0.04	NM	0.082	1.0	0.05	
Efficiency %									
NMOC	NM		96.0%		NM				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 Redwood Landfill
Source Flare A-50
Date 6/7/2006

		Run 1	Run 2	Run 3	Average
Gross Caloric Value (Btu/ft3)	Btu/ft3	519	519	519	519
Stack Oxygen	%	11.1	11	11.2	11.1
Fuel factor @ 68 F	DSCF/MMBtu	9,147	9,147	9,147	9,147
LFG Rate (CFM) @ Tstd	SCFM	874	872	870	872
Fuel Flowrate (SCFH) @ Tstd	SCFH	52,440	52,320	52,200	52,320
Million Btu per minute	MMBtu/min	0.454	0.453	0.452	0.453
Heat Input (MMBtu/hr)	MMBtu/hr	27.2	27.2	27.1	27.2
Heat Input (MMBtu/day)	MMBtu/day	653.2	651.7	650.2	651.7
Stack Gas Flow Rate (dscfm)	dscfm	8,849	8,739	8,899	8,829

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

EMISSION RATE CALCULATION

Facility: Redwood Landfill
Source : Flare A-51
Test date: 6/8/2006

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

Time	0852-0922 Run 1		0933-1003 Run 2		1014-1144 Run 3		Avg		Permit Limits
	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	Inlet	Outlet	
Flare Temp (F)	1,448		1,452		1,451		1,450		
LFG rate	2,618		2,601		2,591		2,603		
Fuel factor	9,158		9,158		9,158		9,158		
Oxygen (%)		13.0		12.9		13.3		13.1	
Flowrate (dscfm)	2,618	31,397	2,601	30,804	2,591	32,300	2,603	31,500	
Oxides of Nitrogen									
MW = 46									
NOx, ppm		17.0		17.2		15.7		16.6	
NOx, ppm corrected to 15% O2		12.7		12.7		12.2		12.5	15
NOx, lb/hr		3.8		3.8		3.6		3.7	
NOx, lb/MMBtu		0.049		0.049		0.047		0.048	0.06
Carbon Monoxide									
MW = 28									
CO, ppm		13.7		11.6		21.3		15.5	
CO, ppm corrected to 15% O2		10.2		8.6		16.5		11.8	123
CO, lb/hr		1.9		1.6		3.0		2.1	
CO, lb/MMBtu		0.024		0.020		0.039		0.028	0.30
Hydrocarbons as methane									
MW = 16									
THC, ppm	NM	2.3	488428	1.3	NM	5.0		2.9	
THC, lb/hr		0.18	3,154	0.10		0.40		0.23	
Methane, ppm	NM	NM	488,215	NM	NM	NM			
NMOC, ppm	NM	2.3	213	1.3	NM	5.0	213	2.9	
NMOC, ppm corrected to 3% O2		5.2		2.9		11.8		6.6	30
NMOC, lb/hr	NM	0.18	1.4	0.10	NM	0.401	1.4	0.23	
Efficiency %									
NMOC	NM		92.8%		NM				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 Redwood Landfill
Source Flare A-51
Date 6/8/2006

		Run 1	Run 2	Run 3	Average
Gross Caloric Value (Btu/ft3)	Btu/ft3	495	495	495	495
Stack Oxygen	%	13	12.9	13.3	13.1
Fuel factor @ 68 F	DSCF/MMBtu	9,158	9,158	9,158	9,158
Corrected Fuel Rate (SCFM) @ Tstd	SCFM	2,618	2,601	2,591	2,603
Fuel Flowrate (SCFH) @ Tstd	SCFH	157,080	156,060	155,460	156,200
Million Btu per minute	MMBtu/min	1.296	1.287	1.283	1.289
Heat Input (MMBtu/hr)	MMBtu/hr	77.8	77.2	77.0	77.3
Heat Input (MMBtu/day)	MMBtu/day	1866.1	1854.0	1846.9	1855.7
Stack Gas Flow Rate (dscfm)	dscfm	31,397	30,804	32,300	31,500

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: Redwood Landfill

Location: Flare A50

Run	O2 %	CO ppm	THC ppm	NOx ppm
1	11.1	53.7	1.1	18.7
2	11.0	53.6	1.8	18.3
3	11.2	65.1	3.7	18.1

Run averages corrected for bias

Operator: B Johnston

Plant Name: Redwood Landfill

Location: Flare A51

Run	O2 %	CO ppm	THC ppm	NOx ppm
1	13.0	13.7	2.3	17.0
2	12.9	11.6	1.3	17.2
3	13.3	21.3	5.0	15.7

STRATA Configuration Page 1
06-07-2006 07:45:27
File Name: C:\STRATA\REDWOOD.STR

Operator:	B Johnston
Plant Name:	Redwood Landfill
Location:	Flare A50
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	500	.5	0
Yes	4	THC	ppm	50	10	0
Yes	5	NOx	ppm	50	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													
THC	Z			H												
NOx	Z				H											

Leak Check 0.1" at 19 in vac. for 1 min.

Flare A50

~~Start~~ R1 0811 - 0841

R2 0852 - 0922

R3 0931 - 1001

STRATA Configuration Page 2

Gas Name	Zero Reference Cylinder No.	Conc	ID Number	Low Reference Cylinder No.	Conc	ID Number
O2	1	0		99	999	
CO	1	0		99	999	
THC	1	0		99	999	
NOx	1	0		99	999	

Gas Name	Mid Reference Cylinder No.	Conc	ID Number	High Reference Cylinder No.	Conc	ID Number
O2	99	999	999999	2	19.04	CC8445
CO	99	999		3	90.1	AAL19769
THC	99	999		4	45	AAL4576
NOx	99	999		5	44.8	AAL19769

Seq Num	Calibration Error Test Sequence O2	CO	THC	NOx
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	THC	NOx
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																

Initial System Bias Check, Run 1 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 07:58:33	3.773	-1.43	-0.034	2.647
06-07-2006 07:59:34	0.154	-2.23	-0.080	0.010
06-07-2006 08:00:33	0.107	-0.90	-0.079	0.011
06-07-2006 08:01:33	0.209	-0.96	3.201	3.456
06-07-2006 08:02:34	17.051	84.31	44.708	43.742
06-07-2006 08:03:33	19.303	90.67	44.767	45.188
06-07-2006 08:04:34	19.353	90.16	44.736	45.384
06-07-2006 08:05:33	19.368	90.38	44.751	45.385
06-07-2006 08:06:33	19.376	90.12	44.772	45.041

Initial System Bias Check for Run 1
Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A50

Reference Cylinder Numbers

	Zero	Span
O2		CC8445
CO		AAL19769
THC		AAL4576
NOx		AAL19769

Date/Time 06-07-2006 08:07:28 PASSED

Analyte	O2	CO	THC	NOx
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	0.098	-1.03	-0.078	0.011
Zero Bias%	0.4%	0.2%	0.2%	0.0%
Zero Drift%				
Span Ref Cyl	19.040	90.10	45.000	44.800
Span Cal	19.040	90.10	45.000	44.800
Span Avg	19.381	90.14	44.771	45.080
Span Bias%	1.4%	0.0%	0.5%	0.6%
Span Drift%				

System Bias Check End

Test Run 1 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 08:08:28	14.557	37.14	6.647	23.338
06-07-2006 08:09:29	11.473	37.27	0.076	18.787
06-07-2006 08:10:28	11.974	82.16	3.118	17.129
06-07-2006 08:11:29	11.328	17.85	-0.074	18.865
Begin calculating run averages				
06-07-2006 08:12:28	11.920	32.25	-0.074	17.515
06-07-2006 08:13:28	11.426	24.90	-0.075	18.824
06-07-2006 08:14:29	11.131	56.38	0.120	18.752
06-07-2006 08:15:28	11.811	64.21	1.022	17.967
06-07-2006 08:16:29	10.982	38.32	0.191	19.522
06-07-2006 08:17:29	11.804	52.62	0.062	17.137
06-07-2006 08:18:28	11.871	89.55	3.706	18.284
06-07-2006 08:19:29	11.222	54.57	0.497	18.554
06-07-2006 08:20:28	11.975	111.67	6.487	17.582
06-07-2006 08:21:28	11.516	31.92	-0.074	18.595
06-07-2006 08:22:29	10.570	107.73	2.069	20.223
06-07-2006 08:23:28	11.071	38.45	0.072	18.446
06-07-2006 08:24:29	11.790	80.33	2.306	18.317
06-07-2006 08:25:28	11.467	57.66	0.218	18.565
06-07-2006 08:26:28	10.511	47.48	0.104	20.485
06-07-2006 08:27:29	11.369	66.41	0.612	17.991
06-07-2006 08:28:28	11.853	23.79	-0.075	17.585
06-07-2006 08:29:28	11.812	79.80	1.726	18.355
06-07-2006 08:30:29	10.899	34.04	-0.054	19.537
06-07-2006 08:31:28	11.046	79.48	2.023	18.948
06-07-2006 08:32:29	11.865	71.86	1.877	17.651
06-07-2006 08:33:29	11.142	24.88	-0.009	19.065
06-07-2006 08:34:28	11.469	21.96	-0.075	18.145
06-07-2006 08:35:29	10.726	18.53	-0.075	20.214
06-07-2006 08:36:28	10.387	2.38	-0.075	20.460
06-07-2006 08:37:29	10.543	79.21	2.402	20.357
06-07-2006 08:38:29	10.544	48.57	1.101	20.066
06-07-2006 08:39:28	11.300	57.31	0.601	18.429
06-07-2006 08:40:29	11.147	24.58	-0.075	18.476
06-07-2006 08:41:28	11.566	35.76	0.036	18.285

Run Averages	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 08:41:53	11.268	53.93	0.989	18.799

Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A50
Test Run 1 End

Final System Bias Check, Run 1 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 08:43:15	2.627	-2.30	-0.076	0.018
06-07-2006 08:44:16	0.172	-4.97	-0.076	0.015
06-07-2006 08:45:15	0.133	1.38	-0.075	0.015
06-07-2006 08:46:15	3.116	23.88	13.577	14.900
06-07-2006 08:47:14	18.601	93.31	45.558	43.832
06-07-2006 08:48:15	19.254	90.48	45.004	44.997
06-07-2006 08:49:16	19.284	90.59	45.114	45.088

Final System Bias Check for Run 1
Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A50

Reference Cylinder Numbers

	Zero	Span
O2		CC8445
CO		AAL19769
THC		AAL4576
NOx		AAL19769

Date/Time 06-07-2006 08:49:22 PASSED

Analyte	O2	CO	THC	NOx
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	0.125	1.36	-0.075	0.015
Zero Bias%	0.5%	0.3%	0.2%	0.0%
Zero Drift%	0.1%	0.5%	0.0%	0.0%
Span Ref Cyl	19.040	90.10	45.000	44.800
Span Cal	19.040	90.10	45.000	44.800
Span Avg	19.284	90.60	45.111	45.091
Span Bias%	1.0%	0.1%	0.2%	0.6%
Span Drift%	-0.4%	0.1%	0.7%	0.0%
Ini Zero Avg	0.098	-1.03	-0.078	0.011
Ini Span Avg	19.381	90.14	44.771	45.080
Run Avg	11.268	53.93	0.989	18.799
Co	0.112	0.16	-0.077	0.013
Cm	19.333	90.37	44.941	45.085
Correct Avg	11.052	53.71	1.066	18.673

System Bias Check End

Test Run 2 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 08:50:23	13.814	35.95	5.200	22.229
06-07-2006 08:51:24	10.870	67.85	3.742	19.342
Begin calculating run averages				
06-07-2006 08:52:23	11.117	17.83	0.116	17.661
06-07-2006 08:53:24	11.047	25.44	0.440	19.358
06-07-2006 08:54:23	10.364	109.68	4.543	19.926
06-07-2006 08:55:23	10.922	62.07	1.227	19.235
06-07-2006 08:56:24	10.652	28.39	1.592	19.606
06-07-2006 08:57:23	11.168	14.17	-0.031	18.446
06-07-2006 08:58:23	11.256	42.20	0.705	18.101
06-07-2006 08:59:24	10.935	122.95	5.206	18.795
06-07-2006 09:00:23	11.372	54.61	1.669	18.002
06-07-2006 09:01:24	11.615	54.32	0.939	17.607
06-07-2006 09:02:23	10.906	72.38	1.030	18.917
06-07-2006 09:03:23	11.131	41.62	0.219	18.509
06-07-2006 09:04:24	10.845	13.74	0.001	19.053
06-07-2006 09:05:23	11.381	27.14	0.015	17.851
06-07-2006 09:06:23	11.186	36.20	0.107	18.365
06-07-2006 09:07:22	11.421	30.66	-0.034	17.667
06-07-2006 09:08:23	11.505	25.27	-0.071	18.065
06-07-2006 09:09:24	11.260	50.28	0.566	18.343
06-07-2006 09:10:23	10.601	79.16	2.195	19.684
06-07-2006 09:11:23	10.374	33.36	1.147	19.797
06-07-2006 09:12:24	11.861	111.29	9.425	16.580
06-07-2006 09:13:23	11.408	33.52	0.337	17.929
06-07-2006 09:14:23	11.497	41.73	0.665	18.342
06-07-2006 09:15:24	10.654	31.35	0.558	19.545
06-07-2006 09:16:23	11.350	41.92	0.577	17.444
06-07-2006 09:17:24	11.812	58.78	0.552	17.032
06-07-2006 09:18:23	12.206	129.32	7.916	15.881
06-07-2006 09:19:23	11.030	43.89	0.850	19.311
06-07-2006 09:20:24	11.429	75.16	2.262	17.533
06-07-2006 09:21:23	11.867	112.13	7.106	17.546

Run Averages	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 09:22:05	11.206	54.37	1.728	18.357

Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A50
Test Run 2 End

Final System Bias Check, Run 2 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 09:23:26	2.844	2.83	-0.067	0.014
06-07-2006 09:24:25	0.154	-0.37	-0.081	0.011
06-07-2006 09:25:26	0.104	-0.69	-0.081	0.011
06-07-2006 09:26:27	13.243	75.75	39.187	39.924
06-07-2006 09:27:26	19.092	91.48	44.995	44.734
06-07-2006 09:28:27	19.185	91.60	44.963	44.722

Final System Bias Check for Run 2
Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A50

Reference Cylinder Numbers

	Zero	Span
O2		CC8445
CO		AAL19769
THC		AAL4576
NOx		AAL19769

Date/Time 06-07-2006 09:28:27 PASSED

Analyte	O2	CO	THC	NOx
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	0.105	-0.70	-0.081	0.011
Zero Bias%	0.4%	0.1%	0.2%	0.0%
Zero Drift%	-0.1%	-0.4%	0.0%	0.0%
Span Ref Cyl	19.040	90.10	45.000	44.800
Span Cal	19.040	90.10	45.000	44.800
Span Avg	19.182	91.64	44.969	44.724
Span Bias%	0.6%	0.3%	0.1%	0.2%
Span Drift%	-0.4%	0.2%	-0.3%	-0.7%
Ini Zero Avg	0.125	1.36	-0.075	0.015
Ini Span Avg	19.284	90.60	45.111	45.091
Run Avg	11.206	54.37	1.728	18.357
Co	0.115	0.33	-0.078	0.013
Cm	19.233	91.12	45.040	44.907
Correct Avg	11.046	53.63	1.802	18.305

System Bias Check End

Test Run 3 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 09:29:28	13.085	43.97	6.085	21.992
06-07-2006 09:30:28	11.089	29.28	0.109	18.323
06-07-2006 09:31:27	11.249	43.48	1.176	18.853
Begin calculating run averages				
06-07-2006 09:32:28	10.632	80.97	6.031	19.212
06-07-2006 09:33:27	10.730	56.19	1.086	18.959
06-07-2006 09:34:28	11.276	49.26	0.289	18.065
06-07-2006 09:35:28	11.264	56.52	1.548	18.508
06-07-2006 09:36:27	11.507	98.61	4.786	17.367
06-07-2006 09:37:28	11.576	44.93	1.206	17.898
06-07-2006 09:38:28	10.895	24.13	0.291	18.889
06-07-2006 09:39:27	12.071	141.85	8.607	16.447
06-07-2006 09:40:28	10.806	34.77	2.044	19.092
06-07-2006 09:41:27	10.601	41.87	1.537	19.935
06-07-2006 09:42:28	10.578	29.53	0.352	18.737
06-07-2006 09:43:28	11.002	52.78	1.676	19.242
06-07-2006 09:44:27	10.696	21.75	0.591	19.278
06-07-2006 09:45:28	10.811	46.56	1.825	19.141
06-07-2006 09:46:28	10.698	18.20	0.530	19.340
06-07-2006 09:47:27	10.593	53.85	1.077	19.488
06-07-2006 09:48:28	10.834	52.40	1.092	18.406
06-07-2006 09:49:27	10.963	38.63	1.183	18.569
06-07-2006 09:50:28	11.108	15.34	0.285	18.674
06-07-2006 09:51:28	11.328	70.48	1.724	17.379
06-07-2006 09:52:27	11.613	61.89	3.560	18.180
06-07-2006 09:53:28	11.467	54.68	1.094	17.669
06-07-2006 09:54:28	12.500	154.25	18.466	16.057
06-07-2006 09:55:27	12.409	142.76	12.391	16.334
06-07-2006 09:56:28	11.763	101.21	5.461	17.434
06-07-2006 09:57:27	11.836	39.09	0.253	17.028
06-07-2006 09:58:28	11.867	109.05	6.140	17.614
06-07-2006 09:59:28	12.132	139.24	13.128	16.607
06-07-2006 10:00:27	12.189	114.16	9.299	16.352
06-07-2006 10:01:28	11.574	43.39	1.563	17.423

Run Averages	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 10:01:31	11.313	66.33	3.628	18.106

Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A50
Test Run 3 End

Final System Bias Check, Run 3 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-07-2006 10:02:40	2.907	4.06	0.268	0.008
06-07-2006 10:03:39	0.129	0.13	-0.087	0.006
06-07-2006 10:04:40	0.080	0.13	-0.086	0.006
06-07-2006 10:05:40	8.934	44.15	29.831	29.022
06-07-2006 10:06:39	18.962	92.55	44.922	44.554
06-07-2006 10:07:40	19.130	92.32	45.006	44.824

Final System Bias Check for Run 3
Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A50

	Reference Cylinder Numbers	
	Zero	Span
O2		CC8445
CO		AAL19769
THC		AAL4576
NOx		AAL19769

Date/Time 06-07-2006 10:08:17 PASSED

Analyte	O2	CO	THC	NOx
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	0.077	0.16	-0.086	0.006
Zero Bias%	0.3%	0.0%	0.2%	0.0%
Zero Drift%	-0.1%	0.2%	0.0%	0.0%
Span Ref Cyl	19.040	90.10	45.000	44.800
Span Cal	19.040	90.10	45.000	44.800
Span Avg	19.143	92.31	45.053	44.817
Span Bias%	0.4%	0.4%	0.1%	0.0%
Span Drift%	-0.2%	0.1%	0.2%	0.2%
Ini Zero Avg	0.105	-0.70	-0.081	0.011
Ini Span Avg	19.182	91.64	44.969	44.724
Run Avg	11.313	66.33	3.628	18.106
Co	0.091	-0.27	-0.084	0.008
Cm	19.163	91.97	45.011	44.771
Correct Avg	11.203	65.05	3.704	18.113

System Bias Check End

STRATA Configuration Page 1
06-08-2006 08:15:47
File Name: C:\STRATA\REDWOOD.STR

Operator:	B Johnston
Plant Name:	Redwood Landfill
Location:	Flare A51
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	.5	0
Yes	4	THC	ppm	50	10	0
Yes	5	NOx	ppm	50	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													
THC	Z			H												
NOx	Z				H											

Leak Check 0.1" at 19" vacuum for 1 min

R1 0852 - 0922
R2 0933 - 1003
R3 1014 - 1044

Gas Name	Zero Reference Cylinder No.	Conc	ID Number	Low Reference Cylinder No.	Conc	ID Number
O2	1	0		99	999	
CO	1	0		99	999	
THC	1	0		99	999	
NOx	1	0		99	999	

Gas Name	Mid Reference Cylinder No.	Conc	ID Number	High Reference Cylinder No.	Conc	ID Number
O2	99	999	999999	2	19.04	CC8445
CO	99	999		3	90.1	AAL19769
THC	99	999		4	45	AAL4576
NOx	99	999		5	44.8	AAL19769

Seq Num	Calibration Error Test Sequence O2	CO	THC	NOx
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	THC	NOx
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																

Initial System Bias Check, Run 1 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 08:24:39	4.564	2.49	1.456	1.777
06-08-2006 08:25:40	0.203	0.06	-0.076	0.010
06-08-2006 08:26:39	0.126	-0.10	-0.076	0.010
06-08-2006 08:27:39	0.108	-0.12	-0.076	0.010
06-08-2006 08:28:38	5.376	16.49	22.318	21.111
06-08-2006 08:29:39	18.672	90.35	44.994	44.343
06-08-2006 08:30:39	19.046	90.49	45.015	45.420
06-08-2006 08:31:38	19.077	90.73	45.092	44.959
06-08-2006 08:32:39	19.086	90.21	45.127	44.844

Initial System Bias Check for Run 1
Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A51

Reference Cylinder Numbers

	Zero	Span
O2		CC8445
CO		AAL19769
THC		AAL4576
NOx		AAL19769

Date/Time 06-08-2006 08:33:24 PASSED

Analyte	O2	CO	THC	NOx
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	0.105	-0.10	-0.076	0.010
Zero Bias%	0.4%	0.1%	0.2%	0.0%
Zero Drift%				
Span Ref Cyl	19.040	90.10	45.000	44.800
Span Cal	19.040	90.10	45.000	44.800
Span Avg	19.088	90.46	45.090	44.874
Span Bias%	0.2%	0.4%	0.2%	0.1%
Span Drift%				

