

Note: This is a reference cited in *AP 42, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources*. AP42 is located on the EPA web site at www.epa.gov/ttn/chief/ap42/

The file name refers to the reference number, the AP42 chapter and section. The file name "ref02_c01s02.pdf" would mean the reference is from AP42 chapter 1 section 2. The reference may be from a previous version of the section and no longer cited. The primary source should always be checked.

Durham Road

LFG EFD AP42

4 57 40 0

Phone (415) 532-1400

America, Inc.

*Rating = B
Locking some
data*

LETTER OF TRANSMITTAL

TO WMNA

Oakbrook

DATE	10/31/88	JOB NO	3-8C2
ATTENTION	Ken Kruszynski		
RE	McGill Flare		
	Destruction Efficiency Test		
	Durham Road Landfill		
	Fremont, CA		

GENTLEMEN:

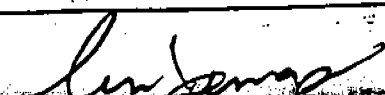
WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

- | | | | | |
|---|---------------------------------------|--------------------------------|----------------------------------|---|
| ☐ Shop drawings | ☐ Prints | ☐ Plans | ☐ Samples | ☐ Specifications |
| ☐ Copy of letter | ☐ Change order | ☐ | | |

COPIES	DATE	NO.	DESCRIPTION
1	10/19/88		Report, Destruction Test, Flare, Durham Road Landfill Fremont, California

THESE ARE TRANSMITTED as checked below:

- | | | |
|--|---|---|
| ☐ For approval | ☐ Approved as submitted | ☐ Resubmit _____ copies for approval |
| ☒ For your use | ☐ Approved as noted | ☐ Submit _____ copies for distribution |
| ☒ As requested | ☐ Returned for corrections | ☐ Return _____ corrected prints |
| ☐ For review and comment | ☐ | |
| ☐ FOR BIDS DUE _____ 19 _____ | ☐ PRINTS RETURNED AFTER LOAN TO US | |

REMARKS Three inlet and three outlet samples were analyzed. These
McGill Flares seem to be remarkably efficient.P.S. Knock a couple of hours off your next billing for your
Altamont job in exchange for this.COPY TO Dave Edwards w/attachmentSIGNED: 



October 19, 1988
Project 248-07.01

3-802

Mr. Chris Jennings
Waste Management of North America
2000 Embarcadero, Suite 300
Oakland, California 94606

Re: Destruction Test for
Vinyl Chloride -
Durham Road Landfill

Dear Chris:

A source test to determine the destruction efficiency of the landfill gas flare at the Durham Road Landfill for vinyl chloride (VC) was conducted on September 1, 1988.

Thermo Analytic, Inc. (TMA) was retained to assist in sample collection, determine the stack gas velocity and volumetric flow rate, determine the stack gas traverse point, measure the water vapor content of the exhaust gas, and analyze the stack gas for oxygen (O_2) and carbon dioxide (CO_2). EMCON staff coordinated the work and obtained three samples each of the raw gas, and the combusted gas being emitted from the flare stack. The collected samples and the quality control samples were forwarded to Central Coast Analytical Services (CCAS), San Luis Obispo, for analysis. Before sampling, EMCON's sampling equipment and Tedlar bags were carefully tested to ensure that they were clean. The data obtained during these testing activities has been documented in the enclosed attachments as follows:

- Attachment 1 contains the EMCON quality control data that demonstrates that the EMCON sampling equipment had no detectable contamination.
- Attachment 2 contains the field sampling data for each of the six samples collected at the site on September 1, 1988.

- Attachment 3 is TMA's sampling report containing the data collected by TMA and the formula used for calculating the destruction efficiency.
- Attachment 4 is the CCAS analytical results.

A summary of the VC concentrations encountered during the tests is shown below.

Bag	VC Concentration (ppb)
IN - 1	6,000
IN - 2	5,800
IN - 3	6,000
OUT - 1	ND
OUT - 2	ND
OUT - 2 (duplicate)	ND
OUT - 3	ND
OUT - 4 (QC field blank)	ND

Since no vinyl chloride was detected in the flare exhaust, the destruction efficiency is 100 percent. This indicates excellent combustion conditions for VC and should satisfy the Bay Area Air Quality Management District's concern for VC emissions.

Please call me if you have any questions.

