Soil-Gas Monitoring at the Calmar Facility
333 South Turnbull Canyon Road
City of Industry, California
(File No. 102.055)

May 23, 2000
2455.00-01

LFR
LEVINE • FRICKE

May 23, 2000

2455.00-01

Dr. Yi Lu
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Subject: Soil-Gas Monitoring at the Calmar Facility, 333 South Turnbull Canyon Road, City of Industry, California (File No. 102.055)

Dear Dr. Lu:

In response to a meeting with the Los Angeles Regional Water Quality Control Board (RWQCB) on February 18, 1999, Calmar agreed to conduct quarterly soil-gas monitoring and evaluation for tetrachloroethene (PCE) and trichloroethene (TCE) at the above-referenced facility ("the Site") for a period of one year. These data will be used to evaluate subsurface conditions in the area of chlorinated hydrocarbon-affected soils at the Site and to assist in determining whether soil remediation will be necessary.

LFR Levine · Fricke (LFR) completed its fourth quarterly soil-gas monitoring and evaluation at the Site (Figure 1) on February 3, 2000. The first, second, and third quarterly soil-gas monitoring events were conducted on April 22, 1999, July 20, 1999, and October 14, 1999, respectively. The quarterly monitoring work was performed in accordance with LFR's work plan dated March 11, 1999.

This submittal represents the last of the agreed four quarterly soil-gas monitoring events for the vapor wells and soil-gas sampling points installed at the Site.

Field and Laboratory Procedures

Twelve soil-vapor samples were collected from the following eight locations: NVP4 (three depths), VE5, VE6S/VE6D, VE8, VE10, VE12S/VE12D, VE13, and VE14. All procedures employed during the soil-vapor monitoring program are consistent with the RWQCB's publication entitled "Interim Guidance for Active Soil Gas Investigation" dated February 25, 1997.

InterPhase, a California-certified soil-gas contractor, collected the soil-gas samples, which were analyzed by Centrum Analytical Laboratories, Inc., in an on-site mobile laboratory. Optimal purge volumes were determined on the first sampling point (NVP4-4). Purge volumes of two, four, and eight well volumes were analyzed to determine the volume that yielded the highest detected

concentrations. The purge volume with the highest detected concentration was duplicated at the remaining sampling locations.

Purge volumes were evacuated from each well by capping the well and drawing a vacuum on the well through a coupling on the cap. Soil-gas samples were then collected by filling a glass syringe from an unbroken length of ¼-inch polyethylene tubing installed within the vapor well or from the tubing in the vapor probe.

Soil-gas samples were analyzed onsite for the RWQCB's list of Primary Target Compounds using EPA Method 8260B. Soil-gas samples were analyzed in accordance with the quality assurance/ quality control, analytical, and reporting requirements established by the RWQCB Well Investigation Program (WIP).

Analytical Results

During the fourth quarter soil-gas monitoring event, PCE was detected in all 12 soil-gas samples from eight locations at concentrations ranging from 1.9 micrograms per liter (μg/l) in NVP4-1 to 39 μg/l in VE14. TCE was detected in seven of the soil-gas samples at concentrations ranging from 1.1 μg/l in VE12D to 3.1 μg/l in VE8. 1,1-dichloroethene (1,1-DCE) was detected in soil-gas samples VE12D, VE13, and VE14 at concentrations of 1.0 μg/l, 1.5 μg/l, and 1.6 μg/l, respectively. No other volatile organic compound analytes were detected in any of the soil-gas samples at concentrations exceeding the laboratory reporting limit of 1.0 μg/l.

Analytical results for all four quarters of soil-gas monitoring are summarized in Table 1. Analytical results for the fourth quarter sampling event are shown on Figure 2, and the complete laboratory report is included as Attachment A.

Conclusions

Results from this quarterly monitoring event are generally consistent with the previous sampling events. Analytical results for the soil-gas samples collected during all four quarters of soil-gas monitoring generally exhibited higher relative concentrations of PCE in the shallower fine-grained soils versus the deeper coarse-grained soils (sand). Shallower soil-vapor wells are screened from approximately 3 feet to 10 feet below ground surface (bgs), while the deeper wells are screened from approximately 12 feet to 22 feet bgs. Vapor well NVP4-4 is screened from 24 feet to 25 feet bgs. PCE concentrations detected in fine-grained units ranged from 1.1 μg/l to 230 μg/l. PCE concentrations detected in the deeper sand units ranged from less than 1.0 μg/l to 39 μg/l. TCE concentrations detected at eight sampling locations varied from 1.0 μg/l to 5.4 μg/l in the fine-grained units, and from 1.0 μg/l to 8.2 μg/l in the deeper sand units.