System Bias Check End

Test Run 1 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 08:34:25	15.210	37.68	11.697	18.309
06-08-2006 08:35:25	13.938	27.99	9.898	14.770
06-08-2006 08:36:24	15.743	15.79	27.653	7.678
06-08-2006 08:37:25	20.362	21.90	49.986	1.113
06-08-2006 08:38:24	13.266	34.32	43.522	19.376
06-08-2006 08:39:25	12.639	12.01	15.781	17.965
06-08-2006 08:40:24	13.237	17.57	13.730	16.419
06-08-2006 08:41:25	13.325	18.12	9.852	16.230
06-08-2006 08:42:25	13.460	19.04	8.391	16.108
06-08-2006 08:43:24	13.473	20.13	11.443	15.797
06-08-2006 08:44:25	13.531	19.32	6.173	15.743
06-08-2006 08:45:25	13.405	21.13	5.781	16.021
06-08-2006 08:46:24	13.453	19.05	4.610	15.912
06-08-2006 08:47:25	13.232	16.46	3.491	16.580
06-08-2006 08:48:24	13.149	17.27	3.507	16.560
06-08-2006 08:49:25	13.303	20.21	4.434	16.162
06-08-2006 08:50:25	13.282	18.95	4.121	16.163
06-08-2006 08:51:24	13.216	19.05	3.618	16.338
Begin calculating run averages				
06-08-2006 08:52:25	13.099	16.25	2.739	16.618
06-08-2006 08:53:26	13.032	14.85	2.337	16.777
06-08-2006 08:54:25	12.961	13.80	2.387	16.793
06-08-2006 08:55:25	13.157	16.04	2.755	16.575
06-08-2006 08:56:24	13.136	15.79	2.905	16.427
06-08-2006 08:57:25	13.132	14.05	2.782	16.729
06-08-2006 08:58:25	12.768	10.70	1.775	17.398
06-08-2006 08:59:24	13.071	15.53	2.935	16.494
06-08-2006 09:00:25	13.140	16.10	3.277	16.649
06-08-2006 09:01:26	13.027	15.59	2.775	16.846
06-08-2006 09:02:25	13.249	16.42	3.163	16.276
06-08-2006 09:03:25	13.135	16.11	2.972	16.689
06-08-2006 09:04:24	13.182	15.81	2.784	16.456
06-08-2006 09:05:25	13.285	17.45	3.077	16.295
06-08-2006 09:06:25	13.239	15.87	2.647	16.308
06-08-2006 09:07:24	13.216	14.90	2.529	16.717
06-08-2006 09:08:25	13.123	12.59	2.259	16.541
06-08-2006 09:09:26	13.116	13.47	2.089	16.900
06-08-2006 09:10:25	12.535	8.34	0.928	18.339
06-08-2006 09:11:25	12.521	9.04	0.829	18.208
06-08-2006 09:12:24	12.322	7.06	0.615	18.752
06-08-2006 09:13:25	12.884	14.30	1.796	17.029
06-08-2006 09:14:25	12.760	10.90	1.217	17.662
06-08-2006 09:15:24	12.846	11.50	1.357	17.421
06-08-2006 09:16:25	12.830	12.02	1.412	17.387
06-08-2006 09:17:26	13.075	16.56	2.444	16.523

Test Run 1 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 09:18:25	13.059	14.21	1.885	16.812
06-08-2006 09:19:25	13.204	14.91	2.136	16.523
06-08-2006 09:20:24	12.789	9.31	1.056	17.841
06-08-2006 09:21:25	12.863	11.56	1.310	17.116
Run Averages	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 09:22:05	12.994	13.75	2.175	16.970

Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A51
Test Run 1 End

Final System Bias Check, Run 1 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 09:23:22	4.403	2.64	0.286	1.165
06-08-2006 09:24:23	0.167	0.86	-0.082	0.006
06-08-2006 09:25:21	0.092	-0.15	-0.082	0.006
06-08-2006 09:26:22	0.075	-0.16	-0.083	0.006
06-08-2006 09:27:21	13.577	75.37	45.423	37.758
06-08-2006 09:28:22	18.865	91.01	47.032	44.324
06-08-2006 09:29:22	18.954	91.07	44.992	44.682
06-08-2006 09:30:21	18.966	91.16	44.920	44.700

Final System Bias Check for Run 1
Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A51

Reference Cylinder Numbers

	Zero	Span
O2		CC8445
CO		AAL19769
THC		AAL4576
NOx		AAL19769

Date/Time 06-08-2006 09:30:35 PASSED

Analyte	O2	CO	THC	NOx
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	0.076	-0.13	-0.083	0.006
Zero Bias%	0.3%	0.1%	0.2%	0.0%
Zero Drift%	-0.1%	0.0%	0.0%	0.0%
Span Ref Cyl	19.040	90.10	45.000	44.800
Span Cal	19.040	90.10	45.000	44.800
Span Avg	18.967	91.21	44.908	44.707
Span Bias%	0.3%	1.1%	0.2%	0.2%
Span Drift%	-0.5%	0.7%	-0.4%	-0.3%
Ini Zero Avg	0.105	-0.10	-0.076	0.010
Ini Span Avg	19.088	90.46	45.090	44.874
Run Avg	12.994	13.75	2.175	16.970
Co	0.091	-0.11	-0.079	0.008
Cm	19.028	90.83	44.999	44.790
Correct Avg	12.973	13.73	2.251	16.969

System Bias Check End

Test Run 2 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 09:31:36	15.152	17.75	9.498	20.581
06-08-2006 09:32:36	12.771	9.07	0.742	17.750
Begin calculating run averages				
06-08-2006 09:33:35	12.529	6.54	0.413	18.329
06-08-2006 09:34:36	12.478	7.09	0.480	18.301
06-08-2006 09:35:35	12.204	5.00	0.224	18.880
06-08-2006 09:36:35	12.258	5.33	0.266	18.687
06-08-2006 09:37:36	12.437	10.96	0.832	18.013
06-08-2006 09:38:35	12.844	13.22	1.326	16.756
06-08-2006 09:39:36	12.876	10.52	1.244	17.155
06-08-2006 09:40:36	13.010	16.24	2.206	16.396
06-08-2006 09:41:35	12.832	9.45	1.014	17.622
06-08-2006 09:42:36	13.000	13.23	1.580	16.460
06-08-2006 09:43:35	13.022	13.34	1.509	16.565
06-08-2006 09:44:35	13.089	12.98	1.785	16.248
06-08-2006 09:45:36	13.179	13.83	1.856	16.277
06-08-2006 09:46:35	13.046	13.19	1.515	16.594
06-08-2006 09:47:36	13.254	14.89	2.141	15.857
06-08-2006 09:48:36	13.130	14.82	1.912	16.351
06-08-2006 09:49:35	12.843	10.99	1.127	17.201
06-08-2006 09:50:36	12.598	10.44	1.085	17.537
06-08-2006 09:51:35	12.867	15.42	1.855	16.774
06-08-2006 09:52:35	12.739	15.11	1.840	17.222
06-08-2006 09:53:36	13.055	14.08	1.520	16.346
06-08-2006 09:54:35	13.032	13.38	1.525	16.434
06-08-2006 09:55:36	12.696	9.22	0.736	17.521
06-08-2006 09:56:36	12.961	12.93	1.450	16.561
06-08-2006 09:57:35	12.902	10.57	1.058	16.859
06-08-2006 09:58:36	12.823	10.47	1.139	17.112
06-08-2006 09:59:35	12.818	10.85	1.179	17.131
06-08-2006 10:00:35	12.594	9.17	0.769	17.716
06-08-2006 10:01:36	12.516	10.41	0.755	17.490
06-08-2006 10:02:35	12.777	13.71	1.178	16.967

Run Averages	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 10:03:04	12.815	11.65	1.257	17.095

Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A51
Test Run 2 End

Final System Bias Check, Run 2 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 10:04:09	4.267	2.13	0.055	1.337
06-08-2006 10:05:10	0.141	1.00	-0.088	0.002
06-08-2006 10:06:11	0.067	0.15	-0.088	0.001
06-08-2006 10:07:10	8.895	53.98	29.886	28.494
06-08-2006 10:08:10	18.688	85.57	44.865	44.190
06-08-2006 10:09:09	18.870	85.70	44.820	44.363
06-08-2006 10:10:10	18.891	89.00	44.759	44.368
06-08-2006 10:11:11	18.897	89.65	44.725	44.372

Final System Bias Check for Run 2
Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A51

	Reference Cylinder Numbers	
	Zero	Span
O2		CC8445
CO		AAL19769
THC		AAL4576
NOx		AAL19769

Date/Time 06-08-2006 10:11:35 PASSED

Analyte	O2	CO	THC	NOx
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	0.063	0.15	-0.088	0.001
Zero Bias%	0.3%	0.1%	0.2%	0.0%
Zero Drift%	-0.1%	0.3%	0.0%	0.0%
Span Ref Cyl	19.040	90.10	45.000	44.800
Span Cal	19.040	90.10	45.000	44.800
Span Avg	18.899	89.74	44.750	44.358
Span Bias%	0.6%	0.4%	0.5%	0.9%
Span Drift%	-0.3%	-1.5%	-0.3%	-0.7%
Ini Zero Avg	0.076	-0.13	-0.083	0.006
Ini Span Avg	18.967	91.21	44.908	44.707
Run Avg	12.815	11.65	1.257	17.095
Co	0.070	0.01	-0.085	0.004
Cm	18.933	90.47	44.829	44.532
Correct Avg	12.864	11.59	1.345	17.196

System Bias Check End

Test Run 3 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 10:12:36	15.099	36.53	7.025	20.686
06-08-2006 10:13:35	13.301	24.97	6.535	15.483
Begin calculating run averages				
06-08-2006 10:14:36	13.640	28.20	8.525	15.153
06-08-2006 10:15:36	13.082	22.65	7.038	16.310
06-08-2006 10:16:35	13.312	24.11	6.875	15.383
06-08-2006 10:17:36	13.552	27.37	9.210	14.762
06-08-2006 10:18:36	13.594	28.37	7.801	14.754
06-08-2006 10:19:35	13.265	25.96	8.982	15.584
06-08-2006 10:20:36	13.365	21.96	5.193	15.145
06-08-2006 10:21:35	13.511	26.67	6.712	14.871
06-08-2006 10:22:36	13.463	26.50	6.799	15.140
06-08-2006 10:23:36	13.359	21.05	3.762	15.420
06-08-2006 10:24:35	13.165	18.41	2.853	15.573
06-08-2006 10:25:36	13.234	18.51	2.940	15.588
06-08-2006 10:26:37	13.067	16.75	2.261	16.088
06-08-2006 10:27:35	12.968	16.61	2.007	16.079
06-08-2006 10:28:36	13.002	15.89	1.612	16.130
06-08-2006 10:29:35	12.862	14.20	1.309	16.422
06-08-2006 10:30:36	12.898	15.75	1.471	16.387
06-08-2006 10:31:36	12.860	15.68	1.370	16.366
06-08-2006 10:32:35	12.804	15.05	1.186	16.474
06-08-2006 10:33:36	13.257	19.87	2.510	15.609
06-08-2006 10:34:37	13.094	21.49	3.316	16.435
06-08-2006 10:35:36	13.088	22.23	4.092	15.821
06-08-2006 10:36:36	13.529	25.25	4.815	14.748
06-08-2006 10:37:35	13.402	24.06	5.744	15.147
06-08-2006 10:38:36	13.284	21.20	4.999	16.035
06-08-2006 10:39:36	12.980	21.59	5.014	16.212
06-08-2006 10:40:35	12.999	21.14	6.563	16.142
06-08-2006 10:41:36	13.050	19.77	5.906	16.211
06-08-2006 10:42:35	13.215	22.34	8.585	15.361
06-08-2006 10:43:36	13.475	25.91	7.689	14.889
Run Averages	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 10:44:03	13.210	21.46	4.900	15.671

Operator: B Johnston
Plant Name: Redwood Landfill
Location: Flare A51
Test Run 3 End

Final System Bias Check, Run 3 STRATA Version 1.1

	O2	CO	THC	NOx
	%	ppm	ppm	ppm
06-08-2006 10:45:25	3.707	3.31	0.925	0.396
06-08-2006 10:46:24	0.113	0.19	-0.090	-0.001
06-08-2006 10:47:24	0.051	0.00	-0.091	-0.001
06-08-2006 10:48:25	10.299	62.49	32.805	31.882
06-08-2006 10:49:24	18.737	90.68	44.428	35.776
06-08-2006 10:50:25	18.866	90.88	44.736	44.866
06-08-2006 10:51:24	18.883	90.57	44.717	44.869
06-08-2006 10:52:24	18.891	91.00	44.724	44.874

Final System Bias Check for Run 3

Operator:	B Johnston
Plant Name:	Redwood Landfill
Location:	Flare A51

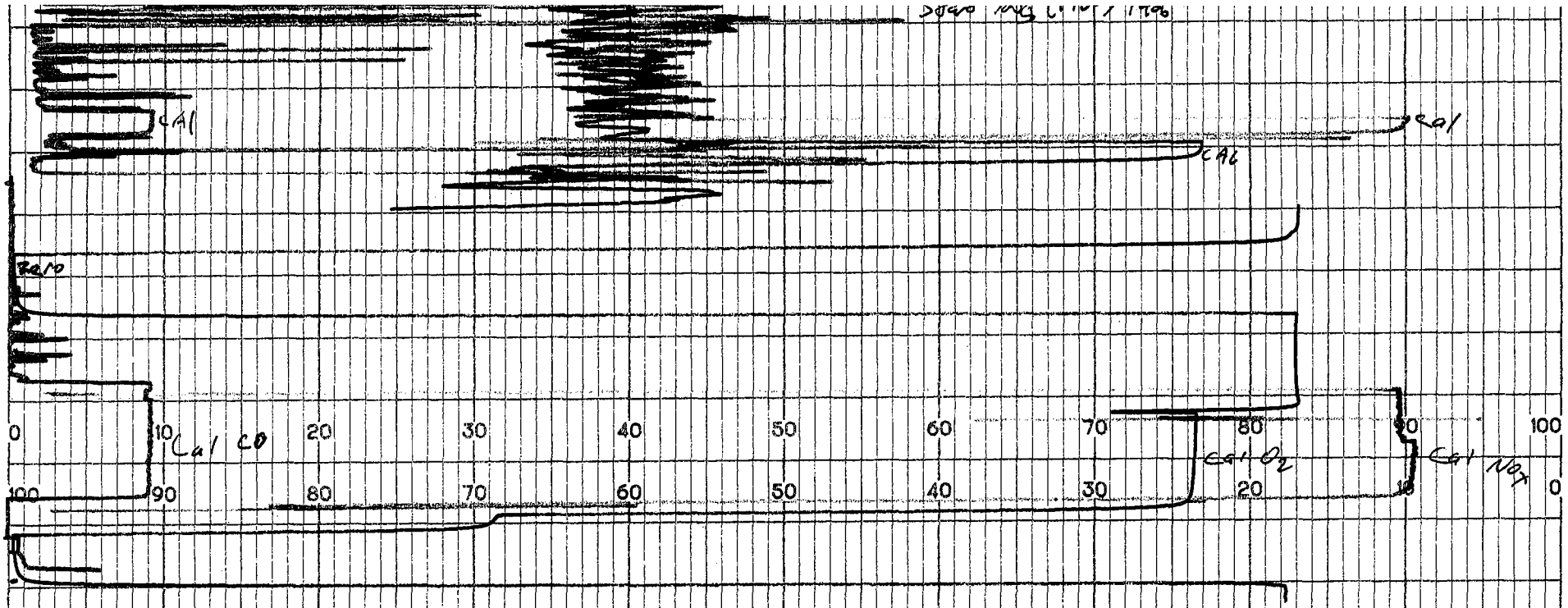
Reference Cylinder Numbers

	Zero	Span
O2		CC8445
CO		AAL19769
THC		AAL4576
NOx		AAL19769

Date/Time 06-08-2006 10:52:37 PASSED

Analyte	O2	CO	THC	NOx
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	0.051	0.02	-0.091	-0.001
Zero Bias%	0.2%	0.0%	0.2%	0.0%
Zero Drift%	0.0%	-0.1%	0.0%	0.0%
Span Ref Cyl	19.040	90.10	45.000	44.800
Span Cal	19.040	90.10	45.000	44.800
Span Avg	18.891	91.03	44.734	44.870
Span Bias%	0.6%	0.9%	0.5%	0.1%
Span Drift%	0.0%	1.3%	0.0%	1.0%
Ini Zero Avg	0.063	0.15	-0.088	0.001
Ini Span Avg	18.899	89.74	44.750	44.358
Run Avg	13.210	21.46	4.900	15.671
Co	0.057	0.08	-0.089	0.000
Cm	18.895	90.39	44.742	44.614
Correct Avg	13.294	21.33	5.007	15.736