Very truly yours,

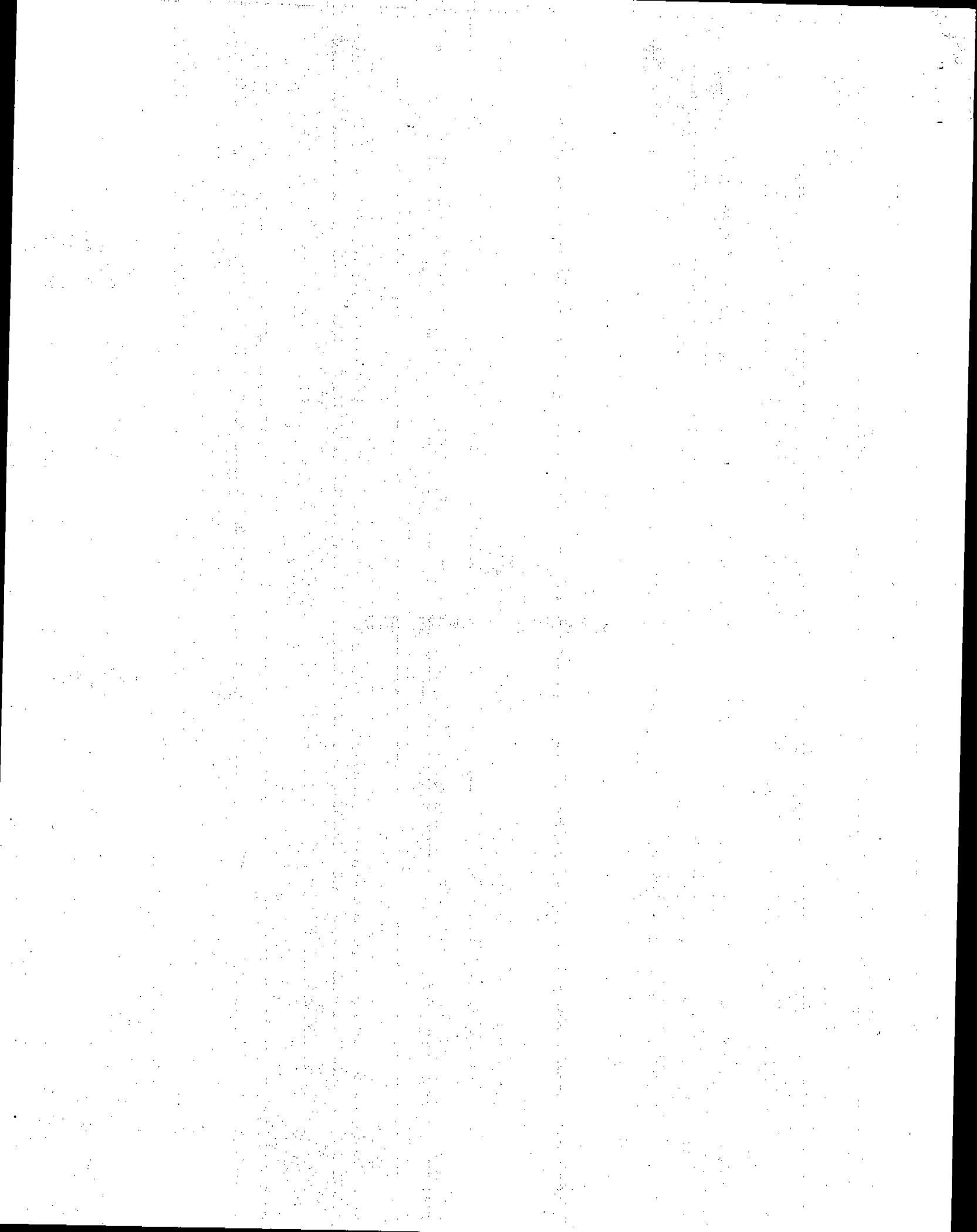
EMCON Associates


Robert E. Van Heut
Executive Manager

REXH:sp

ATTACHMENT 1

EMCON QUALITY CONTROL DATA



Project Number: 248-07.01

Oakland Scavenger Company
2099 Gateway Place, Suite 200
San Jose, CA 95110

Location: DURHAM ROAD

Sample Type: AIR
Units: nl/l

Sample Designation:	N2 BLANK	34-93-01	N2 BLANK	34-93-06
Field Date:	08/26/88	08/26/88	08/29/88	08/29/88
Laboratory Number:	E88-0993	E88-0993	E88-0993	E88-0993
Vinyl chloride	<1.5	<1.5	<1.5	<1.5
Methylene chloride	<1.0	<1.0	<1.0	<1.0
Chloroform	<0.2	<0.2	<0.2	<0.2
1,1,1-Trichloroethane	<0.2	<0.2	<0.2	<0.2
Carbon tetrachloride	<0.08	<0.08	<0.08	<0.08
Benzene	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	<0.2	<0.2	<0.2	<0.2
Trichloroethene	<0.3	<0.3	<0.3	<0.3
Tetrachloroethene	<0.1	<0.1	<0.1	<0.1
1,2-Dibromoethane	<0.2	<0.2	<0.2	<0.2

Sample Designation:	N2 BLANK	PUMP13	N2 BLANK	PUMP7
Field Date:	08/30/88	08/30/88	08/31/88	08/31/88
Laboratory Number:	E88-0993	E88-0993	E88-0993	E88-0993
Vinyl chloride	<1.5	<1.5	<1.5	<1.5
Methylene chloride	<1.0	<1.0	<1.0	<1.0
Chloroform	<0.2	<0.2	<0.2	<0.2
1,1,1-Trichloroethane	<0.2	<0.2	<0.2	<0.2
Carbon tetrachloride	<0.08	<0.08	<0.08	<0.08
Benzene	<1.0	<1.0	<1.0	<1.0
1,2-Dichloroethane	<0.2	<0.2	<0.2	<0.2
Trichloroethene	<0.3	<0.3	<0.3	<0.3
Tetrachloroethene	<0.1	<0.1	<0.1	<0.1
1,2-Dibromoethane	<0.2	<0.2	<0.2	<0.2

Data Reviewed By

Kenneth Murphy

Date

September 20, 1988

Oakland Scavenger Company
2099 Gateway Place, Suite 200
San Jose, CA 95110

Date: 20 SEP 88
Project Number: 248-07.01

Location: DURHAM ROAD

METHODS OF ANALYSIS

=====

Sample Type: AIR

PARAMETER

METHOD

Vinyl chloride
Methylene chloride
Chloroform
1,2-Dichloroethane
1,1,1-Trichloroethane
Carbon tetrachloride
Trichloroethene
Benzene
1,2-Dibromoethane
Tetrachloroethene

The method of analysis is taken from California Air Resources Board (Haagan-Smit Laboratory) methods 102 and 103. The samples are tested by gas chromatography using a trap technique. Detection is by means of photoionization and electron capture detectors.

ATTACHMENT 2

EMCON FIELD SAMPLING DATA



CALDERON AIR/GAS SAMPLING PROBE/WELL FIELD DATA SHEET

PROJECT NO: 249-07.01

SAMPLE ID NO: IN-1 12:00 h

LOCATION: Durham Rd

SAMPLER: TD

DATE: 9/1/88

SUPERVISOR: [Signature]

SAMPLE POINT ☐ Well ☐ Probe ☒ Gas System Inlet

BORING DIAMETER NA Inches

DEPTH OF BORING NA Ft. LENGTH OF GRAVEL PACK NA Ft.

PURGE VOLUME NA l.

F=PURGE FLOW PUMP RATE= NA l/min.

V/F= CALCULATED PURGE TIME= NA min.

ACTUAL PURGE TIME= NA min.