Based on the soil-gas analytical results summarized in Table 1, no definite trend regarding the distribution of PCE and TCE was established over the four quarters of soil-gas monitoring and evaluation conducted at the Site.

LFR

Based on the above findings, LFR concludes that subsurface conditions in the area of chlorinated hydrocarbon-affected soils at the Site remain relatively consistent. The presence of breakdown products of TCE, 1,1-DCE, and occasional cis-1, 2-DCE indicates the possibility that degradation through natural attenuation may be taking place at the Site.

If you have any questions or comments regarding the contents of this letter report, please contact me at (714) 444-0111.

Sincerely,

Martin E. Hamann, R.G., C.HG.
Senior Hydrogeologist

Attachments

Table 1:

Summary of Soil-Gas Analytical Results

Third Quarterly Sampling Event 1999

Calmar Facility

LFR 2455.00

All results reported in micrograms per liter as air (µg/l) as parts per billion (ppb)

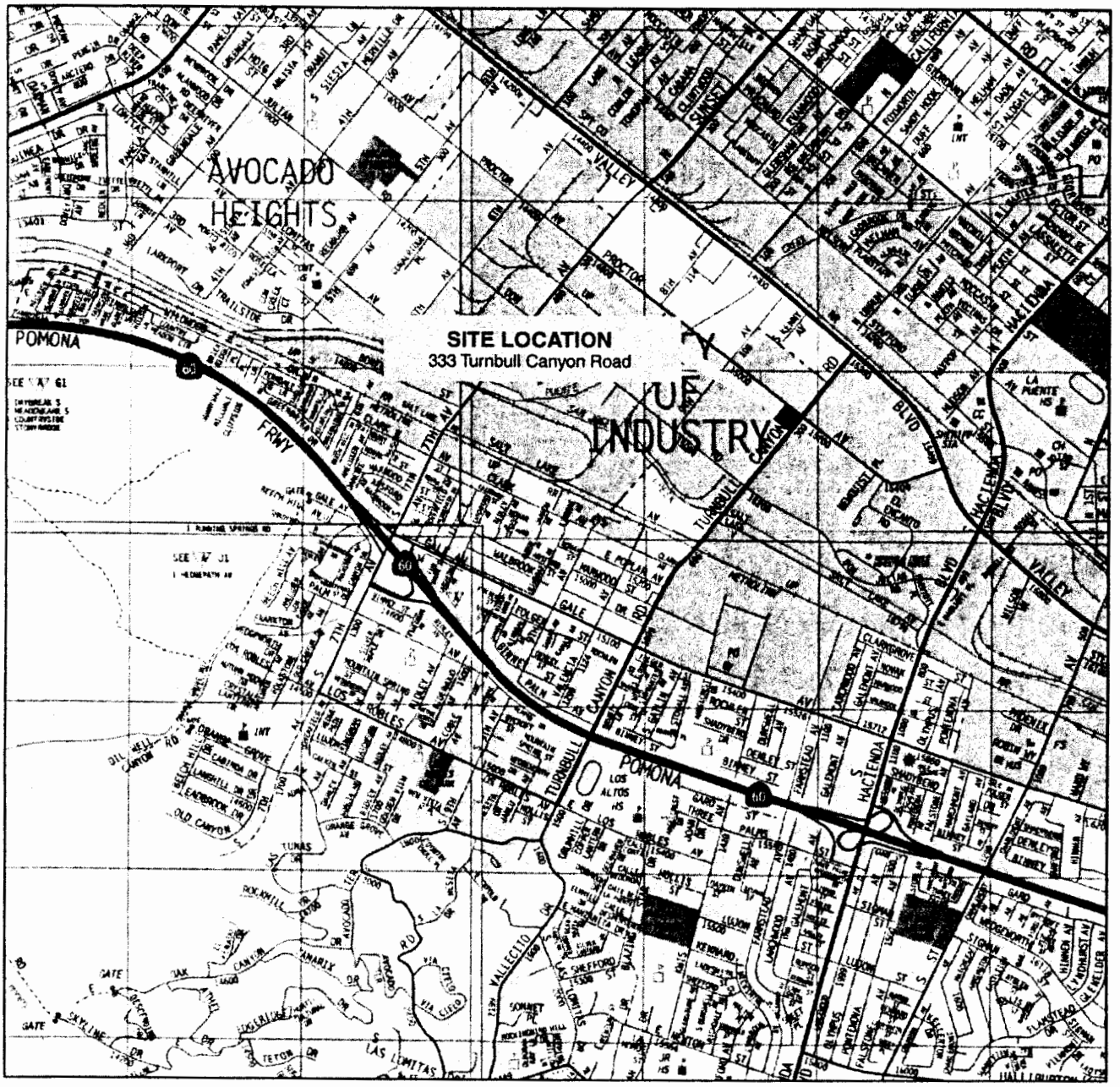
Compound	Date Sampled	Well Identification and Screened Interval (ft. bgs *)											
		NVP4-1 (8-9 ft.)	NVP4-4 (24-25 ft.)	NVP4-A	VE5 (7-10 ft.)	VE6S (3-8 ft.)	VE6D (13-23 ft.)	VE8 (3-8 ft.)	VE10 (3-8 ft.)	VE12S (3-8 ft.)	VE12D (12-22 ft.)	VE13 (12-22 ft.)	VE14 (12-22 ft.)
Tetrachloroethene (PCE)	04/22/99	1.1	2.9	< 1.0	19	---	16	---	9.3	---	4.6	18	34
	07/20/99	1.8	2.3	3.2	42	80	15	110	35	16	1.2	11	< 1.0