System Bias Check End



Blue: O_2 0-25%
Green - CO 0-1000 ppm
Red: NO_x 0-50 ppm

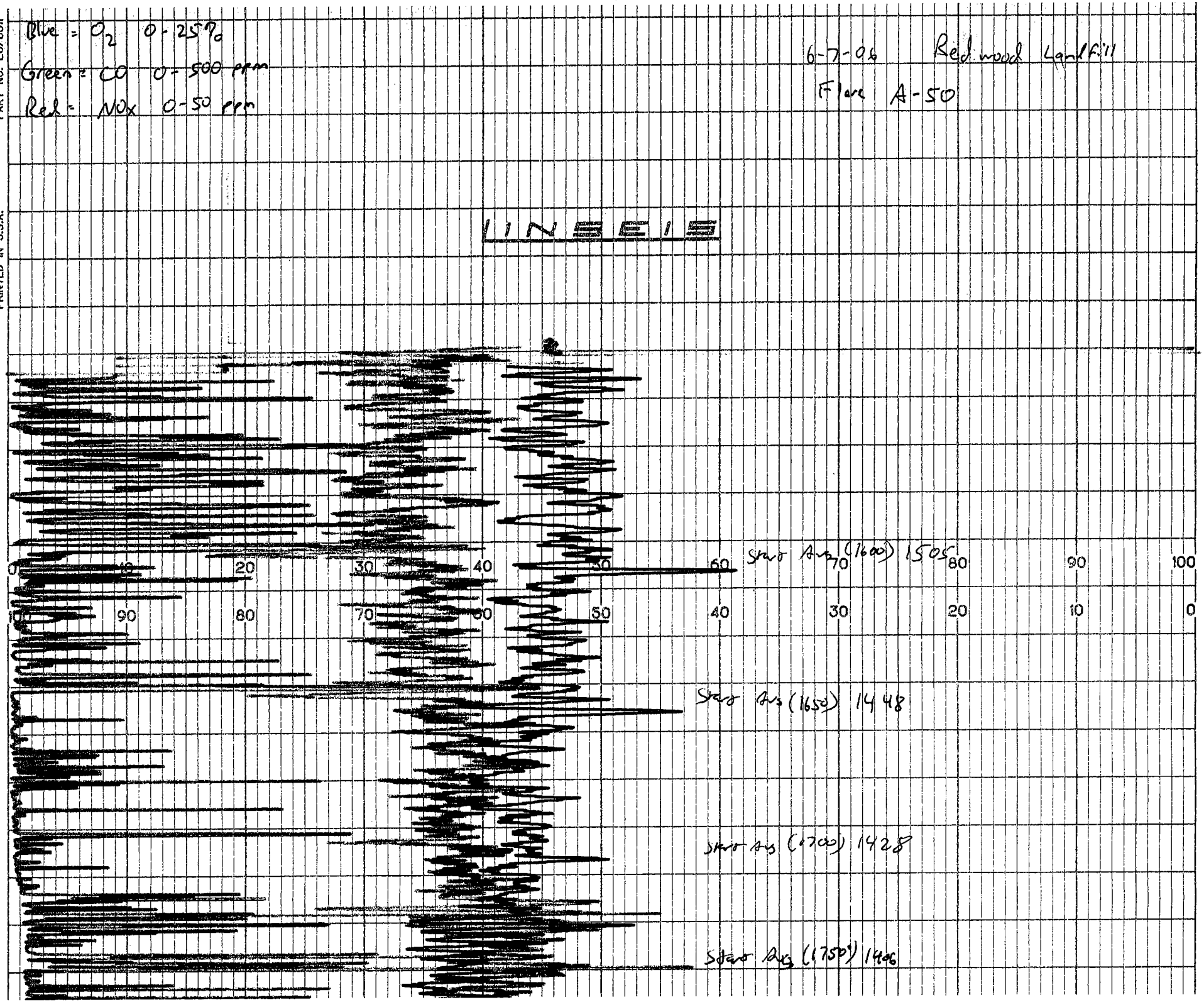
Predest A-50

LINSEIS

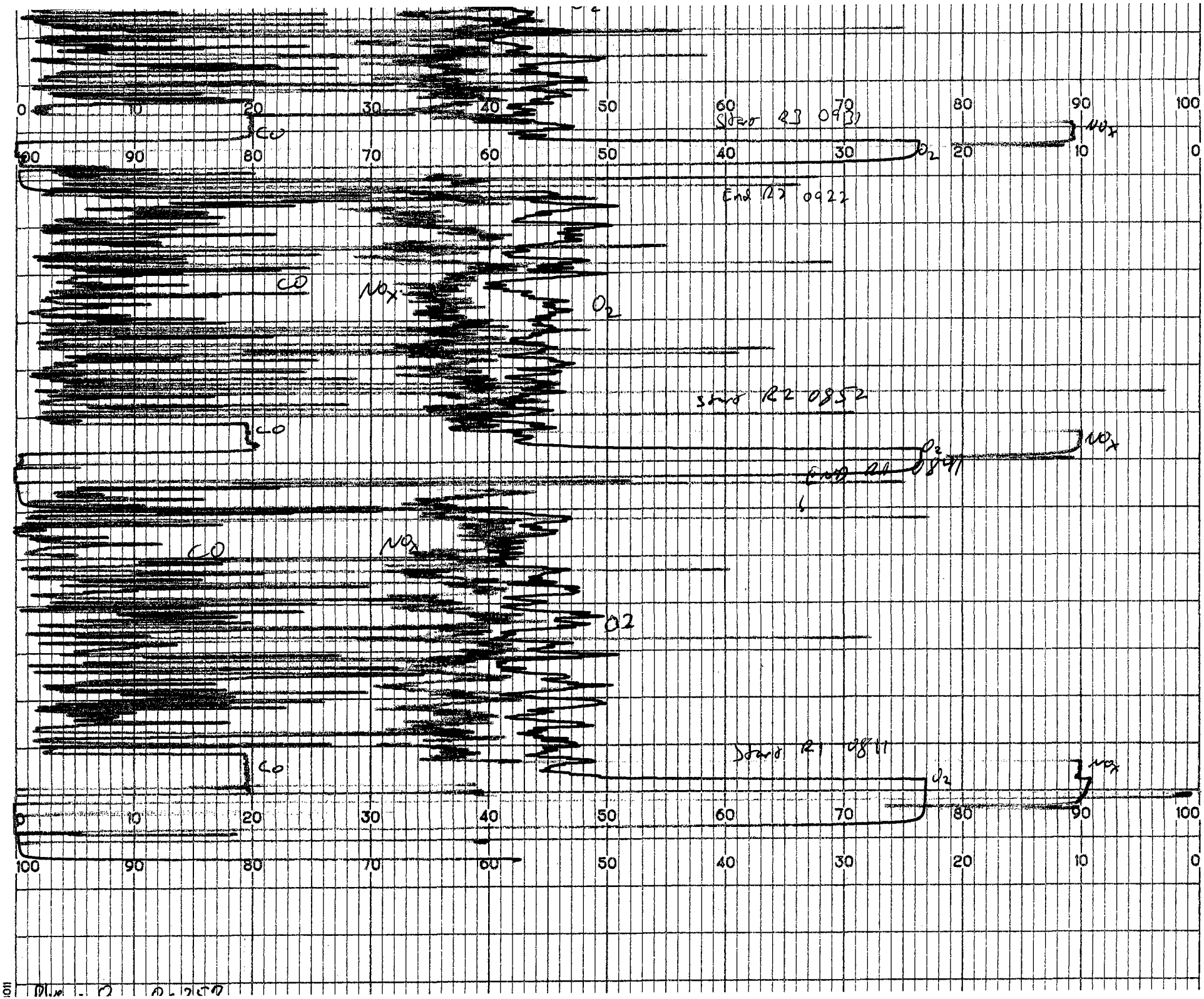
Redwood Landfill 6-6-06

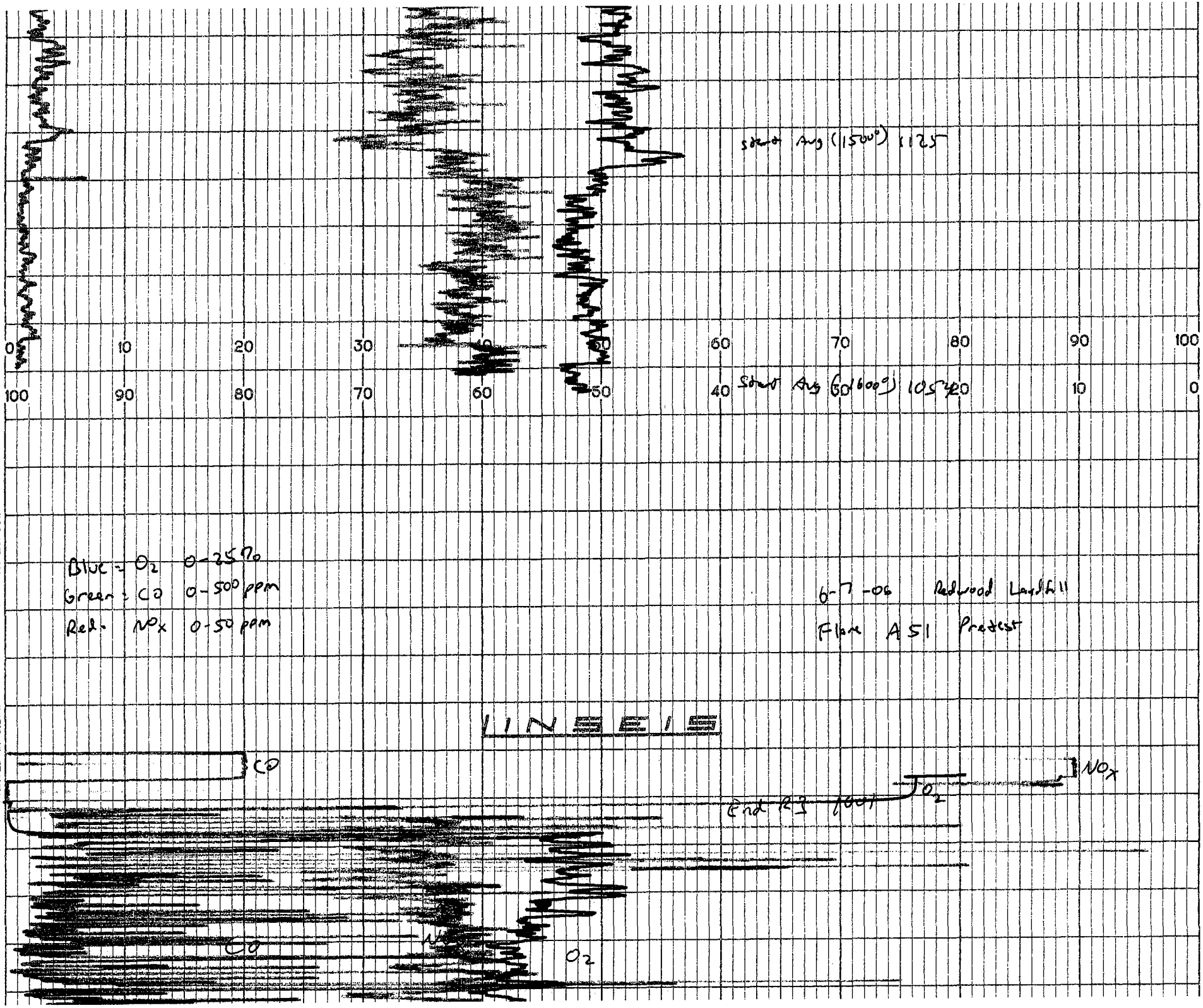
PART NO. LG/8011

PRINTED IN U.S.A.


Blue = O_2 0-25%
Green = CO 0-500 ppm
Red = NOx 0-50 ppm
6-7-06 Redwood Landfill
Flare A-50
LINE 15
Start Avg (1600) 1505
Start Avg (1650) 1448
Start Avg (1700) 1428
Start Avg (1750) 1406
PART NO. LO/8011
PRINTED IN U.S.A.

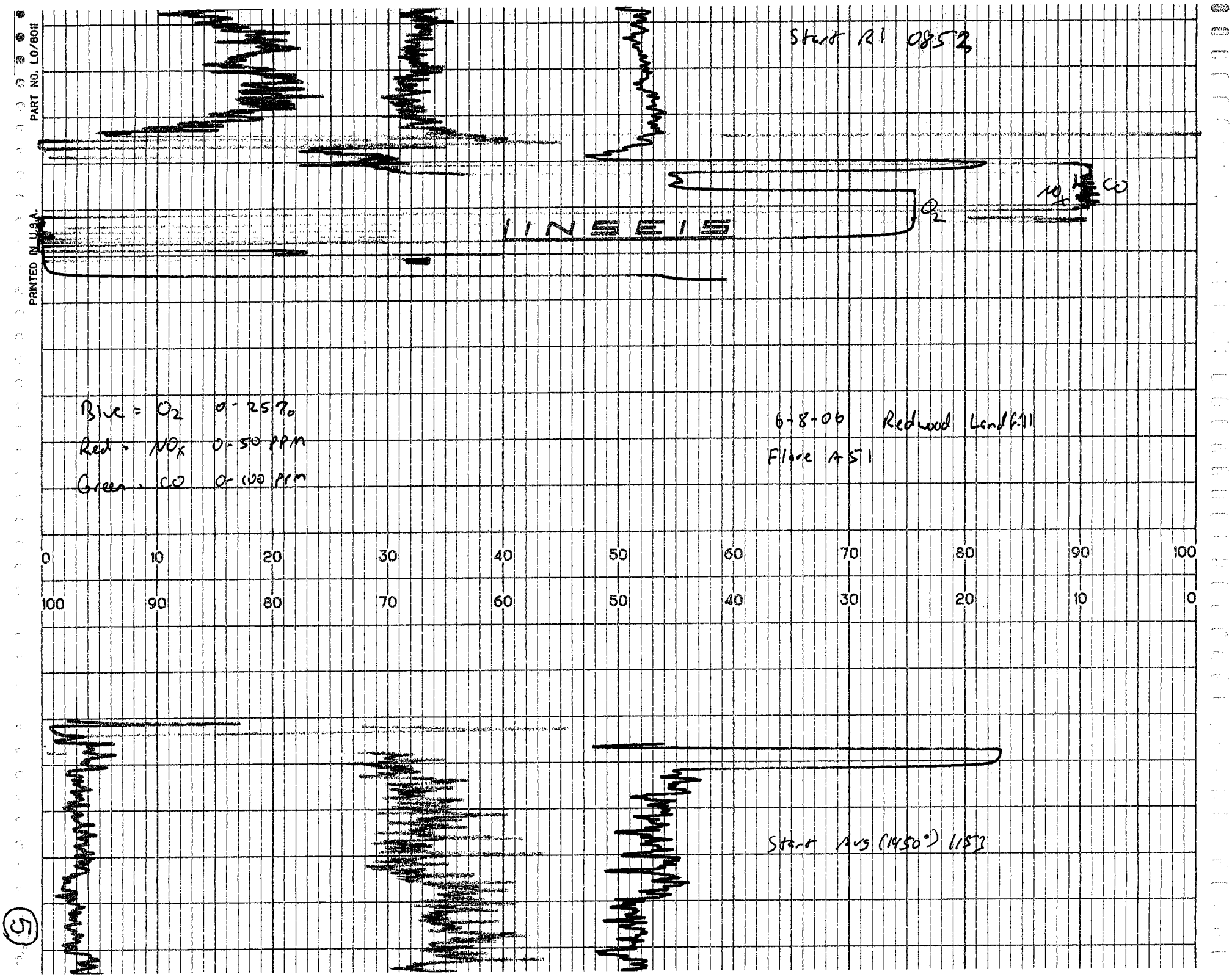
(2)

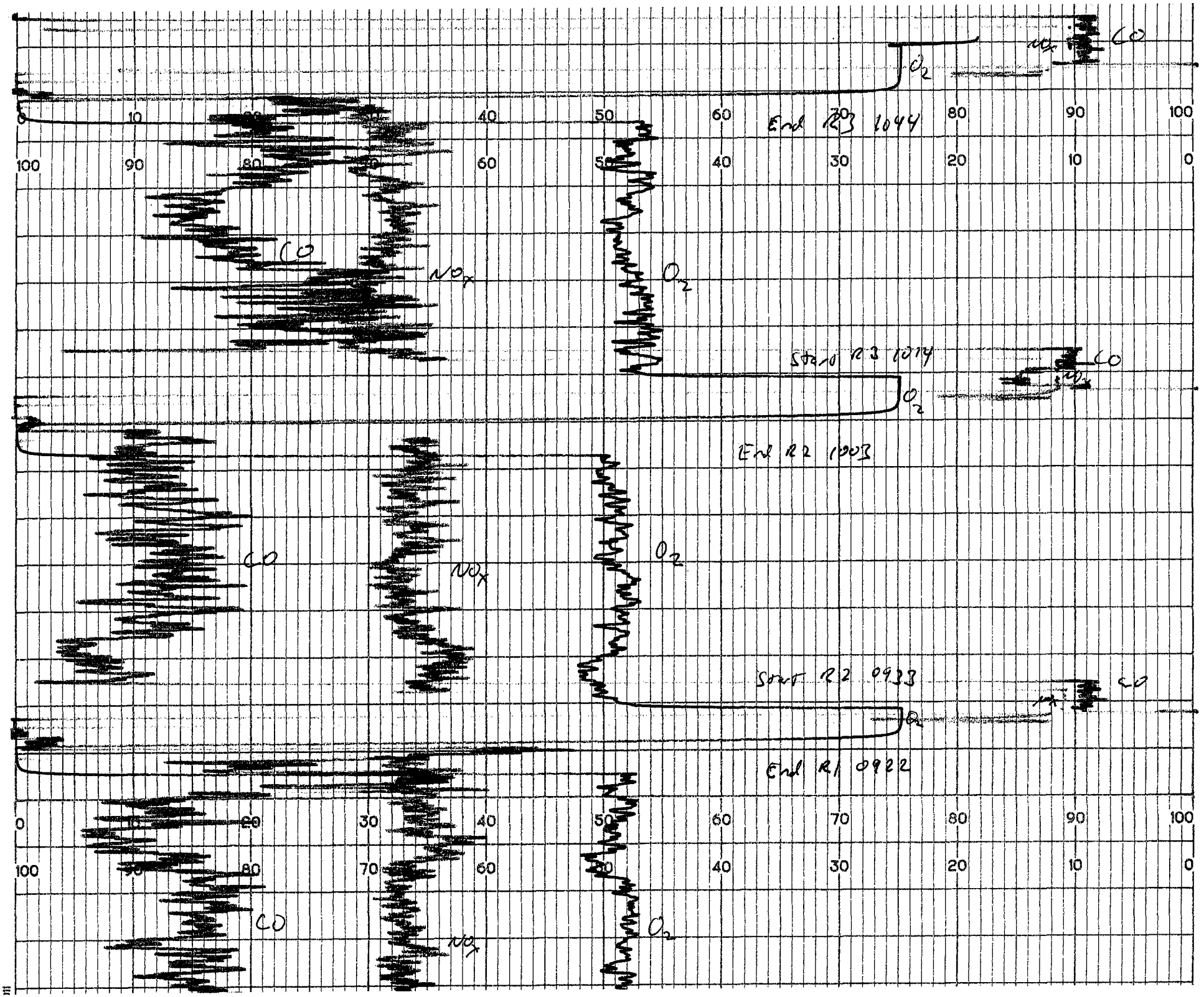

0 10 20 30 40 50 60 70 80 90 100
CO
Start R3 0931
NOx
O2
100 90 80 70 60 50 40 30 20 10 0
End R2 0922
CO
NOx
O2
Start R2 0852
CO
O2
NOx
End R1 0841
CO
NO2
O2
CO
Start R1 0811
O2
NOx
0 10 20 30 40 50 60 70 80 90 100
100 90 80 70 60 50 40 30 20 10 0

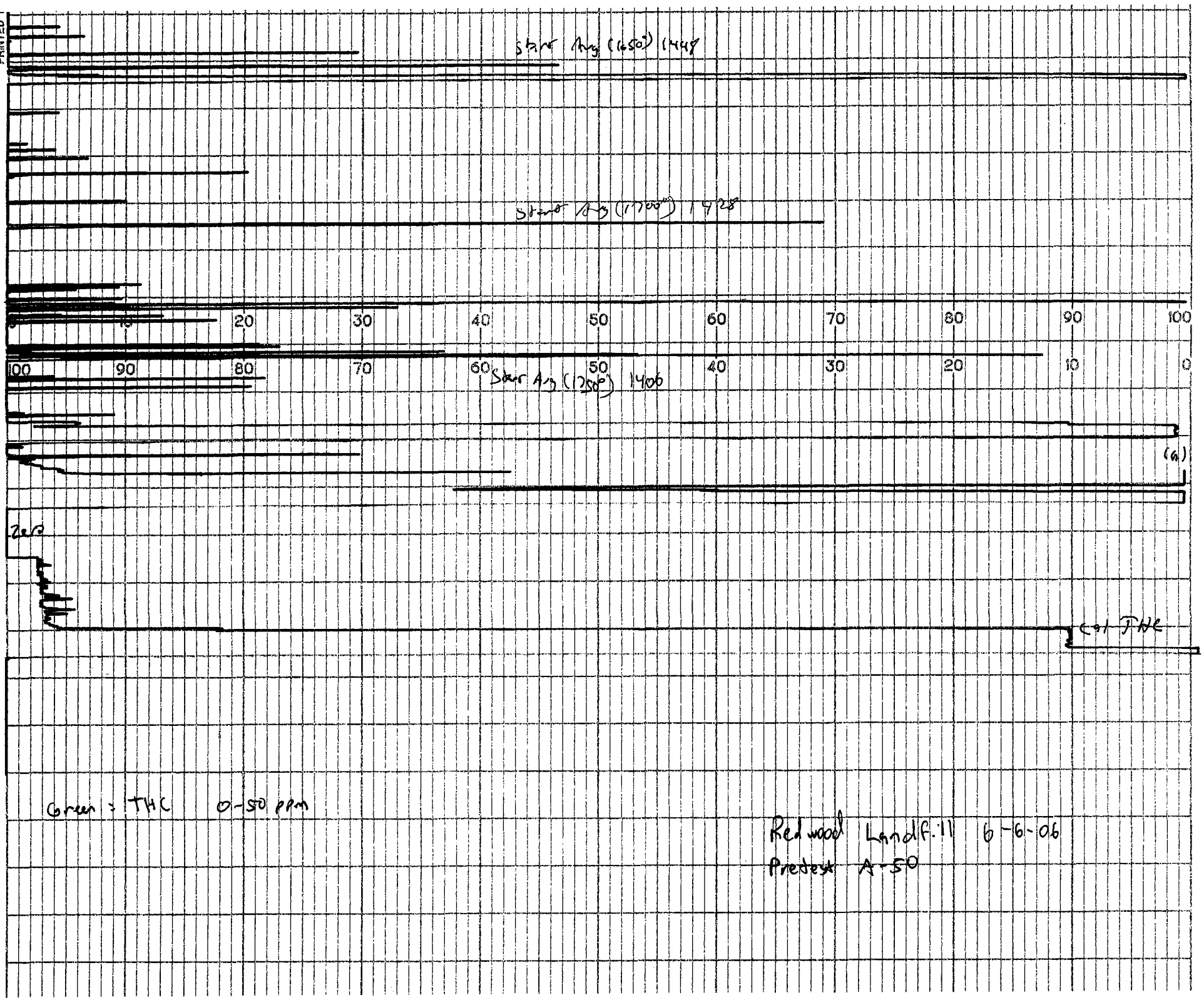


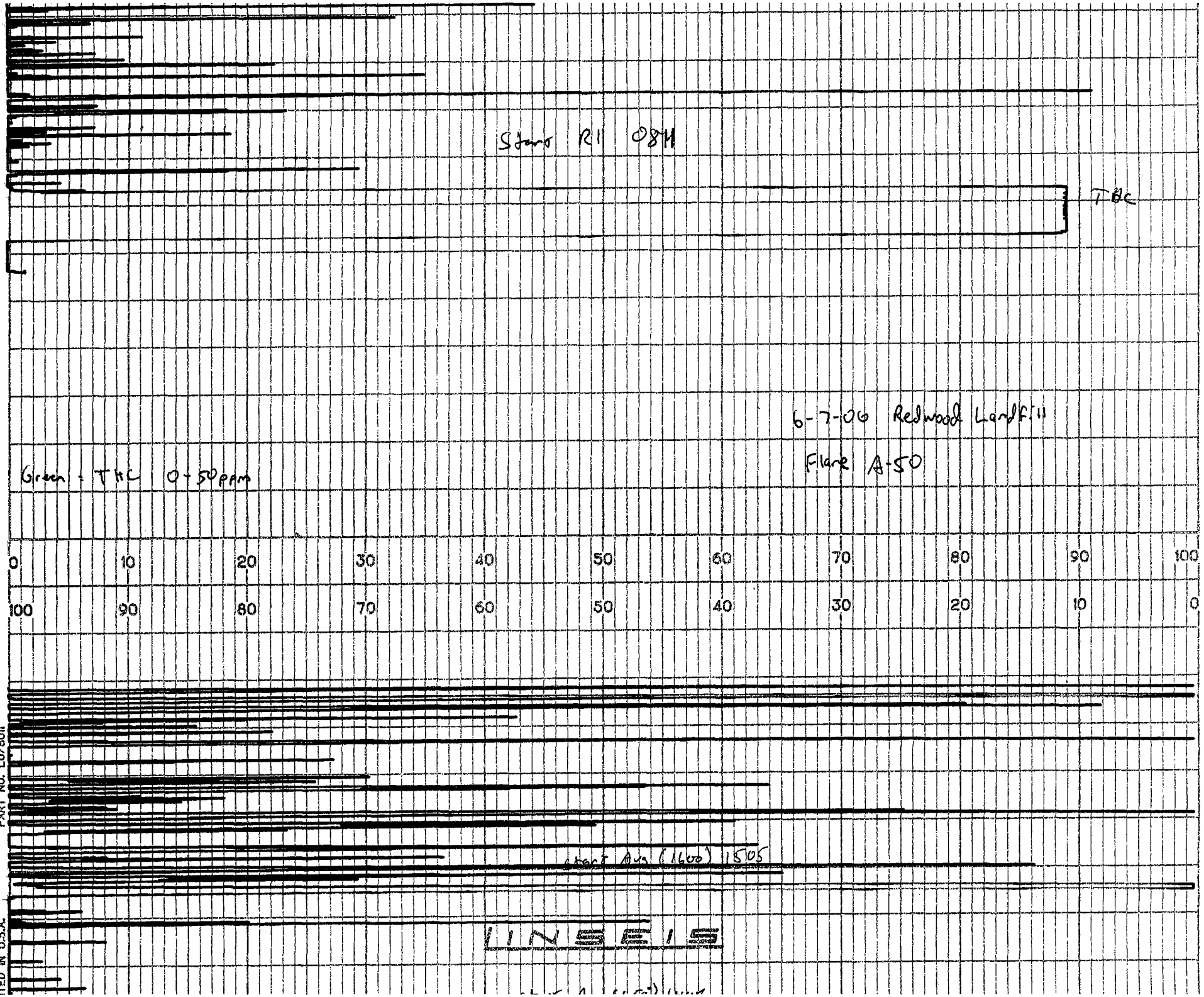
PART NO. LO/8011

PRINTED IN U.S.A.