FIELD MEASUREMENTS

INITIAL

FINAL

GASTECH

Oxygen %

NA

Trace

Time

2:28 p

Gas %

43

Time

2:28 p

LEL %

NA

Time

NA

OVA

Methane, ppm

NA

Time

NA

GAS COLLECTIONS SYSTEM

☒ YES

☐ NO

OPERATING

☒ YES

☐ NO

HOURS OF OPERATION

24 hrs

PUMP NO. AA-17

BAG I.D. NO. 34-93-02



SUPERVISOR: _____

BAG I.D. NO. 34-93-03

47

2:42 f

47

2:42 p

NH

NA

NA

NA



CALDERON AIR/GAS SAMPLING PROBE/WELL FIELD DATA SHEET

PROJECT NO: 248-07.01

SAMPLE ID NO: In-3

LOCATION: Durham Rd

SAMPLER: S. McCullough

DATE: 9/1/88

SUPERVISOR: [Signature]

SAMPLE POINT ☐ Well ☐ Probe ☒ Gas System

BORING DIAMETER NA Inches

DEPTH OF BORING NA Ft. LENGTH OF GRAVEL PACK NA Ft.

PURGE VOLUME NA l.

F=PURGE FLOW PUMP RATE= NA l/min.

V/F= CALCULATED PURGE TIME= NA min.

ACTUAL PURGE TIME= NA min.

FIELD MEASUREMENTS

INITIAL

FINAL

GASTECH

Oxygen %

NA

Trace

Time

3:28

Gas %

4.7

Time

3:28

LEL %

NA

Time

NA

OVA

Methane, ppm

NA

Time

NA

GAS COLLECTIONS SYSTEM

☒ YES

☐ NO

OPERATING

☒ YES

☐ NO

HOURS OF OPERATION 24 Hrs

PUMP NO. AA # 7

BAG I.D. NO. 34-93-04



CALDERON AIR/GAS SAMPLING PROBE/WELL FIELD DATA SHEET

PROJECT NO: 248-07.01

SAMPLE ID NO: OUT-1

LOCATION: Durham Rd

SAMPLER: S. McCullough

DATE: 9/1/88

SUPERVISOR: [Signature]

SAMPLE POINT ☐ Well ☐ Probe ☒ Gas System

BORING DIAMETER: NA Inches

DEPTH OF BORING NA Ft. LENGTH OF GRAVEL PACK NA Ft.

PURGE VOLUME NA l.

F=PURGE FLOW PUMP RATE= NA l/min.

V/F= CALCULATED PURGE TIME= NA min.

ACTUAL PURGE TIME= NA min.

FIELD MEASUREMENTS

INITIAL

FINAL

GASTECH

Oxygen %

NA

11.5

Time

|

2:35

Gas %

|

ND

Time

|

2:35

LEL %

|

ND

Time

|

2:35

OVA

Methane, ppm

NA

Time

NA

GAS COLLECTIONS SYSTEM

☒ YES

☐ NO

OPERATING

☒ YES

☐ NO

HOURS OF OPERATION 24 Hrs

PUMP NO. AP-13

BAG I.D. NO. 34-93-05



CALDERON AIR/GAS SAMPLING PROBE/WELL FIELD DATA SHEET

PROJECT NO: 248-07.01

SAMPLE ID NO: out-2

LOCATION: Durham Rd

SAMPLER: S. McCullough

DATE: 9/1/88

SUPERVISOR: [Signature]

SAMPLE POINT ☐ Well ☐ Probe ☒ Gas System

BORING DIAMETER NA Inches

DEPTH OF BORING NA Ft. LENGTH OF GRAVEL PACK NA Ft.

PURGE VOLUME NA l.

F=PURGE FLOW PUMP RATE= NA l/min.

V/F= CALCULATED PURGE TIME= NA min.

ACTUAL PURGE TIME= NA min.

FIELD MEASUREMENTS

INITIAL

FINAL

GASTECH

Oxygen %

NA

11.5

Time

|

2:48

Gas %

|

ND

Time

|

2:48

LEL %

|

ND

Time

↓

2:48

OVA

Methane, ppm

NA

Time

NA

GAS COLLECTIONS SYSTEM

☒ YES

☐ NO

OPERATING

☒ YES

☐ NO

HOURS OF OPERATION 24 Hrs

PUMP NO. AA 13

BAG I.D. NO. 34-93-07



CALDERON AIR/GAS SAMPLING PROBE/WELL FIELD DATA SHEET

PROJECT NO: 248-07.01

SAMPLE ID NO: OUT-3

LOCATION: Durham Rd

SAMPLER: S. McCullough

DATE: 7/1/22

SUPERVISOR: [Signature]

SAMPLE POINT ☐ Well ☐ Probe ☒ Gas System

BORING DIAMETER NA Inches

DEPTH OF BORING NA Ft. LENGTH OF GRAVEL PACK NA Ft

PURGE VOLUME NA l.

F=PURGE FLOW PUMP RATE= NA l/min.

V/F= CALCULATED PURGE TIME= NA min.

ACTUAL PURGE TIME= NA min.

FIELD MEASUREMENTS

INITIAL

FINAL

GASTECH

Oxygen %

NA

12

Time

3:31

Gas %

ND

Time

3:31

LEL %

ND

Time

3:31

OVA

Methane, ppm

NA

Time

NA

GAS COLLECTIONS SYSTEM

☒ YES

☐ NO

OPERATING

☒ YES

☐ NO

HOURS OF OPERATION 2.4 Hrs

PUMP NO. AA 13

BAG I.D. NO. 34-93-08

* Please date comments

(To be filled by the sampling department and laboratory. Sampling supervisor is ultimately responsible to return the form to the project manager)

ATTACHMENT 3
THERMO ANALYTICAL, INC
SAMPLING REPORT

TMA
Thermo Analytical Inc.

TMA/Norcal

2030 Wright Avenue

P.O. Box 4040

Richmond, CA 94804-0040

(415) 235-2633

September 16, 1988

EMCON
1921 Ringwood Avenue
San Jose, CA 95131

Attention: Mr. Tim Dean

Reference: EMCON Project #2480701; TMA/Norcal C.N. 2170-192

Subject: Stack gas flow rate calculations for the Durham Road Landfill Gas Flare.