	10/14/99	3.7	4.4	4.6	54	120	28	230	25	19	< 1.0	22	39
	02/03/00	1.9	10	6.5	26	66	25	86	16	13	19	24	39
Trichloroethene (TCE)	04/22/99	< 1.0	< 1.0	< 1.0	< 1.0	---	1.0	---	< 1.0	---	< 1.0	1.4	1.0
	07/20/99	< 1.0	< 1.0	< 1.0	1.9	3.8	< 1.0	5.4	1.7	< 1.0	< 1.0	< 1.0	< 1.0
	10/14/99	< 1.0	< 1.0	< 1.0	1.9	3.8	< 1.0	8.2	1.2	< 1.0	8.2	1.2	1.1
	02/03/00	< 1.0	1.1	< 1.0	1.2	2.5	1.1	3.1	< 1.0	< 1.0	1.1	1.5	1.6
1,1 Dichloroethene (1,1-DCE)	04/22/99	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	1.4	< 1.0
	07/20/99	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0	< 1.0
	10/14/99	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.9	< 1.0	< 1.0	< 1.0	< 1.0	1.4	< 1.0
	02/03/00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0	1.5	1.1
1,1,2-Trichloroethane (112-TCA)	04/22/99	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0
	07/20/99	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	10/14/99	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	02/03/00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,2-Dichloroethene (cis-1,2-DCE)	04/22/99	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0
	07/20/99	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	10/14/99	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
	02/03/00	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Notes:

--- = Not sampled due to low/inadequate vapor flow rate.