PART NO. LO/8011
PRINTED IN U.S.A.
Start @ 0852
LINSEIS
O_2
CO
Blue = O_2 0-25%
Red = NO_x 0-50 PPM
Green = CO 0-100 PPM
6-8-06 Redwood Landfill
Flare A51
0 10 20 30 40 50 60 70 80 90 100
100 90 80 70 60 50 40 30 20 10 0
Start Avg (1450°) @ 1153


CO
NOx
O2
End R3 1044
Start R3 1014
End R2 1003
Start R2 0933
End R1 0922
0
10
20
30
40
50
60
70
80
90
100

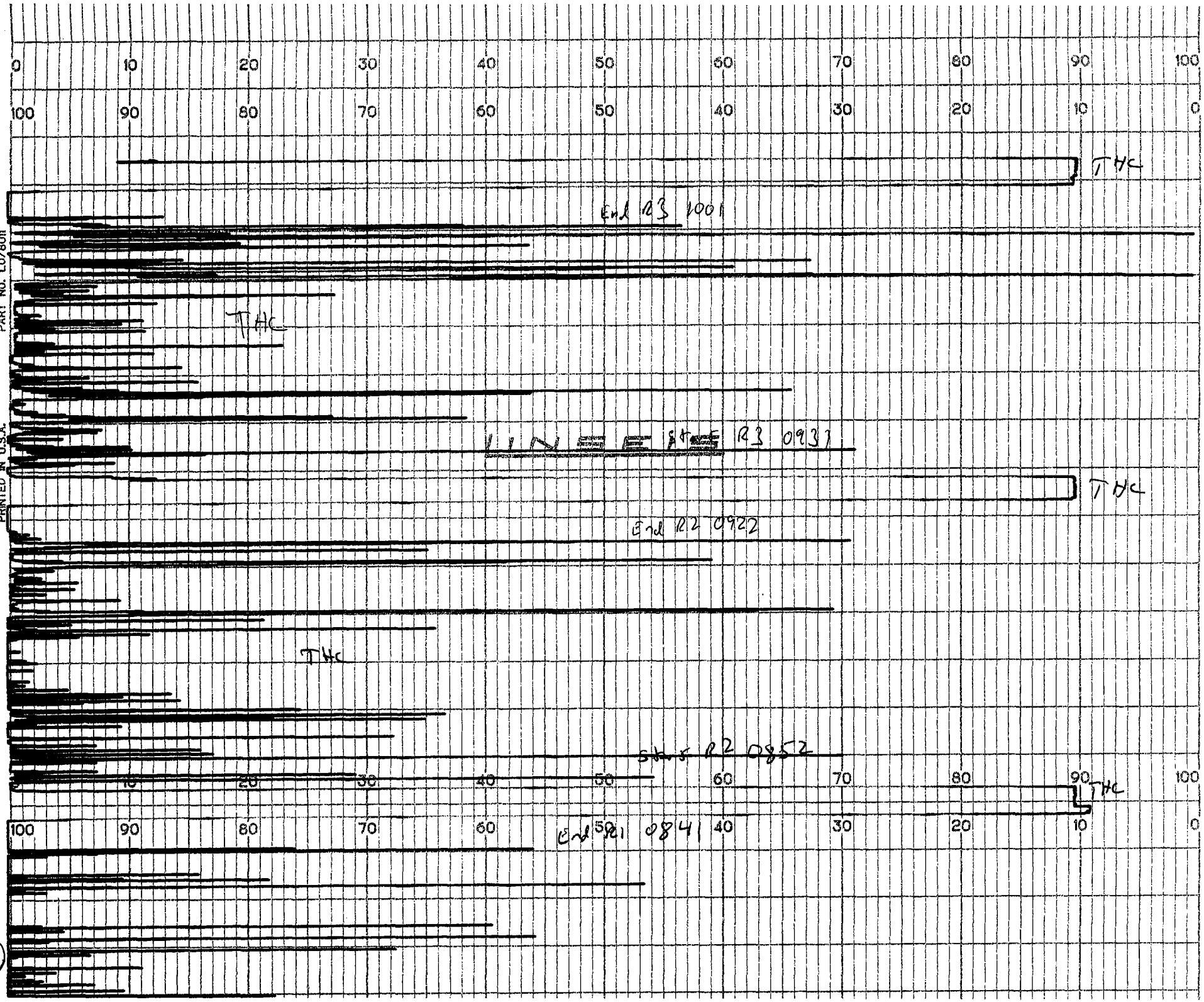

PRINTED
Start Avg (1650) 1448
Start Avg (1700) 1428
0
10
20
30
40
50
60
70
80
90
100
100
90
80
70
60
50
40
30
20
10
0
Start Avg (1250) 1406
(a)
Zero
Cal TNE
Green = THC 0-50 ppm
Redwood Landfill 6-6-06
Pretest A-50

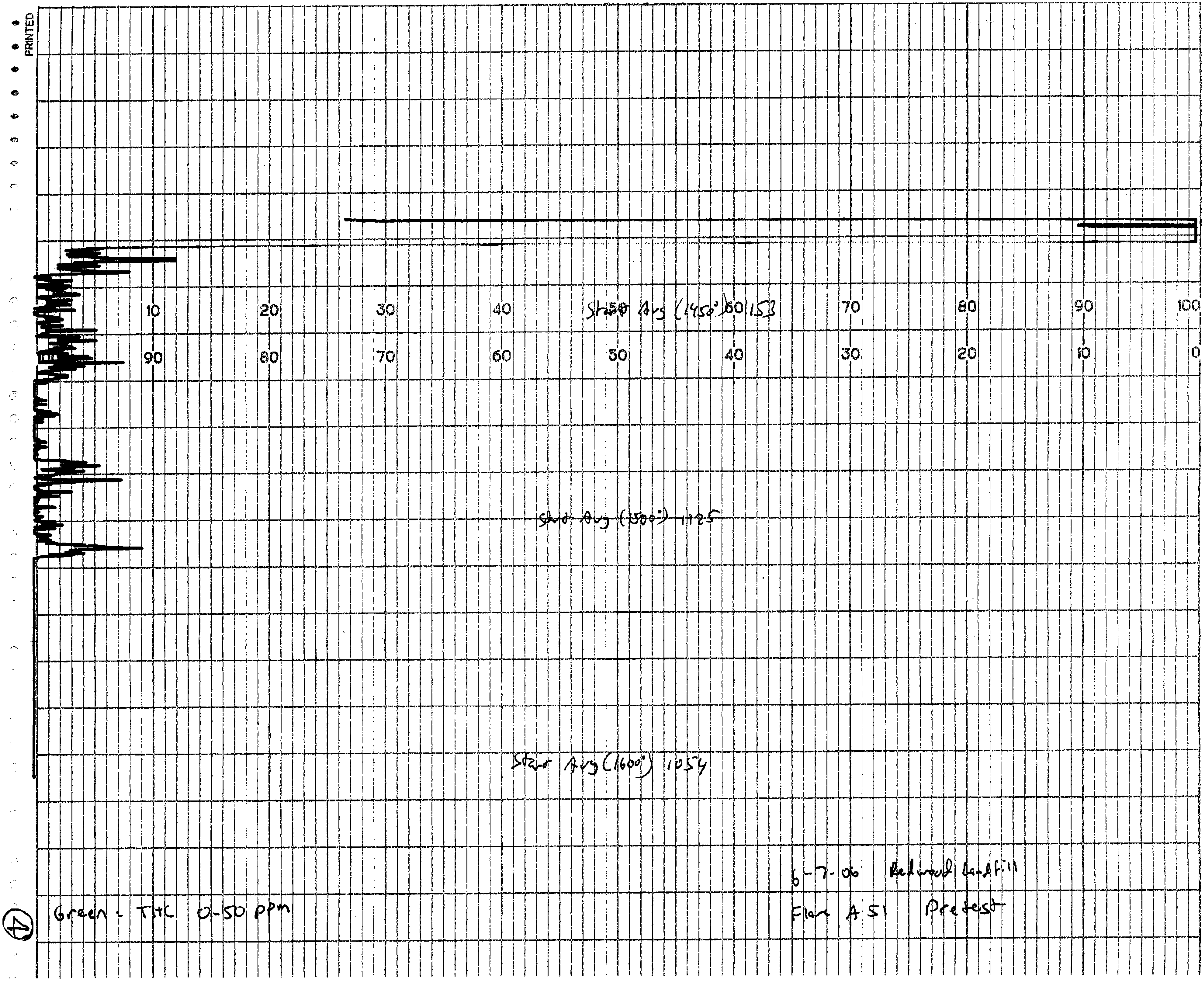


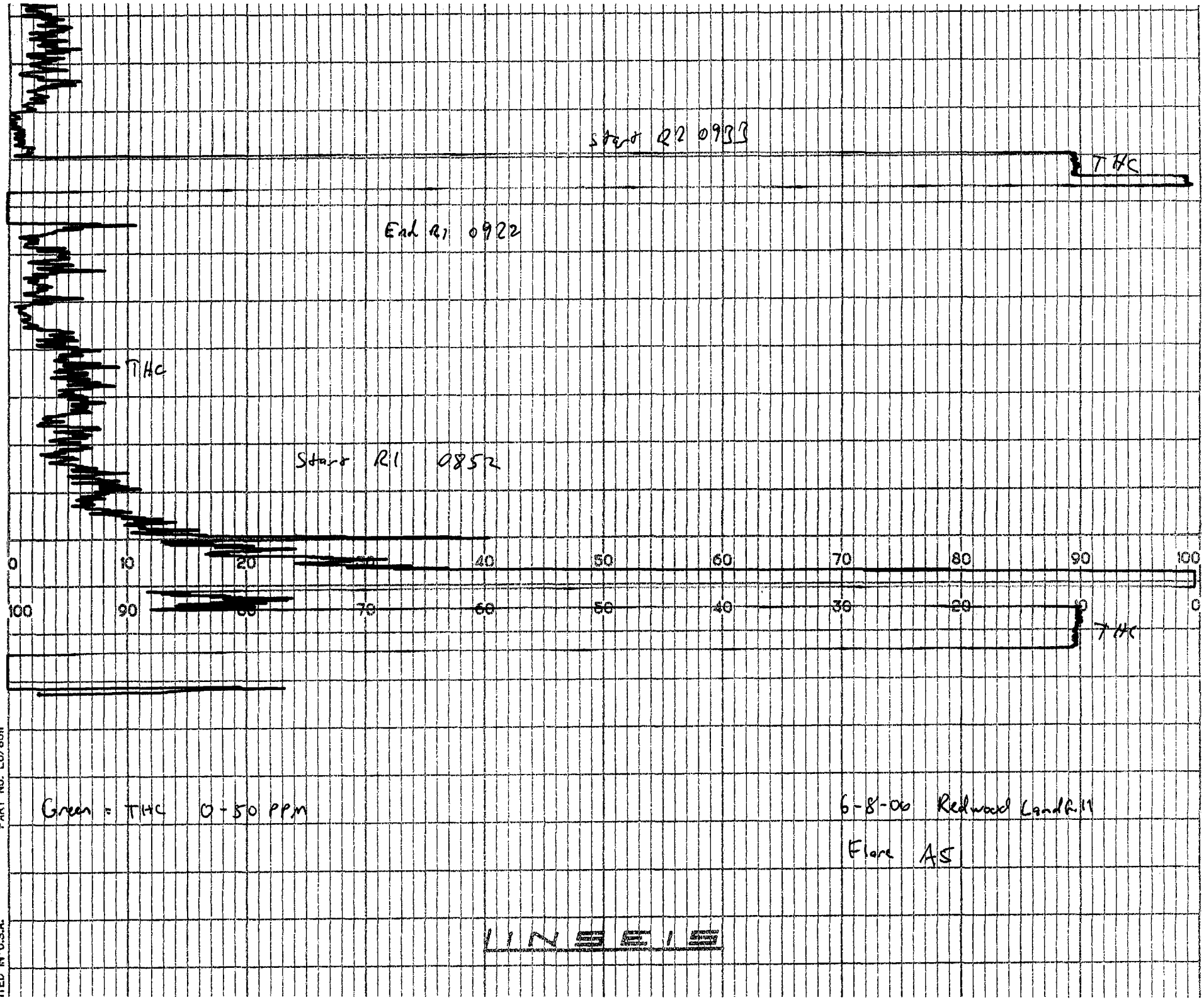
PART NO. LO/8011

PRINTED IN U.S.A.

(2)

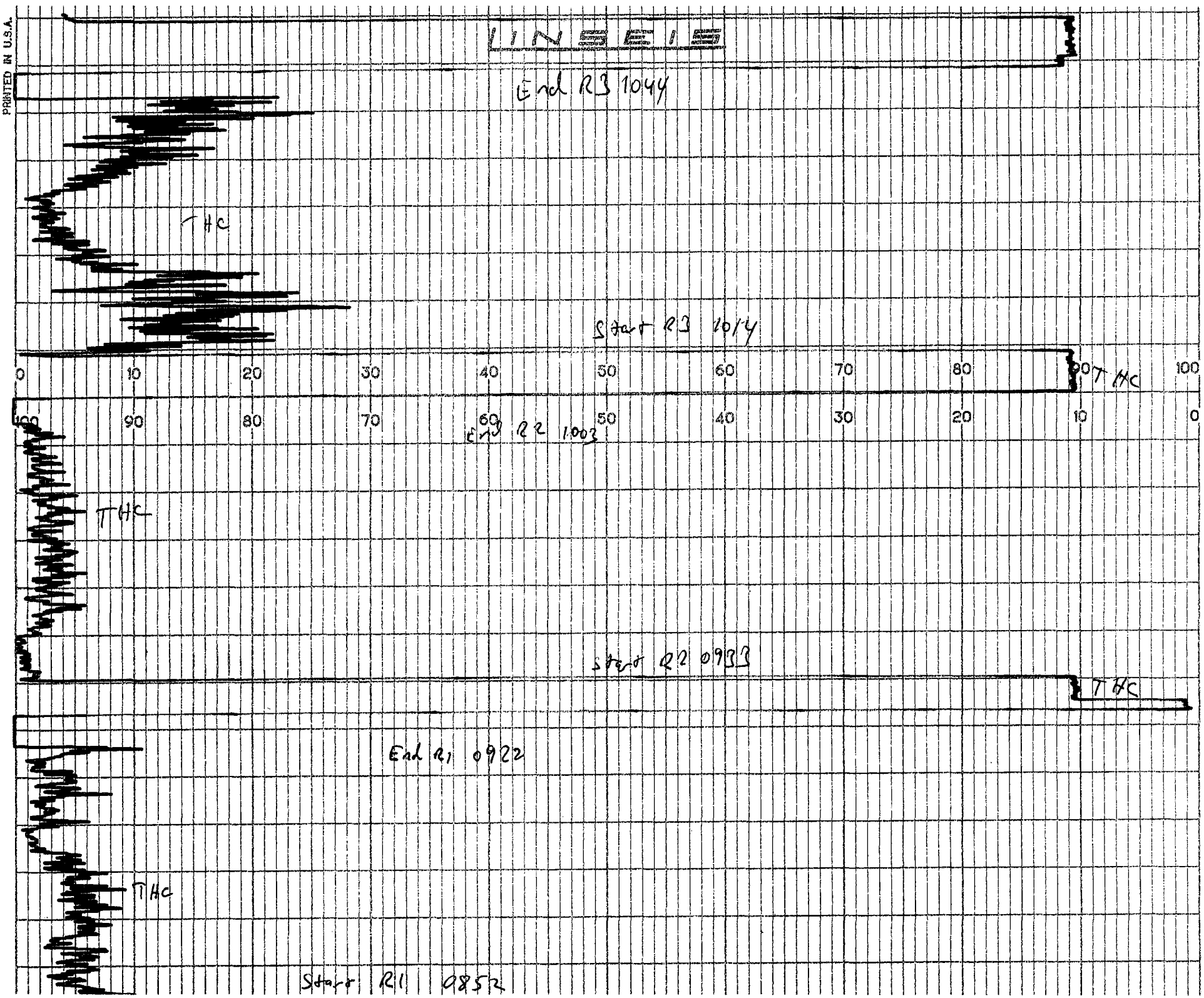



PRINTED
10 20 30 40 50 60 70 80 90 100
90 80 70 60 50 40 30 20 10 0
Stack Avg (1450°) 1153
Stack Avg (1500°) 1125
Stack Avg (1600°) 1054
6-7-06 Redwood Landfill
Flare A51 Pretest
Green - THC 0-50 ppm
4



PART NO. LO/8011

TED IN U.S.A.


LINEAR
End R3 1044
THC
Start R3 1014
0
10
20
30
40
50
60
70
80
90
100
THC
90
80
70
60
50
40
30
20
10
0
End R2 1003
THC
start R2 0933
THC
End R1 0922
THC
Start R1 0852

RATA CLASS

Dual-Analyzed Calibration Standard

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

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.: 101520
Project No.: 08-36059-001

Customer
SHAW ENVIRONMENTAL & INFRASTRUCTURE

BILL JOHNSTON
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: AAL19769 **Certification Date:** 10May2006 **Exp. Date:** 09May2008
Cylinder Pressure*:** 1870 PSIG

COMPONENT	CERTIFIED CONCENTRATION (Moles)		ACCURACY**	TRACEABILITY
CARBON MONOXIDE	90.1	PPM	+/- 1%	Direct NIST and NMi
NITRIC OXIDE	44.7	PPM	+/- 1%	Direct NIST and NMi
NITROGEN - OXYGEN FREE		BALANCE		
TOTAL OXIDES OF NITROGEN	44.8	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	02Apr2007	ALM030197	94.90 PPM	CARBON MONOXIDE
NTRM 1683	15Aug2009	AAL070639	49.82 PPM	NITRIC OXIDE

INSTRUMENTATION

INSTRUMENT/MODEL/SERIAL#	DATE LAST CALIBRATED	ANALYTICAL PRINCIPLE
FTIR//000929062	10May2006	FTIR
FTIR//000929062	08May2006	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: 01May2006 Response Unit:PPM
Z1=-0.01877 R1=95.10122 T1=90.59397
R2=95.12704 Z2=0.00010 T2=90.60740
Z3=0.02836 T3=90.63578 R3=95.16162
Avg. Concentration: 90.39 PPM

Date: 10May2006 Response Unit: PPM
Z1=-0.02533 R1=95.68689 T1=90.52361
R2=95.79857 Z2=-0.01272 T2=90.56149
Z3=0.03944 T3=90.72761 R3=95.90278
Avg. Concentration: 89.76 PPM

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99985E-1
Constants: A=0.00000E+0
B=7.18007E-1 C=3.18000E-4
D=0.00000E+0 E=0.00000E+0

NITRIC OXIDE

Date: 01May2006 Response Unit:PPM
Z1=-0.02773 R1=49.51237 T1=44.39455
R2=49.69193 Z2=-0.01858 T2=44.81024
Z3=0.11894 T3=44.90252 R3=49.72640
Avg. Concentration: 44.86 PPM

Date: 10May2006 Response Unit: PPM
Z1=-0.06655 R1=50.11168 T1=44.73440
R2=50.12921 Z2=-0.05510 T2=44.78113
Z3=-0.03373 T3=44.85699 R3=50.22003
Avg. Concentration: 44.50 PPM

Concentration=A+Bx+Cx2+Dx3+Ex4
r=9.99993E-1
Constants: A=0.00000E+0
B=9.79296E-1 C=1.73000E-4
D=0.00000E+0 E=0.00000E+0

Special Notes: PLEASE REPORT NOX

APPROVED BY: _____
Jon Witzak

CERTIFIED MASTER CLASS

Single-Certified Calibration Standard

Scott Specialty Gases
500 WEAVER PARK RD,LONGMONT,CO 80501 Phone: 888-253-1635 Fax: 303-772-7673

CERTIFICATE OF ACCURACY: Certified Master Class Calibration Standard

Product Information
Project No.: 08-24834-001
Item No.: 08022711 PAL
P.O. No.: SUSAN M. POWERS

Cylinder Number: AAL4576
Cylinder Size: AL
Certification Date: 25May2005
Expiration Date: 25May2008

Customer

SHAW ENVIRONMENTAL & INFRASTRUCTURE
2360 BERING DRIVE
SAN JOSE, CA 95131

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
METHANE	45.0	PPM	2
AIR		BALANCE	

TRACEABILITY

Traceable To

NIST

APPROVED BY: _____ JON WITZAK

DATE: 5-25-05

PRAXAIR

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

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

CUSTOMER SHAW ENV. **P.O NUMBER**

REFERENCE STANDARD

COMPONENT	NIST SRM NO.	CYLINDER NO.	CONCENTRATION
CARBON DIOXIDE GMIS	vs.SRM#2745	CC 102004	19.73 %
OXYGEN GMIS	vs.SRM#2659	CC 95713	21.04 %

ANALYZER READINGS

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

1. **COMPONENT** CARBON DIOXIDE GMIS **ANALYZER MAKE-MODEL-S/N** Siemens Ultramat 5E S/N A12-730

ANALYTICAL PRINCIPLE NDIR **LAST CALIBRATION DATE** 08/01/05

FIRST ANALYSIS DATE 08/08/05 **SECOND ANALYSIS DATE**

Z	0.00	R	19.74	C	17.82	CONC. 17.81	Z	R	C	CONC.
R	19.74	Z	0.00	C	17.80	CONC. 17.81	R	Z	C	CONC.
Z	0.00	C	17.80	R	19.74	CONC. 17.81	Z	C	R	CONC.
U/M	%			MEAN TEST ASSAY		17.81	U/M	%	MEAN TEST ASSAY		

2. **COMPONENT** OXYGEN GMIS **ANALYZER MAKE-MODEL-S/N** Siemens Oxymat 5E S/N A12-839

ANALYTICAL PRINCIPLE Paramagnetic **LAST CALIBRATION DATE** 08/01/05

FIRST ANALYSIS DATE 08/08/05 **SECOND ANALYSIS DATE**

Z	0.00	R	21.04	C	19.04	CONC. 19.04	Z	R	C	CONC.
R	21.04	Z	0.00	C	19.04	CONC. 19.04	R	Z	C	CONC.
Z	0.00	C	19.04	R	21.04	CONC. 19.04	Z	C	R	CONC.
U/M	%			MEAN TEST ASSAY		19.04	U/M	%	MEAN TEST ASSAY		

VALUES NOT VALID BELOW 150 PSIG.