Test Methodology: On September 1, 1988, Guy Worthington and Craig Thiry of TMA/Norcal performed the following source test methods to determine the outlet flow rate in Standard Dry Cubic Feet Per Minute:

BAAQMD Method ST-17	Stack Gas Velocity and Volumetric Flow Rate
BAAQMD Method ST-18	Stack Gas Traverse Point Determination
BAAQMD Method ST-23	Water Vapor Sampling
BAAQMD Method ST-24	Stack Gas O ₂ and CO ₂ Determination by Orsat Analysis

The inlet flow rate could not be calculated using the same techniques so the facility gas flow rate monitor was used. The inlet gas flow rate monitor read 40% of 1500 CFM, or 600 CFM for the duration of the test. This value appears to be reasonable when compared to calculations based upon the landfill gas composition, stoichiometric combustion and excess air.

Results

Average Inlet Flow Rate (SDCFM)	approx. 600
Average Outlet Flow Rate (SDCFM)	7,742
Average Outlet Temp, °F	1,342
Average Outlet Water Vapor, %	5.3
Average Outlet Velocity, ft/sec.	12.95
Average Outlet Oxygen %	12.1
Average Outlet Carbon Dioxide %	7.8

2-EMCON

September 16, 1988

To calculate the destruction efficiency of the compounds sampled by Emcon personnel, the ppm levels and molecular weights must be known and converted to inlet and outlet emission rates using the following formula.

$$\text{lbs/hr} = \text{ppm} \times \text{MW} \times \text{SDCFM} \times 1.55 \times 10^{-7} \dots\dots\dots 1$$

$$\% \text{ efficiency} = \frac{\text{lbs/hr (inlet)} - \text{lbs/hr (outlet)}}{\text{lbs/hr (inlet)}} \dots\dots\dots 2$$

Lbs/hr can be substituted by grams or milligrams by multiplying by 454 or 454,000, respectively.

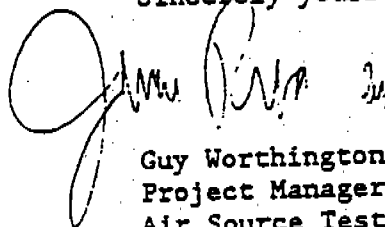
ppm can be substituted by ppb $\times 10^{-3}$.

Comments:

Field Data Sheets and Volumetric Flow Calculations are appended to this report.

If you have any questions, please do not hesitate to call.

Sincerely yours,



Guy Worthington
Project Manager
Air Source Testing

Enclosures: As stated
GW/sc

FIELD ANALYTICAL

Client : DURHAM RD LANDFILL Date Tested : 9/1/1988

Test No. : 1 Time : 1215

Gas Flow Rate Data

Point	h	T.	Vel.Ft/Sec	Point	h	T.	Vel...Ft/s
1	.01	188	6.2	9	.024	1440	14.4
2	.01	405	7.2	10	.022	1440	15.7
3	.01	880	8.9	11	.022	1480	15.9
4	.015	1099	11.8	12	.021	1440	15.4
5	.015	1280	12.4	13	.02	1460	15.1
6	.02	1330	14.5	14	.02	1440	15
7	.02	1340	14.6	15	.019	1430	14.6
8	.02	1350	14.6	16	.018	1430	14.2
9	.02	1450	15				
10	.023	1440	16.1				
11	.025	1420	16.7				
12	.025	1440	16.8				
13	.025	1470	16.9				
14	.025	1470	16.9				
15	.025	1450	16.8				
16	.02	1450	15				
1	.01	970	9.2				
2	.015	1197	12.1				
3	.02	1300	14.4				
4	.02	1325	14.5				
5	.02	1360	14.7				
6	.021	1380	15.1				
7	.021	1422	15.3				
8	.024	1430	16.4				

$$V_s = C_p [h * (T + 460)]^{.5} [1/M.W. * P_s]^{.5} * 85.49$$

Conc. of CO2 = 8 %

Conc. of O2 = 12 %

Conc. of H2O = 5.3 %

Avg. Gas Velocity; V_s , Avg. 14.2 Ft/Sec

Pitot Tube Correction Factor, C_p .84

Duct Gas Molecular Weight, M.W. 29.25

Duct Pressure, P_s 29.82 "Hg

Barometric Pressure 29.95 "Hg

Duct Size Round 81 In. Diameter

Static Pressure -.4 "H2O

Duct Area 35.78 Sq. Ft

Avg. Gas Temp. 1293

Gas Flow Rate 14.2 Ft/Sec * 35.78 Sq. Ft * 60 = 30484 CFM

30484 CFM * 530 / 1753 * 29.82 / 29.92 * (1.00 - 5.3 / 100 * H2O) = 8694 SDCFM

M.W. Factor =

Standard Cond. Temp = 70

THERMO ANALYTICAL

Client : DURHAM RD LANDFILL Date Tested : 9/1/1999

Test No. : 2

Time : 1520

Gas Flow Rate Data

Point	h	T.	Vel.Ft/Sec	Point	h	T.	Vel...Ft/Sec
1	0	695	0	9	.012	1450	11.6
2	0	1050	0	10	.018	1494	14.4
3	.012	1260	11.1	11	.016	1470	13.5
4	.012	1320	11.2	12	.016	1470	13.5
5	.014	1360	12.3	13	.012	1470	11.7
6	.012	1400	11.5	14	.011	1450	11.2
7	.015	1430	13	15	.01	1450	10.6
8	.015	1437	13	16	.009	1450	10.1
9	.017	1466	13.9				
10	.02	1460	15.1				
11	.02	1460	15.1				
12	.022	1480	15.9				
13	.022	1480	15.9				
14	.022	1470	15.9				
15	.022	1480	15.9				
16	.021	1480	15.5				
1	.008	1280	9.1				
2	.008	1300	9.1				
3	.008	1450	9.5				
4	.009	1390	9.9				
5	.01	1400	10.5				
6	.01	1430	10.6				
7	.01	1430	10.6				
8	.012	1450	11.6				