* = Below ground surface

QA/QC: MY



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0 1/4 1/2 1 mile

2455-70 _ 120199MEH/scj

Calmar

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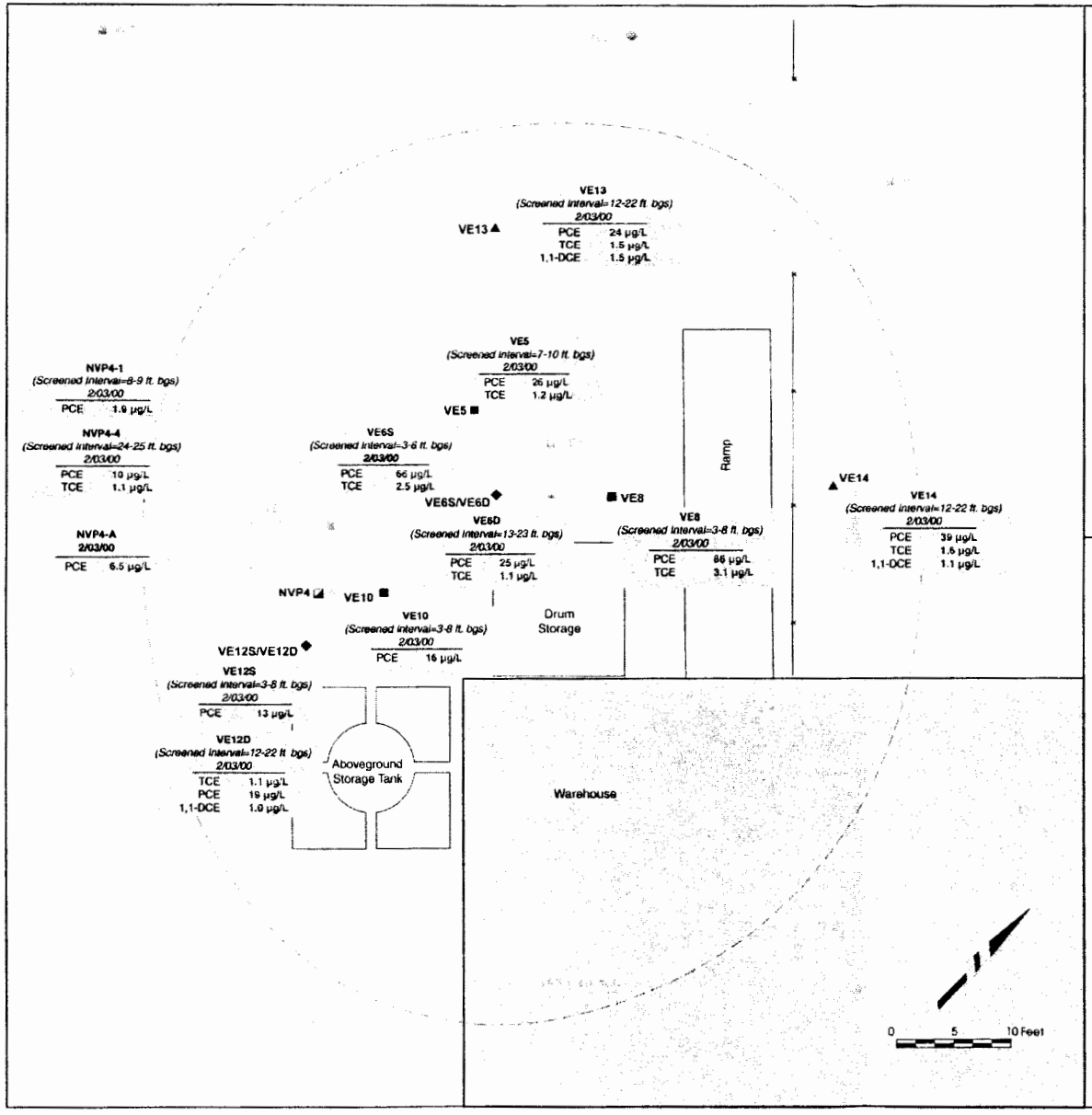
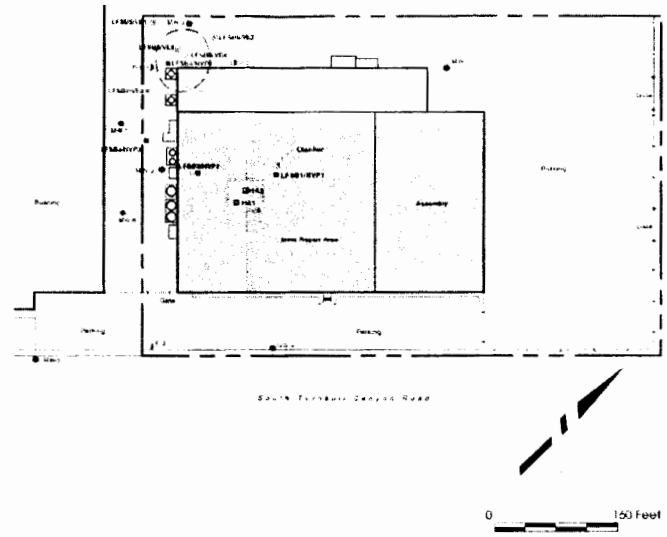
Site Vicinity