THIS CYLINDER NO. CC 8445
HAS BEEN CERTIFIED ACCORDING TO SECTION EPA-600/R97/121
OF TRACEABILITY PROTOCOL NO. REV 9/97
PROCEDURE G1
CERTIFIED ACCURACY ± 1 **% NIST TRACEABLE**
CYLINDER PRESSURE 2000 **PSIG**
CERTIFICATION DATE 08/08/05
EXPIRATION DATE 08/08/08 **TERM** 36 MONTHS

CERTIFIED CONCENTRATION

CARBON DIOXIDE	17.81 %
OXYGEN	19.04 %
NITROGEN	BALANCE

ANALYZED BY ISMAEL RANGSIYAWONG ***CERTIFIED BY*** HELENA TRAN

Appendix C
Process Data

- A-50
- A-51

REDWOOD FLARE A-50 SOURCE TEST

Date	Time	Flow SCFM MIN	MAX	Temp °F MIN	MAX	
2006/06/07	08:12:00	861	884	1638	1659	R1
2006/06/07	08:14:00	859	886	1642	1652	R1
2006/06/07	08:16:00	859	883	1640	1650	R1
2006/06/07	08:18:00	863	889	1640	1655	R1
2006/06/07	08:20:00	867	895	1641	1650	R1
2006/06/07	08:22:00	859	884	1639	1651	R1
2006/06/07	08:24:00	853	886	1638	1652	R1
2006/06/07	08:26:00	864	888	1636	1657	R1
2006/06/07	08:28:00	858	885	1643	1659	R1
2006/06/07	08:30:00	869	884	1638	1657	R1
2006/06/07	08:32:00	866	889	1640	1657	R1
2006/06/07	08:34:00	856	885	1639	1657	R1
2006/06/07	08:36:00	858	885	1641	1655	R1
2006/06/07	08:38:00	859	892	1638	1652	R1
2006/06/07	08:40:00	863	892	1641	1655	R1
	Avg	861	887	1640	1655	
	Combined Avg		**874**		**1647**	
2006/06/07	08:42:00	856	880	1637	1650	
2006/06/07	08:44:00	860	884	1639	1653	
2006/06/07	08:46:00	858	884	1643	1655	
2006/06/07	08:48:00	854	885	1644	1650	
2006/06/07	08:50:00	863	889	1639	1655	
2006/06/07	08:52:00	857	883	1638	1656	R2
2006/06/07	08:54:00	862	886	1642	1656	R2
2006/06/07	08:56:00	861	896	1634	1654	R2
2006/06/07	08:58:00	860	893	1642	1656	R2
2006/06/07	09:00:00	856	882	1640	1651	R2
2006/06/07	09:02:00	861	885	1639	1657	R2
2006/06/07	09:04:00	860	891	1639	1655	R2
2006/06/07	09:06:00	861	883	1643	1653	R2
2006/06/07	09:08:00	855	881	1641	1652	R2
2006/06/07	09:10:00	859	880	1640	1654	R2
2006/06/07	09:12:00	862	889	1640	1655	R2
2006/06/07	09:14:00	854	880	1642	1653	R2
2006/06/07	09:16:00	863	882	1642	1651	R2
2006/06/07	09:18:00	863	884	1642	1655	R2
2006/06/07	09:20:00	860	887	1640	1658	R2
2006/06/07	09:22:00	857	883	1641	1653	R2
	Avg	859	885	1640	1654	
	Combined Avg		**872**		**1647**	
2006/06/07	09:24:00	860	876	1644	1653	
2006/06/07	09:26:00	858	887	1639	1653	
2006/06/07	09:28:00	861	884	1640	1659	
2006/06/07	09:30:00	858	883	1645	1655	
2006/06/07	09:32:00	859	885	1640	1654	R3
2006/06/07	09:34:00	860	885	1635	1653	R3
2006/06/07	09:36:00	863	883	1640	1657	R3
2006/06/07	09:38:00	862	881	1642	1658	R3
2006/06/07	09:40:00	862	877	1642	1654	R3
2006/06/07	09:42:00	852	886	1639	1654	R3
2006/06/07	09:44:00	850	890	1639	1656	R3
2006/06/07	09:46:00	856	883	1641	1657	R3
2006/06/07	09:48:00	858	878	1641	1647	R3
2006/06/07	09:50:00	853	875	1636	1658	R3
2006/06/07	09:52:00	855	880	1636	1658	R3
2006/06/07	09:54:00	853	883	1642	1651	R3
2006/06/07	09:56:00	864	883	1645	1652	R3
2006/06/07	09:58:00	864	883	1644	1657	R3
2006/06/07	10:00:00	857	884	1642	1657	R3
	Avg	858	882	1641	1655	
	Combined Avg		**870**		**1648**	

REDWOOD FLARE A-51 SOURCE TEST

		Temp DEG. F		Flow SCFM		
Date	Time	MIN	MAX	MIN	MAX	
2006/06/08	08:52:00	1421	1439	2596	2653	R1
2006/06/08	08:54:00	1431	1445	2597	2644	R1
2006/06/08	08:56:00	1445	1460	2601	2645	R1
2006/06/08	08:58:00	1452	1467	2591	2637	R1
2006/06/08	09:00:00	1446	1456	2592	2647	R1
2006/06/08	09:02:00	1442	1450	2605	2641	R1
2006/06/08	09:04:00	1440	1454	2610	2646	R1
2006/06/08	09:06:00	1430	1454	2604	2636	R1
2006/06/08	09:08:00	1430	1457	2609	2636	R1
2006/06/08	09:10:00	1440	1458	2601	2640	R1
2006/06/08	09:12:00	1453	1462	2599	2633	R1
2006/06/08	09:14:00	1439	1455	2592	2622	R1
2006/06/08	09:16:00	1430	1444	2597	2622	R1
2006/06/08	09:18:00	1431	1453	2601	2635	R1
2006/06/08	09:20:00	1453	1461	2599	2635	R1
2006/06/08	09:22:00	1461	1469	2577	2633	R1
	Avg	1440	1455	2598	2638	
	Combined Avg		**1448**		**2618**	
2006/06/08	09:24:00	1468	1495	2597	2632	
2006/06/08	09:26:00	1438	1492	2593	2629	
2006/06/08	09:28:00	1431	1439	2601	2628	
2006/06/08	09:30:00	1432	1489	2584	2640	
2006/06/08	09:32:00	1433	1465	2599	2635	
2006/06/08	09:34:00	1431	1437	2590	2633	R2
2006/06/08	09:36:00	1435	1439	2587	2627	R2
2006/06/08	09:38:00	1426	1439	2587	2635	R2
2006/06/08	09:40:00	1424	1454	2580	2621	R2
2006/06/08	09:42:00	1454	1468	2572	2613	R2
2006/06/08	09:44:00	1460	1471	2596	2620	R2
2006/06/08	09:46:00	1469	1477	2573	2620	R2
2006/06/08	09:48:00	1453	1469	2580	2610	R2
2006/06/08	09:50:00	1424	1453	2574	2616	R2
2006/06/08	09:52:00	1424	1435	2576	2605	R2
2006/06/08	09:54:00	1416	1426	2572	2606	R2
2006/06/08	09:56:00	1422	1476	2571	2614	R2
2006/06/08	09:58:00	1465	1479	2547	2610	R2
2006/06/08	10:00:00	1464	1489	2539	2625	R2
2006/06/08	10:02:00	1427	1482	2584	2606	R2
	Avg	1440	1464	2580	2621	
	Combined Avg		**1452**		**2601**	
2006/06/08	10:04:00	1423	1430	2575	2613	
2006/06/08	10:06:00	1420	1426	2582	2609	
2006/06/08	10:08:00	1418	1455	2587	2616	
2006/06/08	10:10:00	1455	1472	2587	2616	
2006/06/08	10:12:00	1468	1474	2574	2604	
2006/06/08	10:14:00	1455	1476	2581	2616	R3
2006/06/08	10:16:00	1440	1455	2581	2605	R3
2006/06/08	10:18:00	1440	1446	2583	2608	R3
2006/06/08	10:20:00	1442	1560	2587	2615	R3
2006/06/08	10:22:00	1429	1527	2572	2608	R3
2006/06/08	10:24:00	1442	1469	2585	2619	R3
2006/06/08	10:26:00	1420	1459	2569	2612	R3
2006/06/08	10:28:00	1373	1469	2571	2606	R3
2006/06/08	10:30:00	1369	1430	2547	2603	R3
2006/06/08	10:32:00	1408	1426	2561	2597	R3
2006/06/08	10:34:00	1419	1428	2580	2608	R3
2006/06/08	10:36:00	1419	1433	2572	2607	R3
2006/06/08	10:38:00	1433	1457	2566	2595	R3
2006/06/08	10:40:00	1457	1476	2569	2610	R3
2006/06/08	10:42:00	1476	1558	2570	2597	R3
2006/06/08	10:44:00	1453	1553	2569	2603	R3
	Avg	1431	1470	2575	2608	
	Combined Avg		**1451**		**2591**	

Landfill Process Data Sheet

Landfill: Redwood

Test date: 6-7-06

Source: (Flare), IC Engine, Turbine
circle one

Landfill Gas Data	Run 1		Run 2		Run 3	
Time	811	0841	0852	0922	0931	
Methane (%)	51.6					
HHV based on methane						
F-factor based on methane						
O2 (%)	1.6					
Landfill Gas Rate (scfm)	870		~~865~~ 879		868	
Engine (KW)						
Condensate Rate (gpm)						
Flare Temp (F)	1650		1647		1649	

Thermocouple Measurement Location (Top) Middle Bottom
circle one

HHV = methane (%) x 1018

Set point 1650

Landfill Process Data Sheet

Landfill: Redwood Landfill A 51

Test date: 06-08-06

Source: (Flare,) IC Engine, Turbine
circle one

Landfill Gas Data	Run 1		Run 2		Run 3	
Time	0852		0933			
Methane (%)	48.6					
HHV based on methane						
F-factor based on methane						
O2 (%)	1.9					
Landfill Gas Rate (scfm)	2620		2608		2580	
Engine (KW)						
Condensate Rate (gpm)						
Flare Temp (F)	1450		1468		1429	

Thermocouple Measurement Location (Top) Middle Bottom
circle one

HHV = methane (%) x 1018

Set point 1450

Appendix D
Analytical Results

Atmospheric Analysis & Consulting, Inc.

CLIENT : Shaw Environmental, Inc.
PROJECT NAME : Redwood Landfill
AAC PROJECT NO. : 060263
REPORT DATE : 06/20/2006

On June 9, 2006, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar Bag for BTU Analysis, one (1) Tedlar Bag for BTU Analysis and Volatile Organic Compounds Analysis by EPA Method 25C, and one (1) Tedlar Bag to be put on hold. Upon receipt the samples were assigned unique Laboratory ID numbers as follows:

Client ID	Lab No.
A50, R2	060263-15746
A51, R2	060263-15747
A51 Dup	060263-15748

BTU Analysis includes the following tests: Sulfur Analysis by ASTM Method D-5504, C1-C6+ Analysis by EPA Method 18, and Fixed Gases Analysis by EPA Method 3C.

EPA 25C Analysis - Up to a 1 ml aliquot of gaseous sample is injected into the GC/FID for analysis following EPA25C as specified in the SOW.

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

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.

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- EPA 25C, 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. Release of the data contained in this hardcopy data package and its electronic data deliverable submitted on diskette has been authorized by the Laboratory Director or his designee, as verified by the following signature.

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

Sucha S. Parmar, PhD
Technical Director

This report consists of 11 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate #E87837

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

Client:	: Shaw Environmental, Inc.	Sampling Date	: 06/7-8/06
Project No.	: 060263	Receiving Date	: 06/09/2006
Matrix	: air	Analysis Date	: 06/09/2006
Units	: %	Report Date	: 06/20/2006

EPA Method 3C

Detection Limit: 0.1 %		Analyte					
Client ID	AAC ID	Hydrogen	Oxygen	Nitrogen	CO	Methane	CO2
A50, R2	060263-15746	**ND**	**2.5**	**12.6**	**ND**	**51.3**	**33.6**
A51, R2	060263-15747	**ND**	**3.2**	**15.4**	**ND**	**48.7**	**32.7**

* Per request on the COC, the duplicate sample for A51,R2 was analyzed because the O2 was above 3%.
The duplicate sample also had an O2 value of 3.4 %.

Dr. Sucha Parmar
Technical Director

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.
PROJECT NO. : 060263
MATRIX : GAS

RECEIVING DATE : 06/09/2006
ANALYSIS DATE : 06/09/2006
REPORT DATE : 06/20/2006

	Client ID:	A50, R2	A51, R2	Detection Limits
	AAC ID:	060263-15746	060263-15747	
Compounds, Units				
H_2S, ppmv		92	326	0.5ppmv
Carbonyl Sulfide, ppmv		ND	ND	0.5ppmv
Methyl Mercaptan, ppmv		ND	ND	0.5ppmv
Ethyl Mercaptan, ppmv		ND	ND	0.5ppmv
Propyl Mercaptan, ppmv		ND	ND	0.5ppmv
Carbon Disulfide, ppmv		ND	ND	0.5ppmv
Dimethyl sulfide, ppmv		ND	ND	0.5ppmv
Allyl Sulfide, ppmv		ND	ND	0.5ppmv
Propyl Sulfide, ppmv		ND	ND	0.5ppmv
Allyl Disulfide, ppmv		ND	ND	0.5ppmv
Butyl Sulfide, ppmv		ND	ND	0.5ppmv
Ethyl Methyl Sulfide, ppmv		ND	ND	0.5ppmv
Thiophene, ppmv		ND	ND	0.5ppmv
Dimethyl Disulfide, ppmv		ND	ND	0.5ppmv
Butyl Mercaptan, ppmv		ND	ND	0.5ppmv
Allyl mercaptan, ppmv		ND	ND	0.5ppmv
C1 hydrocarbons, ppmv		511730	488215	0.3 ppmv
C2 hydrocarbons, ppmv		<30	<30	0.3 ppmv
C3 hydrocarbons, ppmv		9.4	10	0.3 ppmv
C4 hydrocarbons, ppmv		7.1	6.8	0.3 ppmv
C5 hydrocarbons, ppmv		3.6	2.2	0.3 ppmv
C6 hydrocarbons, ppmv		6.8	2.6	0.3 ppmv
C6 + hydrocarbons, ppmv		1.2	1.8	0.3 ppmv
CO_2, %		34	33	0.1 %
CO, %		ND	ND	0.1 %
O_2, %		2.5	3.2	0.1 %
N_2, %		13	15	0.1 %
H_2, %		ND	ND	0.1 %
F Factor(dscf Exhaust/MM Btu)		**9147**	**9158**	
Total Wt.% Adjusted Sp. Gravity		**0.9**	**0.9539**	
FUEL GAS BTU per LBM		**12221**	**11660.9**	
FUEL GAS BTU per CU. FT		**519**	**495**	

Dr. Sucha Parmar
Technical Director

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.
PROJECT NO. : 060263
UNITS : PPMV

Sampling Date : 06/7-8/06
Receiving Date : 06/09/2006
Analysis Date : 06/09/2006
Report Date : 06/20/2006

Total Reduced Sulfur Compounds Analysis by ASTM D-5504

Client ID.	A50, R2	A51, R2	MDL
AAC ID	060263-15746	060263-15747	
Analysis Dilution Factor	1.0 & 20	1.0 & 20	
Can Dilution Factor	1.0	1.0	
H_2S	91	327	0.50
Carbonyl Sulfide	<PQL	<PQL	0.50
SO2	<PQL	<PQL	0.50
Methyl Mercaptan	<PQL	<PQL	0.50
Ethyl Mercaptan	<PQL	<PQL	0.50
Dimethyl Sulfide	<PQL	<PQL	0.50
n-Butyl mercaptan	<PQL	<PQL	0.50
Carbon Disulfide	<PQL	<PQL	0.50
Allyl Sulfide	<PQL	<PQL	0.50
Propyl Sulfide	<PQL	<PQL	0.50
Allyl disulfide	<PQL	<PQL	0.50
Isopropyl Mercaptan	<PQL	1.8	0.50
t-Butyl mercaptan	<PQL	<PQL	0.50
Propyl Mercaptan	<PQL	<PQL	0.50
Butyl Sulfide	<PQL	<PQL	0.50
Ethyl methyl sulfide	<PQL	<PQL	0.50
Thiophene	<PQL	<PQL	0.50
Isobutyl mercaptan	<PQL	<PQL	0.50
Dimethyl disulfide	<PQL	<PQL	0.50
Allyl mercaptan	<PQL	<PQL	0.50
3-Methylthiophene	<PQL	<PQL	0.50
Tetrahydrothiophene	<PQL	<PQL	0.50
Diethyl sulfide	<PQL	<PQL	0.50
2-Ethylthiophene	<PQL	<PQL	0.50
2,5-Dimethylthiophene	<PQL	<PQL	0.50
Diethyl disulfide	<PQL	<PQL	0.50
Total Unidentified Sulfurs as H_2S	<PQL	1.8	0.50
Total Reduced Sulfurs	92	331	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

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

Client	: Shaw Environmental, Inc.	Sampling Date	: 06/07/2006
Project No.	: 060263	Receiving Date	: 06/09/2006
Matrix	: air	Analysis Date	: 06/09/2006
Units	: ppmv	Report Date	: 06/20/2006

EPA Method 25C

Detection Limit:		0.3 ppmv
Client Sample ID	**AAC ID**	**NMHC****
A50, R2	**060263-15746**	**456**
A51, R2	**060263-15747**	**213**

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

Dr. Sucha Parmar
Technical Director

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

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

DATE ANALYZED : **06/09/2006**
UNITS : **ppmv**

I - Method Blank

AAC ID	Analyte	MB Conc.
Method Blank	H2S	ND

II-Laboratory Control Spike - ASTM D-5504

Analyte	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
H2S	5.00	4.95	5.09	99	102	**2.8**

III - Duplicate Analysis - ASTM D-5504 - 060263-15746 (20x)

Analyte	Sample Conc	Duplicate Conc	Mean	% RPD
H2S	99.0	83.4	91.2	**17**

IV - Matrix Spike - ASTM D-5504 - 060256-15710 (40x)

Analyte	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
H2S	2.28	2.50	4.66	4.19	95	76	**22**

* Must be 70-130%

** Must be ≤ 25%

Dr. Sucha Parmar
Technical Director

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 06/09/2006

EPA Method 25.3

I - Method Blank

Analyte	Units	Sample Analysis
NMHC	ppm	ND

II - Duplicate Analysis

AAC ID	Analyte	Units	Sample Analysis	Duplicate Analysis	Mean	% RPD **
060262-15741 (10x)	NMHC	ppm	481.3	481.1	481.2	0.0

III - Matrix Spikes

AAC ID	Analyte	Units	Sample Conc.	Spike Added	Sample Spike Conc.	Sample Spike Dup. Conc.	Spike % Rec.*	Spike Dup % Rec.*	% RPD **
060262-15741 (10x)	NMHC	ppm	240.6	125	374	391	107	120	4.5

IV - 1 ppm Backflush

Analyte	Units	Sample Analysis	Sample Analysis dup	Sample % Rec.***	Sample Dup % Rec. ***
NMHC	ppm	1.05	1.05	105	105

* Must be 90-110%

** Must be 75-125%

*** Must be 80-120%

Dr. Sucha Parmar,
Technical Director

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 06/09/2006

I-Method Blank - EPA 3C

	Analyte	Units	Sample Analysis
Method Blank	Hydrogen	%	ND
	Oxygen	%	ND
	Nitrogen	%	ND
	CO	%	ND
	Methane	%	ND
	CO2	%	ND

II-LCS - EPA 3C

	Analyte	Spike Conc.	LCS Conc.	LCS Dup Conc.	% Rec	% RPD
LCS	Hydrogen	20	19	19	**95**	**3.9**
	Nitrogen	20	23	23	**116**	**0.3**
	CO	20	20	20	**101**	**1.7**
	Methane	20	23	23	**114**	**1.2**
	CO2	20	22	21	**108**	**1.7**

III-Duplicate Analysis -EPA 3C

AAC ID	Analyte	Sample Analysis	Duplicate Analysis	Mean	% RPD
060263-15746	Hydrogen	0.0	0.0	0.0	**NA**
	Oxygen	2.7	2.7	2.7	**0.6**
	Nitrogen	13.3	13.5	13.4	**0.6**
	CO	0.0	0.0	0.0	**NA**
	Methane	54.3	55.1	54.7	**0.7**
	CO2	35.6	35.9	35.8	**0.4**

IV-Matrix Spike Analysis -EPA 3C

AAC ID	Analyte	Sample Conc.	Spike Added	Sample Spike Conc.	Sample Spike Dupl. Conc.	Spike % Rec. *	Spike Dupl % Rec. *	% RPD **
060263-15746 (2x)	Hydrogen	0.0	10.0	8.7	8.5	**87**	**85**	**3.3**
	Nitrogen	6.7	10.0	17.4	17.6	**107**	**109**	**1.4**
	CO	0.0	10.0	10.1	10.0	**101**	**100**	**1.3**
	Methane	27.3	10.0	37.3	36.8	**99**	**95**	**4.7**
	CO2	17.9	10.0	27.5	27.2	**96**	**93**	**3.0**

* Must be 70-130%

** Must be $\leq$ 25%

Dr. Sucha Parmar
Technical Director

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

Date Analyzed : 06/09/2006
EPA Method 18

I - Method Blank

AAC ID	Analyte	Units	MB Conc.
Method Blank	Methane	ppmv	ND
	Ethane	ppmv	ND
	Propane	ppmv	ND
	Butane	ppmv	ND
	Pentane	ppmv	ND
	Hexane	ppmv	ND

II - LCS

AAC ID	Analyte	Theoretical Conc.	LCS Conc.	LCS Conc. Dup	% Rec	% RPD
Lab Control Standard	Methane	100.2	103.7	106.9	105	3.1
	Ethane	100.6	102.4	106.6	104	4.0
	Propane	100.0	102.4	108.0	105	5.3
	Butane	99.6	99.8	105.5	103	5.6
	Pentane	99.6	96.7	102.9	100	6.2
	Hexane	97.6	90.0	99.5	97	10

III - Duplicate Analysis

AAC ID	Analyte	Units	Sample Conc.	Duplicate Conc.	Mean	%RPD
060262-15743 (2000x)	Methane	ppmv	444503	451864	448200	1.6
	Ethane	ppmv	0.0	0.0	0.0	0.0
	Propane	ppmv	0.0	0.0	0.0	0.0
	Butane	ppmv	0.0	0.0	0.0	0.0
	Pentane	ppmv	0.0	0.0	0.0	0.0
	Hexane	ppmv	0.0	0.0	0.0	0.0

IV-Spiked Sample

AAC ID	Analyte	Units	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
060262-15743 (4000x)	Methane	ppmv	112	100.0	239	243	127	131 (M7)	3.1
	Ethane	ppmv	0.0	100.0	119.6	120.5	120	121	0.7
	Propane	ppmv	0.0	100.0	121.2	121.1	121	121	0.1
	Butane	ppmv	0.0	100.0	119.2	119.4	119	119	0.2
	Pentane	ppmv	0.0	100.0	118.2	117.3	118	117	0.8
	Hexane	ppmv	0.0	100.0	115.7	111.9	116	112	3.4

* Must be 70-130%
** Must be ≤ 25%

M7 - Matrix spike recovery was above labaoratory acceptance limits, the MB, LCS, LCSD had good recoveries and RPD's, therefore high recovery due to matrix effect.