$$V_s = C_p [h * (T + 460)]^{.5} [1/M.W. * P_s]^{.5} * 85.49$$

Conc. of CO2 = 7.5 %

Conc. of O2 = 12.2 %

Conc. of H2O = 5.3 %

Avg. Gas Velocity; V_s , Avg. 11.7 Ft/Sec

Pitot Tube Correction Factor, C_p .84

Duct Gas Molecular Weight, M.W. 29.18

Duct Pressure, P_s . 29.85 "Hg

Barometric Pressure 29.95 "Hg

Duct Size Round 81 In. Diameter

Static Pressure -.045 "H2O

Duct Area 35.78 Sq. Ft

Avg. Gas Temp. 1392

Gas Flow Rate 11.7 Ft/Sec * 35.78 Sq. Ft * 60 = 25117 CFM

$$25117 \text{ CFM} * 530 / 1852 * 29.85 / 29.92 * (1.00 - 5.3 / 100\% \text{H}_2\text{O}) = 4789 \text{ SDCFM}$$

M.W. Factor = .0338

Standard Cond. Temp. 70

THERMO ANALYTICAL

Client : DURHAM FLARE

Date Tested : 9/1/88

Test No. : 1

Time : 1200

GAS SAMPLE DATA

Avg Gas Meter Pressure 0 "Hg

Avg Gas Meter Temp 89

Barometric Pressure 29.85 "Hg

Condensate 26 ml

Sample Volume 22.85 CF

Condensed Water Vapor:

$$VW = 0.00267 * 26 * 530 / 29.92 = 1.23 \text{ SDCF}$$

Corrected Meter Volume:

$$V_0 = 22.85 * 29.85 / 29.92 * 530 / 549 = 22.01 \text{ SDCF}$$

Percent Water Vapor:

$$\% \text{ H}_2\text{O} = 1.23 / 23.24 * 100 = 5.3 \%$$

40% of 1500 CFM INCO

TMA/NORCAL INC.

Air Pollution Analysis

INCINERATOR TEMP

WASTE MANAGE. RECORDER

Source Test Field Data Sheet

DATE:

PLANT: DURHAM FLARE

SAMPLE TYPE: U_s , H_2O

DUCT LOCATION: REDURHAM CARBIDE

DUCT DIAM: 88" - 7" ST

FITTING SIZE: 22" PETS 7" DEEP

WALL THICKNESS:

DUCT STATIC PRESS: -0.4

1570°F

1245

1350

1245

1245

1245

1245

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REMARKS

SAMPLING H_2O

PITOT TRAVERSE

DUCT TRAVERSE

Point	In from wall	Time: 1205		Time: 1215		Point	Meter Rate CFM	Meter Temp Inlet	Meter Temp Outlet	Vol. Ft	Orif. Sett.	Pump Vac.	REMARKS
		ΔH "H ₂ O	Duct Temp °F	Vel FPS	Δh "H ₂ O								
NORTH													
1.7	11	.01	188		0.00	970		94	98	766.30		22"	Seal catch ok
4.9	40	.01	405		.015	1197		86	96	772			
8.5	68	.01	580		.020	1300		85	95	777			
2.5	101	.015	1094		.020	1325		87	95	781			
6.9	137	.015	1280		.020	1360		89	97	788			
2.0	178	.020	1330		.021	1380		89	99	789.15			
8.3	229	.02	1340		.021	1422		89	99	789.15			
12.5	304	.02	1350		.024	1430							
62.5	506	.02	1450		.024	1440							
11.7	581	.023	1440		.022	1440							
18.0	632	.025	1420		.022	1460							
13.1	673	.025	1440		.021	1470							
82.5	709	.025	1470		.020	1460							
91.5	741	.025	1470		.020	1440							
25.1	778	.025	1450		.019	1430							
18.4	794	.02	1450		.019	1430							

Lab Sampling Time: Stop: Start:

Team Member's:

SWT CT

TMA/NORCAL, INC.

Air Pollution Analysis

Source Test Field Data Sheet

DATE: 9-1-58
PLANT: DURHAM RD FRAGE-

SAMPLE TYPE: Vs
DUCT LOCATION: DURHAM RD LANDFILL
DUCT DIAM: 8"
FITTING SIZE: _____
WALL THICKNESS: _____
DUCT STATIC PRESS: -0.045

Test Number 2

ORIFICE _____
FILTER NO. _____
NOZZLE DIAM./AREA FT _____
NOZZLE TYPE/NUMBER _____
GAS COLLECTOR _____
METER NO. _____
BAROMETRIC PRESS. _____
MAGNETIC _____
TRAVERSE PITOT TUBE _____
MONITORING PITOT TUBE _____
INITIAL IMP. VOL. _____
CONDENSATE _____
FINAL IMP. VOL. _____

NOZZLE TRAVERSE				PITOT MONITOR				SAMPLING							REMARKS	
Point	In from wall	Time: 1525		Vel FPS	Δh "H ₂ O	Duct Temp °F	Vel FPS	Time	Point	Meter Rate CFM	Meter Temp Inlet	Meter Temp Outlet	Vol. Ft.	Orif. Setc.		Pump Vac.
		Δh "H ₂ O	Duct Temp °F													
1		0.00	145		0.008	1300	1528									
2		0.00	1050		0.008	1300										
3		0.012	1260		0.008	1450										
4		0.012	1320		0.009	1390										
5		0.014	1360		0.010	1400										
6		0.012	1400		0.010	1430										
7		0.015	1430		0.010	1430										
8		0.015	1437		0.012	1450										
9		0.017	1466		0.012	1450										
10		0.020	1460		0.018	1471										
11		0.020	1460		0.016	1470										
12		0.022	1480		0.016	1470										
13		0.022	1480		0.012	1470										
14		0.022	1470		0.011	1460										
15		0.022	1480		0.016	1450										
16		0.021	1460		0.009	1450										