Figure 1

Project No. 2455





EXPLANATION

Property Boundary

Shallow Vapor Well Location (clay)
Nested Vapor Well Location (clay and sand)
Deep Vapor Well Location (sand)

Monitoring Well Location

Piezometer Location

Nested Vapor Probe Location

Approximate Extent of On-Site Chlorinated Hydrocarbon-Affected Soil

PCE Tetrachloroethene
TCE Trichloroethene
1,1-DCE 1,1 Dichloroethene
1,1,2-TCA 1,1,2-Trichloroethane
cis-1,2-DCE cis-1,2-Dichloroethene

µg/L Micrograms per Liter as Air

ft. bgs Feet Below Ground Surface

Colmar, City of Industry

Vapor Monitoring Well Locations and Summary of Soil-Gas Analytical Results Quarterly Monitoring Event, February 2000

Figure 2

Project No. 2455

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INTERPHASE ENVIRONMENTAL, INC.

MOBILE LABORATORIES AND DIRECT PUSH DRILLING

Monday, February 14, 2000

Mr. Rodney A. Crother R. G.
Levine-Fricke
1920 Main Street, Suite 750
Irvine, CA 92614

Re: Cal Mar Project Site
InterPhase Project # 99047-4

Dear Mr. Crother:

Please find enclosed the vapor analysis results for the project site as referenced above as submitted by Centrum Analytical Laboratories. On-site analysis of gas samples was performed in accordance with the California Regional Water Quality Control Board, Los Angeles Region, Soil Gas Investigation Interim Guidelines for Well Investigation Program.

Please do not hesitate to give us a call if you have any questions or need further information. I am happy to be of service to you.

Sincerely,
InterPhase Environmental

Paola Calderon

Paola L. Calderon
Project Coordinator

6200 PEACHTREE STREET, LOS ANGELES, CA 90040 1-800-457-3300 - FAX 323-278-7707 OFFICE@INTERPHASE-INC.COM

Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

LABORATORY REPORT FORM

Laboratory Name: Centrum Analytical Laboratories, Inc.

Address: 290 Tennessee Street, Redlands, CA 92373

Telephone: (909) 798-9336

Laboratory Certification (ELAP) No.: _____ Expiration Date: May 2000.

Laboratory Director's Name (Print) : Dr. Robert R. Clark

Laboratory Director's Signature :

Client: Interphase

Project No: Cal Mar

Analytical Method:	EPA 502.1		EPA 502.2	EPA 524.1
				EPA 524.2
	EPA 601			EPA 624
	EPA 8010		EPA 8021	EPA 8240
				EPA 8260B
Other				
Date Sampled:				2/3/00
Date Received:				2/3/00
Date Reported:				2/3/00
Sample Matrix:				Vapor
Extraction Method:				
Extraction Material:				

Chain of Custody Received: **Yes** No

Sample Condition: Samples were received in glass syringes.

- - Sample Headspace description (%) NA
- - Sample Container Material: Glass

(RWQCB LabForm; Ves11/92)

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ANALYTICAL TEST RESULT

Reporting Unit: ug/L of air

		DATE ANALYZED	2/3/00	2/3/00	2/3/00	2/3/00
		DATE EXTRACTED	NA	NA	NA	NA
		DILUTION FACTOR	1:1	1:1	1:1	1:1
		LAB SAMPLE I.D.	Amb. Blank	M4-097-1	M4-097-2	M4-097-3
		CLIENT SAMPLE I.D.	NA	**NVP4-1**	**NVP4-4**	**NVP4-A**
COMPOUND		**MDL**				
Carbon Tetrachloride		1.0	ND	ND	ND	ND
Chloroethane		1.0	ND	ND	ND	ND
Chloroform		1.0	ND	ND	ND	ND
Dichlorodifluoromethane		1.0	ND	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)		1.0	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)		1.0	ND	ND	ND	ND
1-1-Dichloroethylene (1,1-DCE)		1.0	ND	ND	ND	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
1,1,1,2-Tetrachlorethane		1.0	ND	ND	ND	ND
1,1,2,2-Tetrachlorethane		1.0	ND	ND	ND	ND
Tetrachloroethylene (PCE)		1.0	ND	**1.9**	**10**	**6.5**
1,1,1-Trichlorethane (111-TCA)		1.0	ND	ND	ND	ND
1,1,2-Trichlorethane (112-TCA)		1.0	ND	ND	ND	ND
Trichloroethylene (TCE)		1.0	ND	ND	**1.1**	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
Trichlorofluoromethane		1.0	ND	ND	ND	ND
Vinyl Chloride		1.0	ND	ND	ND	ND
Benzene		1.0	ND	ND	ND	ND
Ethylbenzene		1.0	ND	ND	ND	ND
Toluene		1.0	ND	ND	ND	ND
m,p-Xylene		2.0	ND	ND	ND	ND
o-Xylene		1.0	ND	ND	ND	ND
SURROGATE	**SPK CONC**	**ACP%**	**%REC**	**%REC**	**%REC**	**%REC**
Dibromodifluoromethane	50	75-125	100	94	99	101
Toluene-d8	50	75-125	103	105	103	101
Bromofluorobenzene	50	75-125	102	101	101	103