Dr. Sucha Parmar
Technical Director

060263

Laboratory

AAC

Shaw Environmental Chain Of Custody Record

CLIENT: Redwood Land fill

DATE: 6-8-06

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
- Analyze Dup if O_2 is greater than 3% O_2

REQUESTED ANALYSIS

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Landfill Gas List (except TO-15 and Sulfur)	TO-15 List	Sulfur List		FIELD NOTES: Container/Preservative or PID Readings or Laboratory Notes
	A 50, R2	6/7		Bag	1	X			15746	Land fill Gas List:
	A 51 R2	6/8		Bag	1	X	X	X	15747	- O_2, CO_2, N_2 - M 3C
	A 51 Dup	6/8		Bag	1				15748	- NMOC - M-25C
										- F factor
										- HHV
										- C_1 - C_6
										* Organic + Sulfur Compounds See attached list

Land fill Gas

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) Bill Jse 6-8-06	Received by: (Signature) Mike West	Date: 6/9/06	Time: 8:30 AM

03/06/03 Revision

Atmospheric Analysis & Consulting, Inc.

CLIENT : Shaw Environmental, Inc.
PROJECT NAME : Redwood Landfill
AAC PROJECT NO. : 060263
REPORT DATE : 06/20/06

On June 9, 2006, Atmospheric Analysis & Consulting, Inc. received one (1) Tedlar bag for Volatile Organic Compounds analysis by EPA method TO-15. Upon receipt the sample was assigned a unique Laboratory ID number as follows:

Client ID	Lab ID
A51, R2	060263-15747

TO-14/15 Analysis - Up to a 500 ml aliquot of samples is concentrated, put through a water and CO2 management system, cryofocused and injected into the GC/MS (full scan mode) for analysis following EPA Method TO-14/15 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-TO-15/PAMS. Estimated uncertainty of the test results will be provided upon request.

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

This report consists of 22 pages.

ACCREDITED IN ACCORDANCE WITH nelac Certificate#E87837

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	: Shaw Environmental	DATE RECEIVED	: 06/09/06
PROJECT NO	: 060263	DATE REPORTED	: 06/20/06
MATRIX	: AIR		
UNITS	: PPB (v/v)		

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	A51, R2			Sample Reporting Limit (RLxDF's)	Method Reporting Limit
AAC ID	060263-15747				
Date Sampled	6/7/2006				
Date Analyzed	6/17/2006				
Can Dilution Factor	1.00				
	Result	Qualifier	Dil. Fac.		
Chlorodifluoromethane	575		100	100	1.0
Propylene	7960		1000	1000	1.0
Dichlorodifluoromethane	642		100	100	1.0
Chloromethane	ND	U	100	100	1.0
1,2-Dichloro-1,1,2,2-Tetrafluoroethane	ND	U	100	100	1.0
Vinyl Chloride	431		100	100	1.0
Methanol	ND	U	100	500	5.0
1,3-Butadiene	ND	U	100	100	1.0
Bromomethane	ND	U	100	100	1.0
Chloroethane	ND	U	100	100	1.0
Dichlorofluoromethane	ND	U	100	100	1.0
Ethanol	294		100	200	2.0
Vinyl Bromide	ND	U	100	100	1.0
Acetone	1070		100	200	2.0
Trichlorofluoromethane	ND	U	100	100	1.0
Isopropyl Alcohol	269		100	200	2.0
Acrylonitrile	ND	U	100	100	1.0
1,1-Dichloroethylene	ND	U	100	100	1.0
Methylene Chloride	ND	U	100	100	1.0
Allyl Chloride (Chloroprene)	ND	U	100	100	1.0
Carbon Disulfide	ND	U	100	100	1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	100	100	1.0
t-1,2-Dichloroethylene	ND	U	100	100	1.0
1,1-Dichloroethane	ND	U	100	100	1.0
MTBE	ND	U	100	100	1.0
Vinyl Acetate	ND	U	100	100	1.0
2-Butanone (MEK)	1200		100	100	1.0
cis-1,2- Dichloroethene	174		100	100	1.0
Hexane	471		100	100	1.0
Chloroform	ND	U	100	100	1.0
Ethyl Acetate	ND	U	100	100	1.0
Tetrahydrofuran	1500		100	100	1.0
1,2-Dichloroethane	ND	U	100	100	1.0
1,1,1-Trichloroethane	ND	U	100	100	1.0

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	**: Shaw Environmental**	**DATE RECEIVED**	**: 06/09/06**
PROJECT NO	**: 060263**	**DATE REPORTED**	**: 06/20/06**
MATRIX	**: AIR**		
UNITS	**: PPB (v/v)**		

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	A51, R2			Sample Reporting Limit (RLxDF's)	Method Reporting Limit
AAC ID	060263-15747				
Date Sampled	6/7/2006				
Date Analyzed	6/17/2006				
Can Dilution Factor	1.00				
	Result	**Qualifier**	**Dil. Fac.**		
Benzene	328		100	100	1.0
Carbon Tetrachloride	ND	U	100	100	1.0
Cyclohexane	350		100	100	1.0
1,2-Dichloropropane	ND	U	100	100	1.0
Bromodichloromethane	ND	U	100	100	1.0
1,4-Dioxane	ND	U	100	100	1.0
Trichloroethene	ND	U	100	100	1.0
2,2,4-Trimethylpentane	168		100	100	1.0
Heptane	830		100	100	1.0
cis-1,3-Dichloropropene	ND	U	100	100	1.0
4-Methyl-2-Pentanone (MiBK)	153		100	100	1.0
t-1,3-Dichloropropene	ND	U	100	100	1.0
1,1,2-Trichloroethane	ND	U	100	100	1.0
Toluene	4200		100	100	1.0
2-Hexanone	ND	U	100	100	1.0
Dibromochloromethane	ND	U	100	100	1.0
1,2-Dibromoethane	ND	U	100	100	1.0
Tetrachloroethylene	ND	U	100	100	1.0
Chlorobenzene	ND	U	100	100	1.0
Ethylbenzene	1790		100	100	1.0
m- & p-Xylenes	2500		100	200	2.0
Bromoform	ND	U	100	300	3.0
Styrene	ND	U	100	100	1.0
1,1,2,2-Tetrachloroethane	ND	U	100	100	1.0
o-Xylene	705		100	100	1.0
4-Ethyltoluene	ND	U	100	100	1.0
1,3,5-Trimethylbenzene	ND	U	100	100	1.0
1,2,4-Trimethylbenzene	ND	U	100	100	1.0
Benzyl Chloride	ND	U	100	500	5.0
1,3-Dichlorobenzene	ND	U	100	100	1.0
1,4-Dichlorobenzene	ND	U	100	100	1.0
1,2-Dichlorobenzene	ND	U	100	100	1.0
1,2,4-Trichlorobenzene	ND	U	100	100	1.0
Hexachlorobutadiene	ND	U	100	100	1.0
BFB-Surrogate Std. % Recovery	105%				70-130%

J- Analyte was detected. However the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Reporting Limit (RL).
E - Estimated value, result outside linear range of instrument.
U - Compound was analyzed for, but was not detected.
!! - Estimated

Sucha S. Parmar, PhD
Technical Director

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	**: Shaw Environmental**	**DATE RECEIVED**	**: 06/09/06**
PROJECT NO	**: 060263**	**DATE REPORTED**	**: 06/20/06**
MATRIX	**: AIR**		
UNITS	**: PPB (v/v)**		

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	A51, R2			Sample Reporting Limit (RLxDF's)	Method Reporting Limit
AAC ID	060263-15747				
Date Sampled	6/7/2006				
Date Analyzed	6/17/2006				
Can Dilution Factor	1.00				
	Result	**Qualifier**	**Dil. Fac.**		
Chlorodifluoromethane	574		100	100	1.0
Propylene	7960		1000	1000	1.0
Dichlorodifluoromethane	649		100	100	1.0
Chloromethane	ND	U	100	100	1.0
1,2-Dichloro-1,1,2,2-Tetrafluoroethane	ND	U	100	100	1.0
Vinyl Chloride	430		100	100	1.0
Methanol	ND	U	100	500	5.0
1,3-Butadiene	ND	U	100	100	1.0
Bromomethane	ND	U	100	100	1.0
Chloroethane	ND	U	100	100	1.0
Dichlorofluoromethane	ND	U	100	100	1.0
Ethanol	296		100	200	2.0
Vinyl Bromide	ND	U	100	100	1.0
Acetone	983		100	200	2.0
Trichlorofluoromethane	ND	U	100	100	1.0
Isopropyl Alcohol	288		100	200	2.0
Acrylonitrile	ND	U	100	100	1.0
1,1-Dichloroethylene	ND	U	100	100	1.0
Methylene Chloride	ND	U	100	100	1.0
Allyl Chloride (Chloroprene)	ND	U	100	100	1.0
Carbon Disulfide	ND	U	100	100	1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	100	100	1.0
t-1,2-Dichloroethylene	ND	U	100	100	1.0
1,1-Dichloroethane	ND	U	100	100	1.0
MTBE	ND	U	100	100	1.0
Vinyl Acetate	ND	U	100	100	1.0
2-Butanone (MEK)	1170		100	100	1.0
cis-1,2- Dichloroethene	170		100	100	1.0
Hexane	454		100	100	1.0
Chloroform	ND	U	100	100	1.0
Ethyl Acetate	ND	U	100	100	1.0
Tetrahydrofuran	1400		100	100	1.0
1,2-Dichloroethane	ND	U	100	100	1.0
1,1,1-Trichloroethane	ND	U	100	100	1.0

Laboratory Analysis Report

CLIENT	**: Shaw Environmental**	**DATE RECEIVED**	**: 06/09/06**
PROJECT NO	**: 060263**	**DATE REPORTED**	**: 06/20/06**
MATRIX	**: AIR**		
UNITS	**: PPB (v/v)**		

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	A51, R2			Sample Reporting Limit (RLxDF's)	Method Reporting Limit
AAC ID	060263-15747				
Date Sampled	6/7/2006				
Date Analyzed	6/17/2006				
Can Dilution Factor	1.00				
	Result	**Qualifier**	**Dil. Fac.**		
Benzene	345		100	100	1.0
Carbon Tetrachloride	ND	U	100	100	1.0
Cyclohexane	374		100	100	1.0
1,2-Dichloropropane	ND	U	100	100	1.0
Bromodichloromethane	ND	U	100	100	1.0
1,4-Dioxane	ND	U	100	100	1.0
Trichloroethene	ND	U	100	100	1.0
2,2,4-Trimethylpentane	180		100	100	1.0
Heptane	858		100	100	1.0
cis-1,3-Dichloropropene	ND	U	100	100	1.0
4-Methyl-2-Pentanone (MiBK)	162		100	100	1.0
t-1,3-Dichloropropene	ND	U	100	100	1.0
1,1,2-Trichloroethane	ND	U	100	100	1.0
Toluene	4320		100	100	1.0
2-Hexanone	ND	U	100	100	1.0
Dibromochloromethane	ND	U	100	100	1.0
1,2-Dibromoethane	ND	U	100	100	1.0
Tetrachloroethylene	ND	U	100	100	1.0
Chlorobenzene	ND	U	100	100	1.0
Ethylbenzene	1820		100	100	1.0
m- & p-Xylenes	2570		100	200	2.0
Bromoform	ND	U	100	300	3.0
Styrene	ND	U	100	100	1.0
1,1,2,2-Tetrachloroethane	ND	U	100	100	1.0
o-Xylene	733		100	100	1.0
4-Ethyltoluene	ND	U	100	100	1.0
1,3,5-Trimethylbenzene	ND	U	100	100	1.0
1,2,4-Trimethylbenzene	ND	U	100	100	1.0
Benzyl Chloride	ND	U	100	500	5.0
1,3-Dichlorobenzene	ND	U	100	100	1.0
1,4-Dichlorobenzene	ND	U	100	100	1.0
1,2-Dichlorobenzene	ND	U	100	100	1.0
1,2,4-Trichlorobenzene	ND	U	100	100	1.0
Hexachlorobutadiene	ND	U	100	100	1.0
BFB-Surrogate Std. % Recovery	107%				70-130%

J- Analyte was detected. However the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Reporting Limit (RL).
E - Estimated value, result outside linear range of instrument.
U - Compound was analyzed for, but was not detected.
!! - Estimated

Sucha S. Parmar, PhD
Technical Director

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	: Shaw Environmental	DATE RECEIVED	: 06/09/06
PROJECT NO	: 060263	DATE REPORTED	: 06/20/06
MATRIX	: AIR		
UNITS	: PPB (v/v)		

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	A51, R2			Sample Reporting Limit (RLxDF's)	Method Reporting Limit
AAC ID	060263-15747				
Date Sampled	6/7/2006				
Date Analyzed	6/17/2006				
Can Dilution Factor	1.00				
	Result	Qualifier	Dil. Fac.		
Chlorodifluoromethane	574		100	100	1.0
Propylene	7960		1000	1000	1.0
Dichlorodifluoromethane	646		100	100	1.0
Chloromethane	ND	U	100	100	1.0
1,2-Dichloro-1,1,2,2-Tetrafluoroethane	ND	U	100	100	1.0
Vinyl Chloride	430		100	100	1.0
Methanol	ND	U	100	500	5.0
1,3-Butadiene	ND	U	100	100	1.0
Bromomethane	ND	U	100	100	1.0
Chloroethane	ND	U	100	100	1.0
Dichlorofluoromethane	ND	U	100	100	1.0
Ethanol	295		100	200	2.0
Vinyl Bromide	ND	U	100	100	1.0
Acetone	1030		100	200	2.0
Trichlorofluoromethane	ND	U	100	100	1.0
Isopropyl Alcohol	279		100	200	2.0
Acrylonitrile	ND	U	100	100	1.0
1,1-Dichloroethylene	ND	U	100	100	1.0
Methylene Chloride	ND	U	100	100	1.0
Allyl Chloride (Chloroprene)	ND	U	100	100	1.0
Carbon Disulfide	ND	U	100	100	1.0
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	U	100	100	1.0
t-1,2-Dichloroethylene	ND	U	100	100	1.0
1,1-Dichloroethane	ND	U	100	100	1.0
MTBE	ND	U	100	100	1.0
Vinyl Acetate	ND	U	100	100	1.0
2-Butanone (MEK)	1190		100	100	1.0
cis-1,2- Dichloroethene	172		100	100	1.0
Hexane	463		100	100	1.0
Chloroform	ND	U	100	100	1.0
Ethyl Acetate	ND	U	100	100	1.0
Tetrahydrofuran	1450		100	100	1.0
1,2-Dichloroethane	ND	U	100	100	1.0
1,1,1-Trichloroethane	ND	U	100	100	1.0

Atmospheric Analysis & Consulting, Inc.

Laboratory Analysis Report

CLIENT	**: Shaw Environmental**	**DATE RECEIVED**	**: 06/09/06**
PROJECT NO	**: 060263**	**DATE REPORTED**	**: 06/20/06**
MATRIX	**: AIR**		
UNITS	**: PPB (v/v)**		

VOLATILE ORGANIC COMPOUNDS BY EPA TO-15

Client ID	A51, R2			Sample Reporting Limit (RLxDF's)	Method Reporting Limit
AAC ID	060263-15747				
Date Sampled	6/7/2006				
Date Analyzed	6/17/2006				
Can Dilution Factor	1.00				
	Result	**Qualifier**	**Dil. Fac.**		
Benzene	336		100	100	1.0
Carbon Tetrachloride	ND	U	100	100	1.0
Cyclohexane	362		100	100	1.0
1,2-Dichloropropane	ND	U	100	100	1.0
Bromodichloromethane	ND	U	100	100	1.0
1,4-Dioxane	ND	U	100	100	1.0
Trichloroethene	ND	U	100	100	1.0
2,2,4-Trimethylpentane	174		100	100	1.0
Heptane	844		100	100	1.0
cis-1,3-Dichloropropene	ND	U	100	100	1.0
4-Methyl-2-Pentanone (MiBK)	157		100	100	1.0
t-1,3-Dichloropropene	ND	U	100	100	1.0
1,1,2-Trichloroethane	ND	U	100	100	1.0
Toluene	4260		100	100	1.0
2-Hexanone	ND	U	100	100	1.0
Dibromochloromethane	ND	U	100	100	1.0
1,2-Dibromoethane	ND	U	100	100	1.0
Tetrachloroethylene	ND	U	100	100	1.0
Chlorobenzene	ND	U	100	100	1.0
Ethylbenzene	1800		100	100	1.0
m- & p-Xylenes	2540		100	200	2.0
Bromoform	ND	U	100	300	3.0
Styrene	ND	U	100	100	1.0
1,1,2,2-Tetrachloroethane	ND	U	100	100	1.0
o-Xylene	719		100	100	1.0
4-Ethyltoluene	ND	U	100	100	1.0
1,3,5-Trimethylbenzene	ND	U	100	100	1.0
1,2,4-Trimethylbenzene	ND	U	100	100	1.0
Benzyl Chloride	ND	U	100	500	5.0
1,3-Dichlorobenzene	ND	U	100	100	1.0
1,4-Dichlorobenzene	ND	U	100	100	1.0
1,2-Dichlorobenzene	ND	U	100	100	1.0
1,2,4-Trichlorobenzene	ND	U	100	100	1.0
Hexachlorobutadiene	ND	U	100	100	1.0
BFB-Surrogate Std. % Recovery	106%				70-130%

J- Analyte was detected. However the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Reporting Limit (RL).
E - Estimated value, result outside linear range of instrument.
U - Compound was analyzed for, but was not detected.
!! - Estimated

Sucha S. Parmar, PhD
Technical Director

Atmospheric Analysis & Consulting, Inc.

Method Blank Analysis Report

MATRIX	**: AIR**	**ANALYSIS DATE**	**: 06/12/06**
UNITS	**: ppbv**	**REPORT DATE**	**: 06/16/06**

VOLATILE ORGANIC COMPOUNDS BY EPA TO-14/TO-15

Client ID / *AAC ID*	Method Blank MB 061206	RL
Chlorodifluoromethane*	<RL	1.0
Propylene*	<RL	1.0
DiClDIFMethane*	<RL	1.0
CHLOROMETHANE*	<RL	1.0
1,2 DiCl-1,1,2,2-TetraFEthane*	<RL	1.0
VINYL CHLORIDE*	<RL	1.0
Methanol*	<RL	5.0
1,3-Butadiene*	<RL	1.0
BROMOMETHANE*	<RL	1.0
CHLOROETHANE*	<RL	1.0
Dichlorofluoromethane	<RL	1.0
Ethanol*	<RL	2.0
Vinyl Bromide*	<RL	1.0
Acetone*	<RL	2.0
TRICHLOROFLUOROMETHANE*	<RL	1.0
Isopropyl Alcohol*	<RL	2.0
Acrylonitrile*	<RL	1.0
1,1 DICHLOROETHENE*	<RL	1.0
METHYLENE CHLORIDE*	<RL	1.0
Allyl CHLORIDE*	<RL	1.0
Carbon disulfide*	<RL	1.0
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE*	<RL	1.0
trans-1,2- DICHLOROETHYLENE*	<RL	1.0
1,1- DICHLOROETHANE*	<RL	1.0
MTBE*	<RL	1.0
Vinyl Acetate*	<RL	1.0
MEK*	<RL	1.0
cis-1,2- DICHLOROETHYLENE*	<RL	1.0
Hexane*	<RL	1.0
CHLOROFORM*	<RL	1.0
Ethyl Acetate*	<RL	1.0
Tetrahydrofuran*	<RL	1.0
1,2-DICHLOROETHANE*	<RL	1.0
1,1,1-TRICHLOROETHANE*	<RL	1.0
BENZENE**	<RL	1.0
CARBON TETRACHLORIDE**	<RL	1.0
Cyclohexane**	<RL	1.0
1,2-DICHLOROPROPANE**	<RL	1.0
Bromodichloromethane**	<RL	1.0
1,4-Dioxane**	<RL	1.0
TRICHLOROETHENE**	<RL	1.0
2,2,4-Trimethylpentane**	<RL	1.0
Heptane**	<RL	1.0

Atmospheric Analysis & Consulting, Inc.