Gas Sampling Time: _____ Stop: _____
Start: _____

Team Numbers: _____

ATTACHMENT 4

CENTRAL COAST ANALYTICAL SERVICES

ANALYTICAL RESULTS

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8876
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-02, In-1

CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations ug/cu M			<i>Infilt Con.</i>
			ppbv	ppm	
Benzene	9.	7900.	2300.	2.30	3.03
Carbon Tetrachloride	5.	not found	not found	.0025	.0033
Chloroform	2.	not found	not found	.001	.0013
1,2-Dichloroethane	10.	530.	120.	0.12	0.16
Ethylene Dibromide	1.	not found	not found	.0005	.0007
Methylene Chloride	60.	23000.	6000.	6.00	7.89
Tetrachloroethylene(PCE)	4.	56000.	7600.	7.60	10.0
1,1,1-Trichloroethane(TCA)	8.	4000.	670.	0.67	0.88
Trichloroethylene(TCE)	9.	15000.	2500.	2.50	3.29
Vinyl Chloride	20.	17000.	6000.	6.00	7.89

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

$CH_4 = 51$
 $CO_2 = 25$ > 0.76

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.

Laurence R. Hilpert

Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8876air/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8877
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD

SUBMITTED BY:
Encon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-87.01
Bag #34-93-03, In-2

CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations ug/cu M	ppbv (ppm)	Infelt Con
Benzene	9.	8500.	2400. 2.4	2.89
Carbon Tetrachloride	5.	not found	not found .0025	.003
Chloroform	2.	not found	not found .001	.0012
1,2-Dichloroethane	10.	550.	130. 0.13	0.16
Ethylene Dibromide	1.	not found	not found .0005	.0006
Methylene Chloride	60.	23000.	6100. 6.10	7.35
Tetrachloroethylene(PCE)	4.	61000.	8200. 8.20	9.88
1,1,1-Trichloroethane(TCA)	8.	4500.	750. 0.75	0.90
Trichloroethylene(TCE)	9.	15000.	2600. 2.60	3.13
Vinyl Chloride	20.	16000.	5800. 5.80	6.99

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

CH₄ = 58 > 0.83
CO₂ = 25

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.

Laurence R. Hilpert

Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8877air/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8878
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-87.01
Bag #34-93-04, In-3

CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations ug/cu M	ppbv (ppm)	Infil. Corr.
Benzene	9.	11000.	3100. 3.10	3.69
Carbon Tetrachloride	5.	not found	not found .0025	.003
Chloroform	2.	110.	20. .020	.024
1,2-Dichloroethane	10.	600.	140. 0.14	0.17
Ethylene Dibromide	1.	not found	not found .0005	.0006
Methylene Chloride	60.	24000.	6400. 6.40	7.62
Tetrachloroethylene (PCE)	4.	67000.	9100. 9.10	10.8
1,1,1-Trichloroethane (TCA)	8.	4600.	770. 0.77	0.92
Trichloroethylene (TCE)	9.	16000.	2700. 2.70	3.21
Vinyl Chloride	20.	17000.	6000. 6.00	7.14

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

CH₄ = 58 > 0.84
CO₂ = 26

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.

Laurence R. Hilpert

Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8878air/RH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: QA SPIKE
Collected:
Received:
Tested: 09/04/88
Collected by: JAC

SUBMITTED BY:
CCAS

SAMPLE DESCRIPTION:
CERTIFIED REFERENCE STANDARD
Benzene 100, Carbon Tetrachloride 97,
Chloroform 100, Tetrachloroethylene 97,
Vinyl Chloride 110 ppbv.

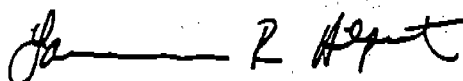
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations ug/cu M	ppbv
Benzene	0.09	345.	99.
Carbon Tetrachloride	0.07	680.	99.
Chloroform	0.09	573.	107.
1,2-Dichloroethane	0.1	not found	not found
Ethylene Dibromide	0.06	not found	not found
Methylene Chloride	1.0	not found	not found
Tetrachloroethylene(PCE)	0.1	739.	100.
1,1,1-Trichloroethane(TCA)	0.08	not found	not found
Trichloroethylene(TCE)	0.09	not found	not found
Vinyl Chloride	0.2	291.	104.

STATEMENT OF ACCURACY AND PRECISION: The mean percent recovery is 100.
The standard deviation is 5.8.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
S090488air/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8879
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-87.01
Bag #34-93-05, Out-1

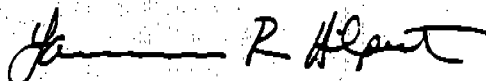
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations	
		ug/cu M	ppbv
Benzene	0.09	not found	not found
Carbon Tetrachloride	0.07	not found	not found
Chloroform	0.09	not found	not found
1,2-Dichloroethane	0.1	not found	not found
Ethylene Dibromide	0.06	not found	not found
Methylene Chloride	1.0	5.4	1.4
Tetrachloroethylene(PCE)	0.1	27.	3.7
1,1,1-Trichloroethane(TCA)	0.08	not found	not found
Trichloroethylene(TCE)	0.09	not found	not found
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8879air/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8876
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-02, In-1

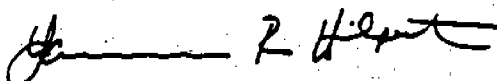
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit	Concentrations	
	ppbv	ug/cu M	ppbv
Vinyl Chloride	20.	17000.	6000.

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
EB8768/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8877
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD

SUBMITTED BY:
Encon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-87.01
Bag #34-93-03, In-2

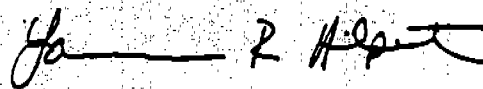
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit	Concentrations	
	ppbv	ug/cu M	ppbv
Vinyl Chloride	20.	16000.	5800.

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8877B/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8878
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-04, In-3

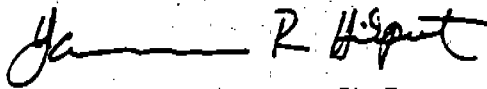
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit		Concentrations	
	ppbv	ug/cu M	ppbv	
Vinyl Chloride	20.	17000.	6000.	