a = Report Any Value >= MDL b = Listed Compounds Are Ordered by the Laboratory Analytical Methods: Halogenated, Aromatic, then Remaining Compounds Identified by GC/MS.

SPK CONC = Spiking Concentration (<= 5 x PQL); ACP % = Acceptable Range of Percent; %REC = % Recovery

MDL = Method Detection Limit; MB = Method Blank; ND = Not Detected (Below MDL); NA = Not Applicable.

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ANALYTICAL TEST RESULT

Reporting Unit: ug/L of air

		DATE ANALYZED	2/3/00	2/3/00	2/3/00	2/3/00
		DATE EXTRACTED	NA	NA	NA	NA
		DILUTION FACTOR	1:1	1:1	1:1	1:1
		LAB SAMPLE I.D.	M4-097-4	M4-097-5	M4-097-6	M4-097-7
		CLIENT SAMPLE I.D.	VE12D	VE6D	VE13D	VE14D
COMPOUND		MDL				
Carbon Tetrachloride		1.0	ND	ND	ND	ND
Chloroethane		1.0	ND	ND	ND	ND
Chloroform		1.0	ND	ND	ND	ND
Dichlorodifluoromethane		1.0	ND	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)		1.0	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)		1.0	ND	ND	ND	ND
1-1-Dichloroethylene (1,1-DCE)		1.0	**1.0**	ND	**1.5**	**1.1**
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
1,1,1,2-Tetrachlorethane		1.0	ND	ND	ND	ND
1,1,2,2-Tetrachlorethane		1.0	ND	ND	ND	ND
Tetrachloroethylene (PCE)		1.0	**19**	**25**	**24**	**39**
1,1,1-Trichlorethane (111-TCA)		1.0	ND	ND	ND	ND
1,1,2-Trichlorethane (112-TCA)		1.0	ND	ND	ND	ND
Trichloroethylene (TCE)		1.0	**1.1**	**1.1**	**1.5**	**1.6**
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
Trichlorofluoromethane		1.0	ND	ND	ND	ND
Vinyl Chloride		1.0	ND	ND	ND	ND
Benzene		1.0	ND	ND	ND	ND
Ethylbenzene		1.0	ND	ND	ND	ND
Toluene		1.0	ND	ND	ND	ND
m,p-Xylene		2.0	ND	ND	ND	ND
o-Xylene		1.0	ND	ND	ND	ND
SURROGATE	SPK CONC	ACP%	%REC	%REC	%REC	%REC
Dibromodifluoromethane	50	75-125	98	103	96	100
Toluene-d8	50	75-125	104	102	104	103
Bromofluorobenzene	50	75-125	102	102	104	105

a = Report Any Value >= MDL b = Listed Compounds Are Ordered by the Laboratory Analytical Methods: Halogenated, Aromatic, then Remaining Compounds Identified by GC/MS.

SPK CONC = Spiking Concentration (<= 5 x PQL); ACP % = Acceptable Range of Percent; %REC = % Recovery

MDL = Method Detection Limit; MB = Method Blank; ND = Not Detected (Below MDL); NA = Not Applicable.