Method Blank Analysis Report

MATRIX	**: AIR**	**ANALYSIS DATE**	**: 06/12/06**
UNITS	**: ppbv**	**REPORT DATE**	**: 06/16/06**

VOLATILE ORGANIC COMPOUNDS BY EPA TO-14/TO-15

Client ID / *AAC ID*	Method Blank MB 061206	RL
cis- 1,3 DICHLOROPROPENE**	<RL	1.0
MiBK**	<RL	1.0
trans 1,3 DICHLOROPROPENE**	<RL	1.0
1,1,2-TRICHLOROETHANE**	<RL	1.0
TOLUENE**	<RL	1.0
2-Hexanone**	<RL	1.0
Dibromochloromethane**	<RL	1.0
1,2 DIBROMOETHANE**	<RL	1.0
TETRACHLOROETHYLENE**	<RL	1.0
CHLOROBENZENE***	<RL	1.0
ETHYLBENZENE***	<RL	1.0
m-, & p- XYLENES***	<RL	2.0
Bromoform***	<RL	3.0
STYRENE***	<RL	1.0
1,1, 2,2- TETRACHLORETHANE***	<RL	1.0
o- XYLENE***	<RL	1.0
Ethyltoluene***	<RL	1.0
1,3,5- TRIMETHYLBENZENE***	<RL	1.0
1,2,4- TRIMETHYLBENZENE***	<RL	1.0
Benzyl Chloride***	<RL	5.0
1,3- DICHLOROBENZENE***	<RL	1.0
1,4- DICHLOROBENZENE***	<RL	1.0
1,2-DICHLOROBENZENE***	<RL	1.0
1,2,4 TRICHLOROBENZENE***	<RL	1.0
HEXACHLOROBUTADIENE***	<RL	1.0
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	97%	--

RL - Reporting Limit

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	**: 060264-15752**	**DATE ANALYZED**	**: 06/12/06**
MATRIX	**: Air**	**DATE REPORTED**	**: 06/16/06**
		UNITS	**: ppbv**

TO-14/TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane*	<RL	<RL	0.0
Propylene*	<RL	<RL	0.0
DiClDIFMethane*	<RL	<RL	0.0
CHLOROMETHANE*	<RL	<RL	0.0
1,2 DiCl-1,1,2,2-TetraFEthane*	<RL	<RL	0.0
VINYL CHLORIDE*	<RL	<RL	0.0
Methanol*	<RL	<RL	0.0
1,3-Butadiene*	<RL	<RL	0.0
BROMOMETHANE*	<RL	<RL	0.0
CHLOROETHANE*	<RL	<RL	0.0
Dichlorofluoromethane	<RL	<RL	0.0
Ethanol*	<RL	<RL	0.0
Vinyl Bromide*	<RL	<RL	0.0
Acetone*	5.79	5.50	5.1
TRICHLOROFLUOROMETHANE*	<RL	<RL	0.0
Isopropyl Alcohol*	<RL	<RL	0.0
Acrylonitrile*	<RL	<RL	0.0
1,1 DICHLOROETHENE*	<RL	<RL	0.0
METHYLENE CHLORIDE*	<RL	<RL	0.0
Allyl CHLORIDE*	<RL	<RL	0.0
Carbon disulfide*	<RL	<RL	0.0
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE*	<RL	<RL	0.0
trans-1,2- DICHLOROETHYLENE*	<RL	<RL	0.0
1,1- DICHLOROETHANE*	<RL	<RL	0.0
MTBE*	<RL	<RL	0.0
Vinyl Acetate*	<RL	<RL	0.0
MEK*	<RL	<RL	0.0
cis-1,2- DICHLOROETHYLENE*	<RL	<RL	0.0
Hexane*	<RL	<RL	0.0
CHLOROFORM*	<RL	<RL	0.0
Ethyl Acetate*	<RL	<RL	0.0
Tetrahydrofuran*	<RL	<RL	0.0
1,2-DICHLOROETHANE*	<RL	<RL	0.0
1,1,1-TRICHLOROETHANE*	<RL	<RL	0.0
BENZENE**	<RL	<RL	0.0
CARBON TETRACHLORIDE**	<RL	<RL	0.0

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	: 060264-15752	DATE ANALYZED	: 06/12/06
MATRIX	: Air	DATE REPORTED	: 06/16/06
		UNITS	: ppbv

TO-14/TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane**	<RL	<RL	0.0
1,2-DICHLOROPROPANE**	<RL	<RL	0.0
Bromodichloromethane**	<RL	<RL	0.0
1,4-Dioxane**	<RL	<RL	0.0
TRICHLOROETHENE**	<RL	<RL	0.0
2,2,4-Trimethylpentane**	<RL	<RL	0.0
Heptane**	<RL	<RL	0.0
cis- 1,3 DICHLOROPROPENE**	<RL	<RL	0.0
MiBK**	<RL	<RL	0.0
trans 1,3 DICHLOROPROPENE**	<RL	<RL	0.0
1,1,2-TRICHLOROETHANE**	<RL	<RL	0.0
TOLUENE**	<RL	<RL	0.0
2-Hexanone**	<RL	<RL	0.0
Dibromochloromethane**	<RL	<RL	0.0
1,2 DIBROMOETHANE**	<RL	<RL	0.0
TETRACHLOROETHYLENE**	<RL	<RL	0.0
CHLOROBENZENE***	<RL	<RL	0.0
ETHYLBENZENE***	<RL	<RL	0.0
m-, & p- XYLENES***	<RL	<RL	0.0
Bromoform***	<RL	<RL	0.0
STYRENE***	<RL	<RL	0.0
1,1,2,2-TETRACHLORETHANE***	<RL	<RL	0.0
o- XYLENE***	<RL	<RL	0.0
Ethyltoluene***	<RL	<RL	0.0
1,3,5- TRIMETHYLBENZENE***	<RL	<RL	0.0
1,2,4- TRIMETHYLBENZENE***	<RL	<RL	0.0
Benzyl Chloride***	<RL	<RL	0.0
1,3- DICHLOROBENZENE***	<RL	<RL	0.0
1,4- DICHLOROBENZENE***	<RL	<RL	0.0
1,2-DICHLOROBENZENE***	<RL	<RL	0.0
1,2,4 TRICHLOROBENZENE***	<RL	<RL	0.0
Hexachlorobutadiene***	<RL	<RL	0.0
System Monitoring Compounds			
BFB-Surrogate Std. % Recovery	95	98	2.8

RL - Reporting Limit

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Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

CLIENT ID	**: Laboratory Control Spike**	**DATE ANALYZED**	**: 06/17/06**
AAC ID	**: LCS/LCSD**	**DATE REPORTED**	**: 06/19/06**
MEDIA	**: Air**	**UNITS**	**: ppbv**

TO-14/15 Laboratory Control Spike Recovery

Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-DICHLOROETHYLENE	0.0	10.00	8.28	8.61	83	86	3.9
METHYLENECHLORIDE	0.0	10.00	10.93	11.19	109	112	2.4
BENZENE	0.0	10.00	10.61	11.02	106	110	3.8
TRICHLOROETHENE	0.0	10.00	11.04	11.51	110	115	4.2
TOLUENE	0.0	10.00	10.50	10.99	105	110	4.6
TETRACHLOROETHYLENE	0.0	10.00	10.27	10.88	103	109	5.8
CHLOROBENZENE	0.0	10.00	10.60	11.09	106	111	4.5
ETHYLBENZENE	0.0	10.00	10.64	11.20	106	112	5.1
m-, & p- XYLENES	0.0	20.00	21.57	23.25	108	116	7.5
o- XYLENE	0.0	10.00	11.00	11.66	110	117	5.8

* Must be 70-130%

** Must be < 25%

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Technical Director

Atmospheric Analysis & Consulting, Inc.

Method Blank Analysis Report

MATRIX	**: AIR**	**ANALYSIS DATE**	**: 06/17/06**
UNITS	**: ppbv**	**REPORT DATE**	**: 06/19/06**

VOLATILE ORGANIC COMPOUNDS BY EPA TO-14/TO-15

Client ID / *AAC ID*	Method Blank MB 061706	RL
Chlorodifluoromethane*	<RL	1.0
Propylene*	<RL	1.0
DiClDIFMethane*	<RL	1.0
CHLOROMETHANE*	<RL	1.0
1,2 DiCl-1,1,2,2-TetraFEthane*	<RL	1.0
VINYL CHLORIDE*	<RL	1.0
Methanol*	<RL	5.0
1,3-Butadiene*	<RL	1.0
BROMOMETHANE*	<RL	1.0
CHLOROETHANE*	<RL	1.0
Dichlorofluoromethane	<RL	1.0
Ethanol*	<RL	2.0
Vinyl Bromide*	<RL	1.0
Acetone*	<RL	2.0
TRICHLOROFLUOROMETHANE*	<RL	1.0
Isopropyl Alcohol*	<RL	2.0
Acrylonitrile*	<RL	1.0
1,1 DICHLOROETHENE*	<RL	1.0
METHYLENE CHLORIDE*	<RL	1.0
Allyl CHLORIDE*	<RL	1.0
Carbon disulfide*	<RL	1.0
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE*	<RL	1.0
trans-1,2- DICHLOROETHYLENE*	<RL	1.0
1,1- DICHLOROETHANE*	<RL	1.0
MTBE*	<RL	1.0
Vinyl Acetate*	<RL	1.0
MEK*	<RL	1.0
cis-1,2- DICHLOROETHYLENE*	<RL	1.0
Hexane*	<RL	1.0
CHLOROFORM*	<RL	1.0
Ethyl Acetate*	<RL	1.0
Tetrahydrofuran*	<RL	1.0
1,2-DICHLOROETHANE*	<RL	1.0
1,1,1-TRICHLOROETHANE*	<RL	1.0
BENZENE**	<RL	1.0
CARBON TETRACHLORIDE**	<RL	1.0
Cyclohexane**	<RL	1.0
1,2-DICHLOROPROPANE**	<RL	1.0
Bromodichloromethane**	<RL	1.0
1,4-Dioxane**	<RL	1.0
TRICHLOROETHENE**	<RL	1.0
2,2,4-Trimethylpentane**	<RL	1.0
Heptane**	<RL	1.0

Method Blank Analysis Report

MATRIX	**: AIR**	**ANALYSIS DATE**	**: 06/17/06**
UNITS	**: ppbv**	**REPORT DATE**	**: 06/19/06**

VOLATILE ORGANIC COMPOUNDS BY EPA TO-14/TO-15

Client ID / *AAC ID*	Method Blank MB 061706	RL
cis- 1,3 DICHLOROPROPENE**	<RL	1.0
MiBK**	<RL	1.0
trans 1,3 DICHLOROPROPENE**	<RL	1.0
1,1,2-TRICHLOROETHANE**	<RL	1.0
TOLUENE**	<RL	1.0
2-Hexanone**	<RL	1.0
Dibromochloromethane**	<RL	1.0
1,2 DIBROMOETHANE**	<RL	1.0
TETRACHLOROETHYLENE**	<RL	1.0
CHLOROBENZENE***	<RL	1.0
ETHYLBENZENE***	<RL	1.0
m-, & p- XYLENES***	<RL	2.0
Bromoform***	<RL	3.0
STYRENE***	<RL	1.0
1,1, 2,2- TETRACHLORETHANE***	<RL	1.0
o- XYLENE***	<RL	1.0
Ethyltoluene***	<RL	1.0
1,3,5- TRIMETHYLBENZENE***	<RL	1.0
1,2,4- TRIMETHYLBENZENE***	<RL	1.0
Benzyl Chloride***	<RL	5.0
1,3- DICHLOROBENZENE***	<RL	1.0
1,4- DICHLOROBENZENE***	<RL	1.0
1,2-DICHLOROBENZENE***	<RL	1.0
1,2,4 TRICHLOROBENZENE***	<RL	1.0
HEXACHLOROBUTADIENE***	<RL	1.0
System Monitoring Compounds		
BFB-Surrogate Std. % Recovery	96%	--

RL - Reporting Limit

Sucha S. Parmar, PhD
Technical Director

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	: 060283-15834	DATE ANALYZED	: 06/17/06
MATRIX	: Air	DATE REPORTED	: 06/19/06
		UNITS	: ppbv

TO-14/TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Chlorodifluoromethane*	<RL	<RL	0.0
Propylene*	<RL	<RL	0.0
DiClDIFMethane*	<RL	<RL	0.0
CHLOROMETHANE*	<RL	<RL	0.0
1,2 DiCl-1,1,2,2-TetraFEthane*	<RL	<RL	0.0
VINYL CHLORIDE*	<RL	<RL	0.0
Methanol*	11.30	9.78	14.4
1,3-Butadiene*	<RL	<RL	0.0
BROMOMETHANE*	<RL	<RL	0.0
CHLOROETHANE*	<RL	<RL	0.0
Dichlorofluoromethane	<RL	<RL	0.0
Ethanol*	4.92	4.18	16.3
Vinyl Bromide*	<RL	<RL	0.0
Acetone*	7.90	7.82	1.0
TRICHLOROFLUOROMETHANE*	<RL	<RL	0.0
Isopropyl Alcohol*	<RL	<RL	0.0
Acrylonitrile*	<RL	<RL	0.0
1,1 DICHLOROETHENE*	<RL	<RL	0.0
METHYLENE CHLORIDE*	6.43	6.19	3.8
Allyl CHLORIDE*	<RL	<RL	0.0
Carbon disulfide*	1.50	1.43	4.8
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE*	<RL	<RL	0.0
trans-1,2- DICHLOROETHYLENE*	<RL	<RL	0.0
1,1- DICHLOROETHANE*	<RL	<RL	0.0
MTBE*	<RL	<RL	0.0
Vinyl Acetate*	<RL	<RL	0.0
MEK*	<RL	<RL	0.0
cis-1,2- DICHLOROETHYLENE*	<RL	<RL	0.0
Hexane*	2.30	2.32	0.9
CHLOROFORM*	<RL	<RL	0.0
Ethyl Acetate*	<RL	<RL	0.0
Tetrahydrofuran*	<RL	<RL	0.0
1,2-DICHLOROETHANE*	<RL	<RL	0.0
1,1,1-TRICHLOROETHANE*	<RL	<RL	0.0
BENZENE**	<RL	<RL	0.0
CARBON TETRACHLORIDE**	<RL	<RL	0.0

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

AAC ID	**: 060283-15834**	**DATE ANALYZED**	**: 06/17/06**
MATRIX	**: Air**	**DATE REPORTED**	**: 06/19/06**
		UNITS	**: ppbv**

TO-14/TO-15 Duplicate Analysis

Compound	Sample Conc	Duplicate Conc	% RPD
Cyclohexane**	<RL	<RL	0.0
1,2-DICHLOROPROPANE**	<RL	<RL	0.0
Bromodichloromethane**	<RL	<RL	0.0
1,4-Dioxane**	<RL	<RL	0.0
TRICHLOROETHENE**	<RL	<RL	0.0
2,2,4-Trimethylpentane**	<RL	<RL	0.0
Heptane**	<RL	<RL	0.0
cis- 1,3 DICHLOROPROPENE**	<RL	<RL	0.0
MiBK**	<RL	<RL	0.0
trans 1,3 DICHLOROPROPENE**	<RL	<RL	0.0
1,1,2-TRICHLOROETHANE**	<RL	<RL	0.0
TOLUENE**	2.40	2.43	1.2
2-Hexanone**	<RL	<RL	0.0
Dibromochloromethane**	<RL	<RL	0.0
1,2 DIBROMOETHANE**	<RL	<RL	0.0
TETRACHLOROETHYLENE**	<RL	<RL	0.0
CHLOROBENZENE***	<RL	<RL	0.0
ETHYLBENZENE***	<RL	<RL	0.0
m-, & p- XYLENES***	<RL	<RL	0.0
Bromoform***	<RL	<RL	0.0
STYRENE***	<RL	<RL	0.0
1,1,2,2-TETRACHLORETHANE***	<RL	<RL	0.0
o- XYLENE***	<RL	<RL	0.0
Ethyltoluene***	<RL	<RL	0.0
1,3,5- TRIMETHYLBENZENE***	<RL	<RL	0.0
1,2,4- TRIMETHYLBENZENE***	<RL	<RL	0.0
Benzyl Chloride***	<RL	<RL	0.0
1,3- DICHLOROBENZENE***	<RL	<RL	0.0
1,4- DICHLOROBENZENE***	<RL	<RL	0.0
1,2-DICHLOROBENZENE***	<RL	<RL	0.0
1,2,4 TRICHLOROBENZENE***	<RL	<RL	0.0
Hexachlorobutadiene***	<RL	<RL	0.0
System Monitoring Compounds			
BFB-Surrogate Std. % Recovery	99	98	0.8

RL - Reporting Limit

Sucha S. Parmar, PhD
Technical Director

ANALYSIS DATE : 06/17/06
ANALYST : JJG
INSTRUMENT ID : GC/MS-02
STD ID : PS061406-09

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-14/TO-15

Continuing Calibration Verification of the 06/16/06 Calibration

Compounds	*Conc*	*Daily Conc*	*%REC*
4-BFB (surrogate standard)***	10	10.94	109
Chlorodifluoromethane*	10	10.76	108
Propylene*	10	10.53	105
DiClDIFMethane*	10	11.78	118
CHLOROMETHANE*	10	11.05	111
1,2 DiCl-1,1,2,2-TetraFEthane*	10	8.90	89
VINYL CHLORIDE*	10	11.03	110
Methanol*	10	11.23	112
1,3-Butadiene*	10	11.41	114
BROMOMETHANE*	10	11.03	110
CHLOROETHANE*	10	11.01	110
Dichlorofluoromethane*	10	11.59	116
Ethanol*	10	10.91	109
Vinyl Bromide*	10	8.70	87
Acetone*	10	11.06	111
TRICHLOROFLUOROMETHANE*	10	11.49	115
Isopropanol*	10	10.81	108
Acrylonitrile*	10	10.68	107
1,1 DICHLOROETHENE*	10	8.28	83
METHYLENE CHLORIDE*	10	10.93	109
Allyl CHLORIDE*	10	8.10	81
Carbon disulfide*	10	9.04	90
1,1,2-TRICHLORO-1,2,2-TRIFLUO	10	9.43	94
trans-1,2- DICHLOROETHYLENE*	10	8.15	82
1,1- DICHLOROETHANE*	10	7.85	79
MTBE*	10	7.70	77
Vinyl Acetate*	10	7.72	77
MEK*	10	9.69	97
cis-1,2- DICHLOROETHYLENE*	10	10.37	104
Hexane*	10	10.23	102
CHLOROFORM*	10	10.14	101
Ethyl Acetate*	10	10.25	103
Tetrahydrofuran*	10	9.30	93
1,2-DICHLOROETHANE*	10	9.48	95
1,1,1-TRICHLOROETHANE*	10	8.91	89

Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 06/17/06
ANALYST : JJG
INSTRUMENT ID : GC/MS-02
STD ID : PS061406-09

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-14/TO-15

Continuing Calibration Verification of the 06/16/06 Calibration

Compounds	*Conc*	*Daily Conc*	*%REC*
BENZENE**	10	10.61	106
CARBON TETRACHLORIDE**	10	11.08	111
Cyclohexane**	10	10.99	110
1,2-DICHLOROPROPANE**	10	10.52	105
Bromodichloromethane**	10	10.91	109
1,4-Dioxane**	10	11.03	110
TRICHLOROETHENE**	10	11.04	110
2,2,4-Trimethylpentane**	10	11.35	114
Heptane**	10	10.67	107
cis- 1,3 DICHLOROPROPENE**	10	10.96	110
MiBK**	10	10.72	107
trans 1,3 DICHLOROPROPENE**	10	11.17	112
1,1,2-TRICHLOROETHANE**	10	10.43	104
TOLUENE**	10	10.50	105
2-Hexanone**	10	11.16	112
Dibromochloromethane**	10	10.74	107
1,2 DIBROMOETHANE**	10	10.98	110
TETRACHLOROETHYLENE**	10	10.27	103
CHLOROBENZENE***	10	10.60	106
ETHYLBENZENE***	10	10.64	106
m-, & p- XYLENES***	20	21.57	108
Bromoform***	10	10.96	110
STYRENE***	10	10.86	109
1,1, 2,2- TETRACHLORETHANE**	10	11.13	111
o- XYLENE***	10	11.00	110
Ethyltoluene***	10	11.68	117
1,3,5- TRIMETHYLBENZENE***	10	11.51	115
1,2,4- TRIMETHYLBENZENE***	10	11.20	112
Benzyl Chloride***	10	10.55	106
1,3- DICHLOROBENZENE***	10	11.00	110
1,4- DICHLOROBENZENE***	10	10.91	109
1,2-DICHLOROBENZENE***	10	11.22	112
1,2,4-TRICHLOROBENZENE***	10	9.32	93
HEXACHLOROBUTADIENE***	10	11.16	112

* Internal std calculation IS1 : Bromochloromethane
** Internal std calculation IS2 : 1,4-Difluorobenzene
*** Internal std calculation IS3 : Chlorobenzene-d5
%REC should be 70-130%
!! Compound failed criteria and results should be considered estimated.

Sucha S. Parmar, PhD
Technical Director

Atmospheric Analysis & Consulting, Inc.

Quality Control/Quality Assurance Report

CLIENT ID	**: Laboratory Control Spike**	**DATE ANALYZED**	**: 06/12/06**
AAC ID	**: LCS/LCSD**	**DATE REPORTED**	**: 06/16/06**
MEDIA	**: Air**	**UNITS**	**: ppbv**

TO-14/15 Laboratory Control Spike Recovery

Compound	Sample Conc.	Spike Added	Spike Res	Dup Spike Res	Spike % Rec *	Spike Dup % Rec *	RPD** %
1,1-DICHLOROETHYLENE	0.0	10.00	9.67	10.06	97	101	4.0
METHYLENECHLORIDE	0.0	10.00	9.01	9.05	90	90	0.4
BENZENE	0.0	10.00	8.88	9.23	89	92	3.9
TRICHLOROETHENE	0.0	10.00	9.03	9.59	90	96	6.0
TOLUENE	0.0	10.00	8.36	8.65	84	86	3.4
TETRACHLOROETHYLENE	0.0	10.00	8.78	9.14	88	91	4.0
CHLOROBENZENE	0.0	10.00	10.84	11.09	108	111	2.3
ETHYLBENZENE	0.0	10.00	9.01	9.24	90	92	2.5
m-, & p- XYLENES	0.0	20.00	18.21	18.74	91	94	2.9
o- XYLENE	0.0	10.00	9.83	9.80	98	98	0.3

* Must be 70-130%

** Must be < 25%

Sucha S. Parmar, PhD
Technical Director

ANALYSIS DATE : 06/12/06
ANALYST : JJG
INSTRUMENT ID : GC/MS-02
STD ID : PS052306-07

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-14/TO-15

Continuing Calibration Verification of the 06/09/06 Calibration

Compounds	*Conc*	*Daily Conc*	*%REC*
4-BFB (surrogate standard)***	10	10.73	107
Chlorodifluoromethane*	10	9.33	93
Propylene*	10	8.02	80
DiClDIFMethane*	10	9.75	98
CHLOROMETHANE*	10	9.50	95
1,2 DiCl-1,1,2,2-TetraFEthane*	10	9.58	96
VINYL CHLORIDE*	10	9.60	96
Methanol*	10	8.01	80
1,3-Butadiene*	10	9.77	98
BROMOMETHANE*	10	9.51	95
CHLOROETHANE*	10	9.35	94
Dichlorofluoromethane*	10	9.77	98
Ethanol*	10	8.91	89
Vinyl Bromide*	10	9.96	100
Acetone*	10	10.17	102
TRICHLOROFLUOROMETHANE*	10	9.70	97
Isopropanol*	10	9.54	95
Acrylonitrile*	10	9.84	98
1,1 DICHLOROETHENE*	10	9.67	97
METHYLENE CHLORIDE*	10	9.01	90
Allyl CHLORIDE*	10	9.96	100
Carbon disulfide*	10	9.58	96
1,1,2-TRICHLORO-1,2,2-TRIFLUO	10	9.42	94
trans-1,2- DICHLOROETHYLENE*	10	9.25	93
1,1- DICHLOROETHANE*	10	9.44	94
MTBE*	10	9.81	98
Vinyl Acetate*	10	9.65	97
MEK*	10	9.85	99
cis-1,2- DICHLOROETHYLENE*	10	11.11	111
Hexane*	10	11.06	111
CHLOROFORM*	10	11.37	114
Ethyl Acetate*	10	11.14	111
Tetrahydrofuran*	10	11.17	112
1,2-DICHLOROETHANE*	10	11.02	110
1,1,1-TRICHLOROETHANE*	10	10.77	108

Atmospheric Analysis & Consulting, Inc.