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.


Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E88788/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8879
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-05, Out-1

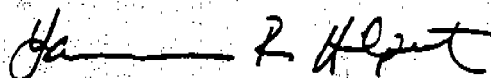
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit	Concentrations	
	ppbv	ug/cu M	ppbv
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8879B/LRH58
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: B-596488
Collected:
Received:
Tested: 09/04/88
Collected by: EJAC

SUBMITTED BY:
CCAS

SAMPLE DESCRIPTION:

Zero Air Blank

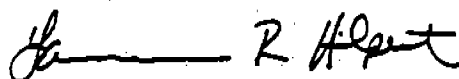
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations	
		ug/cu M	ppbv
Benzene	0.09	not found	not found
Carbon Tetrachloride	0.07	not found	not found
Chloroform	0.09	not found	not found
1,2-Dichloroethane	0.1	not found	not found
Ethylene Dibromide	0.06	not found	not found
Methylene Chloride	1.0	not found	not found
Tetrachloroethylene(PCE)	0.1	not found	not found
1,1,1-Trichloroethane(TCA)	0.08	not found	not found
Trichloroethylene(TCE)	0.09	not found	not found
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
B096488air/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8882
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-01, Out-4
Field Q.C. Blank

CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations	
		ug/cu M	ppbv
Benzene	0.09	3.2	0.9
Carbon Tetrachloride	0.07	not found	not found
Chloroform	0.09	not found	not found
1,2-Dichloroethane	0.1	not found	not found
Ethylene Dibromide	0.06	not found	not found
Methylene Chloride	1.0	17.	4.4
Tetrachloroethylene(PCE)	0.1	11.	1.5
1,1,1-Trichloroethane(TCA)	0.08	not found	not found
Trichloroethylene(TCE)	0.09	not found	not found
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.

Laurence R. Hilpert

Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8882air/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8881
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-08, Out-3

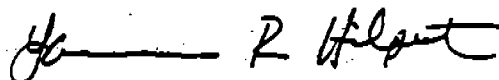
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations	
		ug/cu M	ppbv
Benzene	0.09	2.4	0.7
Carbon Tetrachloride	0.07	not found	not found
Chloroform	0.09	not found	not found
1,2-Dichloroethane	0.1	not found	not found
Ethylene Dibromide	0.06	not found	not found
Methylene Chloride	1.0	not found	not found
Tetrachloroethylene(PCE)	0.1	10.	1.4
1,1,1-Trichloroethane(TCA)	0.08	not found	not found
Trichloroethylene(TCE)	0.09	not found	not found
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8881air/LRH59
LRH/err/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-888#dup
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Escon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-87.01
Bag #34-93-87, Out-2
Duplicate

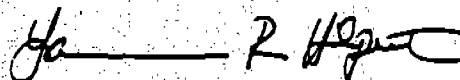
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit	Concentrations	
	ppbv	ug/cu M	ppbv
Benzene	0.09	2.6	0.7
Carbon Tetrachloride	0.07	not found	not found
Chloroform	0.09	not found	not found
1,2-Dichloroethane	0.1	not found	not found
Ethylene Dibromide	0.06	not found	not found
Methylene Chloride	1.0	7.4	2.0
Tetrachloroethylene(PCE)	0.1	14.	1.9
1,1,1-Trichloroethane(TCA)	0.08	not found	not found
Trichloroethylene(TCE)	0.09	not found	not found
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E888#dup/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8889
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-07, Out-2

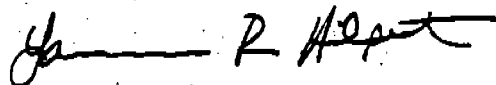
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations	
		ug/cu M	ppbv
Benzene	0.09	2.7	0.8
Carbon Tetrachloride	0.07	not found	not found
Chloroform	0.09	not found	not found
1,2-Dichloroethane	0.1	not found	not found
Ethylene Dibromide	0.06	not found	not found
Methylene Chloride	1.0	7.7	2.0
Tetrachloroethylene(PCE)	0.1	14.	1.9
1,1,1-Trichloroethane(TCA)	0.08	not found	not found
Trichloroethylene(TCE)	0.09	not found	not found
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8889air/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services, Inc.
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8879
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Encon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-05, Out-1

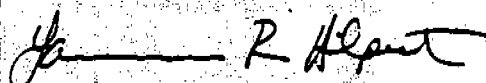
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit ppbv	Concentrations ug/cu M	ppbv
Benzene	0.09	not found	not found
Carbon Tetrachloride	0.07	not found	not found
Chloroform	0.09	not found	not found
1,2-Dichloroethane	0.1	not found	not found
Ethylene Dibromide	0.06	not found	not found
Methylene Chloride	1.0	5.4	1.4
Tetrachloroethylene(PCE)	0.1	27.	3.7
1,1,1-Trichloroethane(TCA)	0.08	not found	not found
Trichloroethylene(TCE)	0.09	not found	not found
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E8879air/LRH59
LRH/crr/lrh

Central
Coast
Analytical
Services

Central Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8876
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:

Project #248-07.01,
Bag #34-93-02, In-1

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	25.
METHANE	0.005	51.
NITROGEN	0.02	22.
OXYGEN	0.01	1.6
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D., President

09/09/88
E8876FGM.WR1/#184
MH/sc

Central
Coast
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(805) 543-2553

Lab Number: E-8881
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-08, Out-3

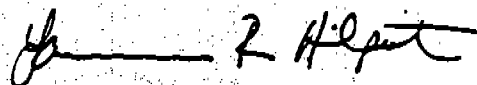
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit	Concentrations	
	ppbv	ug/cu M	ppbv
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

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E88818/LRH59
LRH/crr/lrh

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(805) 543-2553

Lab Number: E-888#dup
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-07, Out-2
Duplicate

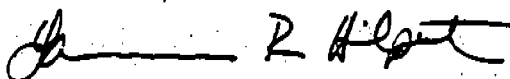
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit		Concentrations	
	ppbv	ug/cu M	ppbv	
Vinyl Chloride	0.2	not found	not found	

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

MSD #1
E888#dup/LRH59
LRH/crr/lrh

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Lab Number: E-8888
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: SM

SUBMITTED BY:
Emcon Associates
1921 Ringwood Ave.
San Jose, CA 95131

SAMPLE DESCRIPTION:
Project #248-07.01
Bag #34-93-07, Out-2

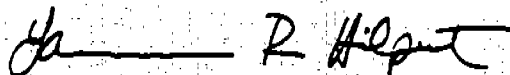
CALDERON TESTING

GAS CHROMATOGRAPHIC/MASS SPECTROMETRIC ANALYSIS REPORT

Compound Analyzed	Detection Limit	Concentrations	
	ppbv	ug/cu M	ppbv
Vinyl Chloride	0.2	not found	not found

Note: Constituents reported as not found would have been reported if present at or above the listed detection limit.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES, INC.



Laurence R. Hilpert, Ph.D.
Vice President

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E8888B/LRH59
LRH/crr/lrh

Central
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Lab Number: E-8877dup
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:

Project #248-07.01,
Bag #34-93-03, In-2
Duplicate Analysis

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCO

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	26.
METHANE	0.005	57.
NITROGEN	0.02	16.
OXYGEN	0.01	1.2
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D., President

09/09/88
E8877DUP.WR1/#18A
MH/sc

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(805) 543-2553

Lab Number: E-8877
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:

Project #248-07.01,
Bag #34-93-03, In-2

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	25.
METHANE	0.005	58.
NITROGEN	0.02	16.
OXYGEN	0.01	1.3
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

09/09/88
E8877FGM.WR1/#184
MH/sc

Mary Havlicek
Mary Havlicek, Ph.D., President

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Central Coast
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Lab Number: E-8878
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:

Project #248-07.01,
Bag #34-93-04, In-3

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	26.
METHANE	0.005	58.
NITROGEN	0.02	15.
OXYGEN	0.01	1.1
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D., President

09/09/88
E8878FGM.WR1/#184
MH/sc

Central
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(805) 543-2553

Lab Number: E-8879
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:

Project #248-07.01,
Bag #34-93-05, Out-1

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	8.1
METHANE	0.005	<0.005
NITROGEN	0.02	80.
OXYGEN	0.01	12.
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D., President

09/09/88
E8879FGM.WR1/0184
MH/sc

Central
Coast
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San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8888
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:

Project #248-07.01,
Bag #34-93-07, Out-2

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	8.3
METHANE	0.005	0.01
NITROGEN	0.02	79.
OXYGEN	0.01	13.
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D., President

09/09/88
E8888FGM.WR1/#184
MH/sc

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(805) 543-2553

Lab Number: E-8881
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:

Project #248-87.01,
Bag #34-93-68, Out-3

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	8.4
METHANE	0.005	<0.005
NITROGEN	0.02	77.
OXYGEN	0.01	15.
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek, Ph.D., President

09/09/88
E8881FGM.WR1/#184
MH/sc

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(805) 543-2553

Lab Number: E-8881dup
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:
Project #248-07.01,
Bag #34-93-08, Out-3
Duplicate Analysis

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	8.4
METHANE	0.005	<0.005
NITROGEN	0.02	79.
OXYGEN	0.01	13.
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D., President

09/09/88
E8881DUP.WR1/#18A
MH/sc

Central
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San Luis Obispo, California 93401
(805) 543-2553

Lab Number: E-8882
Collected: 09/01/88
Received: 09/02/88
Tested: 09/04/88
Collected by: TPD/SM

EMCON Associates
1921 Ringwood Ave.
San Jose, CA 95131

Sample Description:

Project #248-87.01,
Bag #34-93-01, Out-4
Field QC Blank

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT
CARBON DIOXIDE	0.1	<0.1
METHANE	0.005	<0.005
NITROGEN	0.02	88.
OXYGEN	0.01	12.
TOTAL		100.

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek

Mary Havlicek, Ph.D., President

09/09/88
E8882FGM.WR1/#184
MH/sc

Central
Coast
Analytical
Services

Central Coast
Analytical Services
141 Suburban Road, Suite C-4
San Luis Obispo, California 93401
(805) 543-2553

Lab Number: QS-89848
Collected:
Received:
Tested: 09/04/88
Collected by:

CCAS

Sample Description:

SPIKE

REPORT

FIXED GASES AND METHANE TESTED BY GC/FID-TCD

CONSTITUENT	DETECTION LIMIT PERCENT	LEVEL FOUND PERCENT	TRUE VALUE PERCENT	PERCENT RECOVERY
CARBON DIOXIDE	0.1	15.	15.	100.
CARBON MONOXIDE	0.1	6.8	7.0	97.
METHANE	0.005	4.3	5.0	86.
NITROGEN	0.02	67.	66.	102.
OXYGEN	0.01	7.1	7.0	101.
TOTAL		100.	100.	

Respectfully submitted,
CENTRAL COAST ANALYTICAL SERVICES

Mary Havlicek
Mary Havlicek, Ph.D., President

09/09/88
QS89848FG.WR1/018A
MH/sc



3-8-22
5-0-22
WMRA

JUN 2 1988

BAY AREA DIST.

MEMORANDUM

TO: Kerry Jones

May 31, 1988

FROM: Judith Henley *JH*

RE: Site Specific Landfill Gas Migration Monitoring Plans

I have outlined for your use and information a brief summary of the status of the above mentioned plans for each of the four landfills in the No. Cal and Bay Area Districts.

Altamont	Comments received from Corporate and Region Plan to be finalized by June 15.
Davis Street	Draft submitted for review. Awaiting comments.
Durham Road	Draft due for submittal by June 3. Will be sent to Region for review by June 10.
Kirby Canyon	Draft submitted to Region for review May 24.

I hope this information is useful to you. Please let me know if you need any additional details.

cc: Doug Strauch
Chris Choate
Laura Junta
Renee Douglas
Alex Von Stade
Sara Broadbent