ANALYSIS DATE : 06/12/06
ANALYST : JJG
INSTRUMENT ID : GC/MS-02
STD ID : PS052306-07

VOLATILE ORGANIC COMPOUNDS BY EPA METHOD TO-14/TO-15

Continuing Calibration Verification of the 06/09/06 Calibration

Compounds	*Conc*	*Daily Conc*	*%REC*
BENZENE**	10	8.88	89
CARBON TETRACHLORIDE**	10	8.78	88
Cyclohexane**	10	8.92	89
1,2-DICHLOROPROPANE**	10	10.43	104
Bromodichloromethane**	10	10.57	106
1,4-Dioxane**	10	8.61	86
TRICHLOROETHENE**	10	9.03	90
2,2,4-Trimethylpentane**	10	9.17	92
Heptane**	10	8.70	87
cis- 1,3 DICHLOROPROPENE**	10	8.05	81
MiBK**	10	8.44	84
trans 1,3 DICHLOROPROPENE**	10	8.14	81
1,1,2-TRICHLOROETHANE**	10	10.24	102
TOLUENE**	10	8.36	84
2-Hexanone**	10	8.12	81
Dibromochloromethane**	10	10.69	107
1,2 DIBROMOETHANE**	10	8.43	84
TETRACHLOROETHYLENE**	10	8.78	88
CHLOROBENZENE***	10	10.84	108
ETHYLBENZENE***	10	9.01	90
m-, & p- XYLENES***	20	18.21	91
Bromoform***	10	11.67	117
STYRENE***	10	8.59	86
1,1, 2,2- TETRACHLORETHANE**	10	11.23	112
o- XYLENE***	10	9.83	98
Ethyltoluene***	10	9.81	98
1,3,5- TRIMETHYLBENZENE***	10	10.34	103
1,2,4- TRIMETHYLBENZENE***	10	10.27	103
Benzyl Chloride***	10	8.41	84
1,3- DICHLOROBENZENE***	10	10.02	100
1,4- DICHLOROBENZENE***	10	9.46	95
1,2-DICHLOROBENZENE***	10	9.89	99
1,2,4-TRICHLOROBENZENE***	10	8.74	87
HEXACHLOROBUTADIENE***	10	11.44	114

* Internal std calculation IS1 : Bromochloromethane

** Internal std calculation IS2 : 1,4-Difluorobenzene

*** Internal std calculation IS3 : Chlorobenzene-d5

%REC should be 70-130%

!! Compound failed criteria and results should be considered estimated.

Sucha S. Parmar, PhD
Technical Director

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

060263

Laboratory

AAC

Shaw Environmental Chain Of Custody Record

CLIENT: Redwood Land fill

DATE: 6-8-06

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
- Analyze Dup if O_2 is greater than 3% O_2

REQUESTED ANALYSIS

FIELD NOTES:
Container/Preservative or PID Readings or Laboratory Notes

LAB USE ONLY	Field Sample Identification	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Landfill Gas List	TO-15 List	Sulfur List								Land fill Gas
	A50, R2	6/7		Bag	1	X						15746				Land fill Gas List:
																- O_2, CO_2, N_2 - M3C
	A51 R2	6/8		Bag	1	X		X	X			15747				- NMOC - M-25C
	A51 Dup	6/8		Bag	1							15748				- F factor
																- HHV
																- C_1 - C_6
																* Organic + Sulfur Compounds
																See attached list

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) Bill Joe 6-8-06	Received by: (Signature)	Date: 6/9/06	Time: 8:30 AM

03/06/03 Revision

Appendix E
Source Test Plan and
California Air Resources Board Independent Contractor Certification

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

Shaw™ Shaw Environmental, Inc.

VIA FAX 415-749-4922

To: Tim Underwood, BAAQMD Date: May 24, 2006
Subject: Source Test Protocol & Test Notification

SOURCE TEST PROTOCOL
FOR
REDWOOD LANDFILL
FLARES, A-50 & A-51

Shaw Environmental, Inc. (Shaw) will perform compliance testing on landfill gas flares A-50 and A-51 located at the Redwood Landfill in Novato, 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) Major Facility Review (MFR) Title V permits and Regulation 8, Rule 34. This protocol is to inform the BAAQMD of the planned test date and testing procedures. Shaw is approved by the California Air Resources Board (ARB) as an independent contractor to conduct compliance emission testing.

Source Test Information, Redwood Landfill

Test Location:	Redwood Landfill, Inc. 8950 Redwood Highway Novato, CA 94948 BAAQMD MFR Number A1179	Contact: Ms. Beth Shiverdecker Telephone: 925-719-0016
Source to be Tested:	Flares A-50 and A-51	
Test Objective:	Determine compliance with Title V Permit and Regulation 8, Rule 34 Flare: Permit Condition Number 19867	Emission Limits: NO_x: 15 ppm @3% O_2 CO: 123 ppmv @3% O_2 NMOC: > 98% destruction efficiency or < 30 ppm as methane at 3% O_2
Test to be Performed By:	Shaw Environmental, Inc. 2360 Bering Drive San Jose, CA 95131	Contact: Bill Johnston Tel: (408) 382-5822
Test date	June 7&8, 2006	
Test Parameters:	Inlet O_2, CO_2, N_2, HHV THC, CH_4, NMOC, Sulfur Species, VOCs, landfill gas flow rate	Outlet NMOC, NO_x, CO, Volumetric flow rate

SCOPE OF WORK

A source test will be performed on flares A-50 and A-51 located at the Redwood Landfill. The flare source test shall determine the following parameters as specified in the facility's Title V permit condition number 19867 and BAAQMD Regulation 8, Rule 34. The following items in the condition will be met.

- Determine landfill gas flow rate (dry basis);
- The landfill gas shall be analyzed for higher heating value (HHV), carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), total hydrocarbons (THC), methane (CH_4), non-methane organic compounds (NMOC), speciated organic and sulfur compounds. All concentrations shall be reported on a dry basis;
- Stack gas flow rate from the flare;
- Concentrations (dry basis) of NMOC, CO, NO_x, and O_2 in the flare stack gas;
- NOx and CO emission rates will be reported in units of lbs/MMBTU;
- NMOC destruction efficiency achieved by the flare, if the outlet NMOC is greater than30 parts per million by volume (ppmv), expressed as methane at 3 percent oxygen on a dry basis.;
- The average combustion temperature in the flare during the test period.
- A characterization of the landfill gas for all the compounds listed below, as identified in Part 31-a of the condition.

The source test will demonstrate the following limits.

- Emissions of NOx shall not exceed 0.06 pounds per million BTU (lb/MMBtu) or exceed 15 ppmv corrected to 15 percent O_2.
- Emissions of CO shall not exceed 0.30 lb/MMBtu or exceed 123 ppmv corrected to 15 percent O_2.
- 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.
- Concentrations of selected organic and sulfur compounds, as identified in Part 18, a and b of the condition.

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. Samples will be analyzed within 72 hours (48 hrs for sulfur). One of the samples will be analyzed for speciated organics and sulfur compounds.

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 Redwood Landfill
LFG and Flares A-50 & A-51

Sample Parameter	Test Method	Runs	Test Duration
LFG Parameters- Flare Inlet			
Gas flow rate	Flow meter	3	30 Minutes
Fuel factor	EPA Method 19	3	30 Minutes
Fixed gases [1]	ASTM D1945, EPA Method 18	1	
Volatile Organic Compounds [2]	EPA Method TO 15	1	30 Minutes
Sulfur compounds [2]	ASTM D5504	1	30 Minutes
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

[1] Fixed gases include HHV, CO_2, N_2, O_2, THC and CH_4 .

[2] Only one sample will be analyzed for the test program.

REPORT

The final report is due to the BAAQMD 45 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 reported in units of the appropriate standard. 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.

TEST SCHEDULE

The source test is scheduled for June 7&8, 2006. One flare will be tested per day.

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, 2006 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

Final

MAJOR FACILITY REVIEW PERMIT

Issued To:
Redwood Landfill, Inc.
Facility #A1179

Facility Address:
8950 Redwood Highway
Novato, CA 94948

Mailing Address:
P. O. Box 793
Novato, CA 94948

Responsible Official	**Facility Contact**
Ramin Khany	Beth Shiverdecker
Landfill Manager	Environmental Compliance Specialist
415-892-2851	415-892-2851

Type of Facility:	Landfill for Solid Waste Disposal	BAAQMD Engineering Division Contact:
Primary SIC:	4953	Carol S. Allen
Product:	Refuse and Sludge Disposal	

ISSUED BY THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Signed by Jack P. Broadbent — April 18, 2006
Jack P. Broadbent, Executive Officer/Air Pollution Control Officer — Date

VI. Permit Conditions

Condition # 19867

FOR: S-5 REDWOOD LANDFILL WITH GAS COLLECTION SYSTEM; A-18 WATER SPRAYS; A-50 LANDFILL GAS FLARE; AND A-51 LANDFILL GAS FLARE

	Required Components
Total Number of Vertical Wells:	86
Total Number of Horizontal Collectors:	8

b. The Permit Holder has been issued an Authority to Construct for the landfill gas collection system components listed below. Specific well and collector locations, depths, and lengths of associated piping are as described in detail in Permit Application # 13027.

	Minimum	Maximum
Install New Vertical Wells:	0	30
Decommission Vertical Wells:	0	18
Install New Horizontal Collectors	0	10
Decommission Horizontal Collectors	0	4
Replace Vertical Wells *	0	15

* one-for-one well replacement at new optimal locations

Wells installed or shutdown pursuant to subpart b shall be added to or removed from 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 decommissioning date for each well that is shut down and the initial operation date for each new well.

(Basis: Regulations 2-1-301, 8-34-301.1, 8-34-304, 8-34-305, and 2-6-413)

18. If a gas characterization test indicates that this site's landfill gas contains organic compounds in excess of any of the concentrations listed in Parts 18a or 18b below, then the Permit Holder shall submit an application for a Change of Permit Conditions, within no later than 30 days from receipt of the test results.

a. Total Non-Methane Organic Compounds: 750 ppmv
(calculated as hexane equivalent)
(Basis: Cumulative Increase)

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*b. For toxic air contaminants (TACs):

Compound	Concentration
Acrylonitrile	280 ppbv
Benzene	340 ppbv
Carbon Tetrachloride	70 ppbv
Chloroform	70 ppbv
1,4 Dichlorobenzene	400 ppbv
1,1 Dichloroethane	150 ppbv
Ethylene Dibromide	70 ppbv
Ethylene Dichloride	70 ppbv
Methylene Chloride	320 ppbv
Perchloroethylene	450 ppbv
1,1,2,2 Tetrachloroethane	70 ppbv
Trichloroethylene	250 ppbv
Vinyl Chloride	880 ppbv

(Basis: Toxic Risk Management Policy)

c. The concentration of total reduced sulfur compounds (TRS) in collected landfill gas shall not exceed a peak of 1300 ppmv (calculated as H2S) and shall not exceed an annual average of 425 ppmv (calculated as H2S). The peak and annual average TRS concentrations shall be measured and calculated in accordance with Parts 31a and 31b.
(Basis: Cumulative Increase, RACT, and Regulation 9-1-302)

19. The A-50 and A-51 Landfill Gas Flares shall be fired on landfill gas and may also be used to abate leachate vapors from the S-50 Leachate Vaporator. (Basis: RACT and Regulation 2-2-112)

20. The total combined throughput of landfill gas (with an HHV of 500 BTU/scf) to the A-50 Landfill Gas Flare and the A-51 Landfill Gas Flare shall not exceed 1,490,000,000 scf during any consecutive 12-month period and shall not exceed 5,760,000 scf during any one day. In order to demonstrate compliance with this condition, the A-50 and A-51 Flares shall be equipped with ~~a~~ one or more properly operating continuous gas flow meters. (Basis: Cumulative Increase, 40 CFR 60.756(b)(2)(i))

21. [deleted]

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22. The temperature in the combustion zone of each flare shall be maintained at the minimum temperature listed below, averaged over any 3-hour period. In order to demonstrate compliance with this condition, A-50 and A-51 shall each be equipped with a continuous temperature monitor and recorder. If a source test demonstrates compliance with all applicable requirements at a different temperature, the APCO may revise these temperature limits, 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.
    a. The minimum combustion zone temperature for A-50 is 1475 degrees F, averaged over any 3-hour period.
    b. The minimum combustion zone temperature for A-51 is 1422 degrees F, averaged over any 3-hour period.

    (Basis: Toxic Risk Management Policy, Regulations 8-34-301.3 and 8-34-501.3, and 40 CFR 60.756(b)(1))

23. The A-50 and A-51 Landfill Gas Flares shall comply with the NMOC emission limit in Regulation 8-34-301.3.
    (Basis: Cumulative Increase, 8-34-301.3, and 40 CFR 60.752(b)(2)(iii)(B))

*24. The A-50 and A-51 Landfill Gas Flares shall each achieve a minimum destruction efficiency of 83% by weight for any EPA Hazardous Air Pollutants or any District toxic compounds that are determined to be present in the landfill gas or leachate vapors. (Basis: Toxic Risk Management Policy)

25. Nitrogen oxides (NO_x) emissions from each enclosed flare (A-50 and A-51) shall not exceed 0.06 pounds of NO_x, calculated as NO_2, per million BTU. Compliance with this emission limit may be demonstrated by not exceeding the following flue gas concentration limit: 15 ppmv of NO_x, corrected to 15% oxygen, dry basis.
    (Basis: RACT and Offsets)

26. Carbon monoxide (CO) emissions from each enclosed flare (A-50 and A-51) shall not exceed 0.30 pounds of CO per million BTU. Compliance with this emission limit may be demonstrated by not exceeding the following flue gas concentration limit: 123 ppmv of CO, corrected to 15% oxygen, dry basis.
    (Basis: RACT and Cumulative Increase)

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27. [deleted]

28. [deleted]

29. The Permit Holder shall maintain records of all planned and unanticipated shut downs of the A-50 and A-51 Flares and of any temperature excursions. The records shall include the date, time, duration, and reason for any shut down or excursion. Any unanticipated shut downs or temperature excursions shall be reported to the Enforcement Division immediately. All inspection and maintenance records, records of shut downs and excursions, gas flow records, temperature records, analytical results, source test results, and any other records required to demonstrate compliance with the above permit conditions, Regulation 8 Rule 34, or 40 CFR Part 60 Subpart WWW shall be retained on site for a minimum of five years and shall be made available to District staff upon request. (Basis: 2-6-501, 8-34-501, 40 CFR 60.758)

30. In order to demonstrate compliance with Parts 23, 25, and 26 above, Regulation 8, Rule 34, Sections 301.3 and 412, and 40 CFR 60.8 and 60.752(b)(2)(iii)(B), the Permit Holder shall ensure that a District approved source test is conducted annually on the A-50 Landfill Gas Flare and the A-51 Landfill Gas Flare. Each annual source test shall determine the following:
    a. landfill gas flow rate to the flare (dry basis);
    b. concentrations (dry basis) of carbon dioxide (CO_2), nitrogen (N_2), oxygen (O_2), total hydrocarbons (THC), 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 NO_x, CO, NMOC, and O_2 in the flare stack gas;
    e. NMOC destruction efficiency achieved by the flare;
    f. NO_x and CO emission rates from the flare in units of pounds per MM BTU,
    g. average combustion zone temperature in the flare during the test period.

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The first source test for A-51 shall be conducted no later than 60 days after the initial start-up date for A-51. Each annual source test shall be conducted no earlier than 9 months and no later than 12 months after the previous annual 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 and the Source Test Section within 60 days of the test date.
(Basis: Cumulative Increase, Toxic Risk Management Policy, RACT, Offsets, Regulations 8-34-301.3, 8-34-412, 40 CFR 60.8 and 40 CFR 60.752(b)(2)(iii)(B))

31. Landfill Gas Testing:
    a. The Permit Holder shall conduct a characterization of the landfill gas on a quarterly basis with one test concurrent with one of the annual source tests required by Part 30 above. The landfill gas sample shall be drawn from the main landfill gas header. Each quarterly landfill gas sample shall be analyzed for the sulfur compounds listed below. Once per year (concurrent with a Part 30 annual source test) 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 laboratory analysis report for the annual organic and sulfur compound gas characterization test shall be included with the Part 30 source test report and shall be submitted to the Compliance and Enforcement Division and the Source Test Section within 60 days of the test date. (Basis: Toxic Risk Management Policy and Regulations 8-34-412 and 9-1-302)

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Organic Compounds	Organic Compounds	Sulfur Compounds
acrylonitrile	ethylene dibromide	carbon disulfide
benzene	fluorotrichloromethane	carbonyl sulfide
carbon tetrachloride	hexane	dimethyl sulfide
chlorobenzene	isopropyl alcohol	ethyl mercaptan
chlorodifluoromethane	methyl ethyl ketone	hydrogen sulfide
chloroethane	methylene chloride	methyl mercaptan
chloroform	perchloroethylene	
1,1 dichloroethane	toluene	
1,1 dichlorethene	1,1,1 trichloroethane	
1,2 dichlorethane	1,1,2,2 tetrachloroethane	
1,4 dichlorbenzene	trichloroethylene	
dichlorodifluoromethane	vinyl chloride	
dichlorofluoromethane	xylenes	
ethylbenzene		

b. Once per week, beginning no later than March 31, 2005, the Permit Holder shall analyze the landfill gas for hydrogen sulfide (H2S) concentration using a Draeger tube to further demonstrate compliance with Part 18c and Regulation 9-1-302. The landfill gas sample shall be drawn from the main landfill gas header. The Permit Holder shall follow the manufacturer's procedures for using the Draeger tube and interpreting the results. The total reduced sulfur (TRS) content of the landfill gas shall be calculated using the average ratio of TRS/H2S for this site according to the following equation: TRS = 1.015 * H2S measured by Draeger tube. The Permit Holder shall maintain records of all Draeger tube test dates and test results and shall summarize the average H2S concentrations and the calculated TRS content of the landfill gas on a quarterly basis. Each Draeger tube test result (after conversion to TRS content) and the quarterly laboratory analysis in Part 31a shall be compared to the Peak TRS Limit in Part 18c. On a rolling quarterly basis, the Permit Holder shall determine the annual average TRS content for comparison to the Annual Average TRS Limit in Part 18c. (Basis: Cumulative Increase, RACT, and Regulation 9-1-302).

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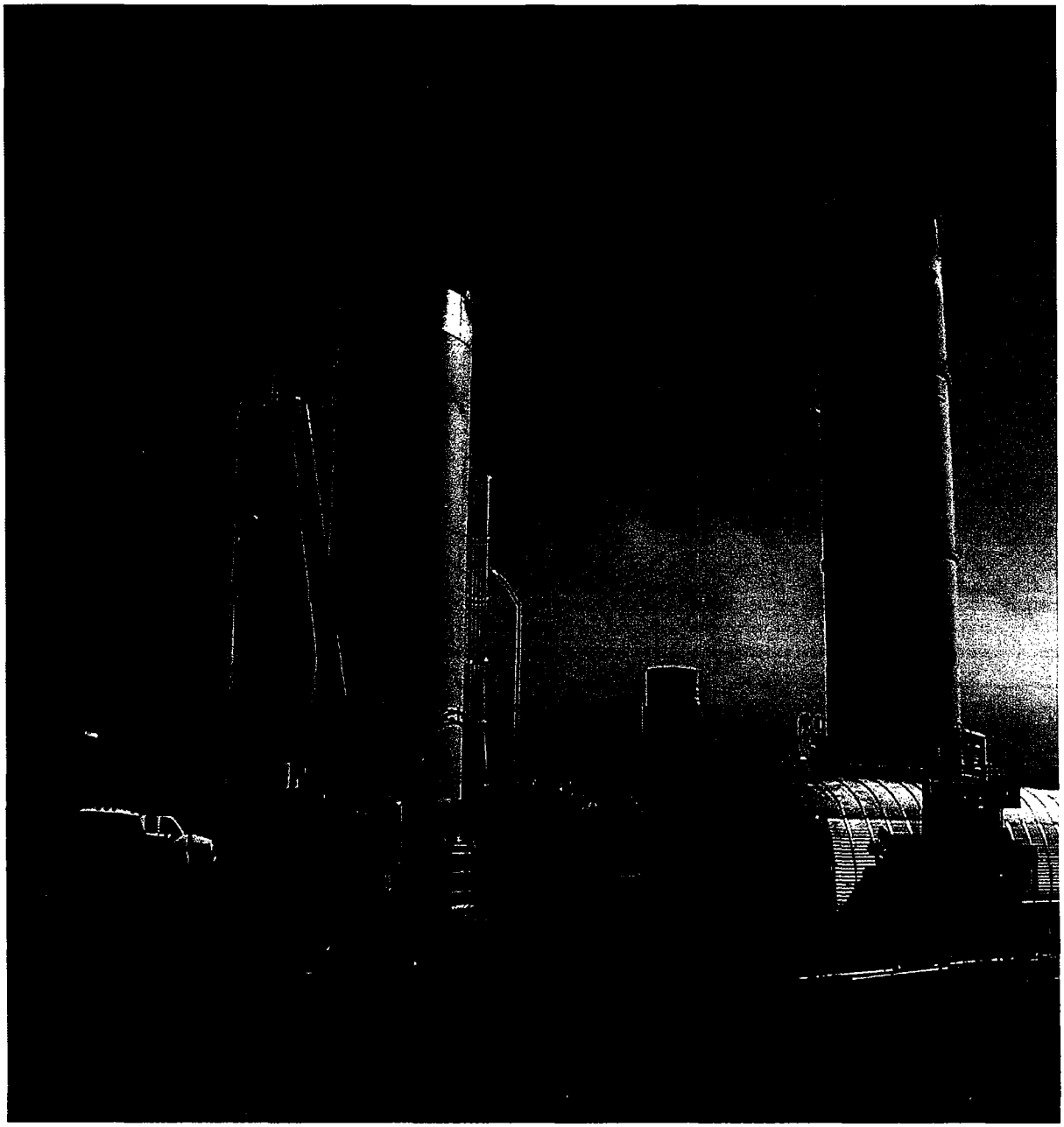
32. The annual report required by BAAQMD Regulation 8-34-411 shall be submitted in two semi-annual increments. The reporting period for the first increment of the Regulation 8-34-411 annual report that is submitted subsequent to the issuance of the MFR Permit for this site shall be from December 1, 2003 through April 30, 2004. This first increment report shall be submitted by May 31, 2004. The reporting periods and report submittal due dates for all subsequent increments of the Regulation 8-34-411 report 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 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))

Appendix G
Site Picture

Redwood Landfill Flares



A-51 **A-50**