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ANALYTICAL TEST RESULT

Reporting Unit: ug/L of air

		DATE ANALYZED	2/3/00	2/3/00	2/3/00	2/3/00
		DATE EXTRACTED	NA	NA	NA	NA
		DILUTION FACTOR	1:1	1:1	1:1	1:1
		LAB SAMPLE I.D.	M4-097-8	M4-097-9	M4-097-10	M4-097-11
		CLIENT SAMPLE I.D.	VE8	VE5	VE6S	VE10
COMPOUND		MDL				
Carbon Tetrachloride		1.0	ND	ND	ND	ND
Chloroethane		1.0	ND	ND	ND	ND
Chloroform		1.0	ND	ND	ND	ND
Dichlorodifluoromethane		1.0	ND	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)		1.0	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)		1.0	ND	ND	ND	ND
1-1-Dichloroethylene (1,1-DCE)		1.0	ND	ND	ND	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
1,1,1,2-Tetrachlorethane		1.0	ND	ND	ND	ND
1,1,2,2-Tetrachlorethane		1.0	ND	ND	ND	ND
Tetrachloroethylene (PCE)		1.0	**86**	**26**	**66**	**16**
1,1,1-Trichlorethane (111-TCA)		1.0	ND	ND	ND	ND
1,1,2-Trichlorethane (112-TCA)		1.0	ND	ND	ND	ND
Trichloroethylene (TCE)		1.0	**3.1**	**1.2**	**2.5**	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
Trichlorofluoromethane		1.0	ND	ND	ND	ND
Vinyl Chloride		1.0	ND	ND	ND	ND
Benzene		1.0	ND	ND	ND	ND
Ethylbenzene		1.0	ND	ND	ND	ND
Toluene		1.0	ND	ND	ND	ND
m,p-Xylene		2.0	ND	ND	ND	ND
o-Xylene		1.0	ND	ND	ND	ND
SURROGATE	SPK CONC	ACP%	%REC	%REC	%REC	%REC
Dibromodifluoromethane	50	75-125	100	100	99	95
Toluene-d8	50	75-125	104	106	102	103
Bromofluorobenzene	50	75-125	102	103	102	99

a = Report Any Value >= MDL b = Listed Compounds Are Ordered by the Laboratory Analytical Methods: Halogenated, Aromatic, then Remaining Compounds Identified by GC/MS.

SPK CONC = Spiking Concentration (<= 5 x PQL); ACP % = Acceptable Range of Percent; %REC = % Recovery

MDL = Method Detection Limit; MB = Method Blank; ND = Not Detected (Below MDL); NA = Not Applicable.

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ANALYTICAL TEST RESULT

Reporting Unit: ug/L of air

		DATE ANALYZED	2/3/00			
		DATE EXTRACTED	NA			
		DILUTION FACTOR	1:1			
		LAB SAMPLE I.D.	M4-097-12			
		CLIENT SAMPLE I.D.	VE12S			
COMPOUND		MDL				
Carbon Tetrachloride		1.0	ND			
Chloroethane		1.0	ND			
Chloroform		1.0	ND			
Dichlorodifluoromethane		1.0	ND			
1,1-Dichloroethane (1,1-DCA)		1.0	ND			
1,2-Dichloroethane (1,2-DCA)		1.0	ND			
1-1-Dichloroethylene (1,1-DCE)		1.0	ND			
cis-1,2-Dichloroethylene		1.0	ND			
trans-1,2-Dichloroethylene		1.0	ND			
1,1,1,2-Tetrachlorethane		1.0	ND			
1,1,2,2-Tetrachlorethane		1.0	ND			
Tetrachloroethylene (PCE)		1.0	**13**			
1,1,1-Trichlorethane (111-TCA)		1.0	ND			
1,1,2-Trichlorethane (112-TCA)		1.0	ND			
Trichloroethylene (TCE)		1.0	ND			
cis-1,2-Dichloroethylene		1.0	ND			
trans-1,2-Dichloroethylene		1.0	ND			
Trichlorofluoromethane		1.0	ND			
Vinyl Chloride		1.0	ND			
Benzene		1.0	ND			
Ethylbenzene		1.0	ND			
Toluene		1.0	ND			
m,p-Xylene		2.0	ND			
o-Xylene		1.0	ND			
SURROGATE	SPK CONC	ACP%	%REC			
Dibromodifluoromethane	50	75-125	96			
Toluene-d8	50	75-125	104			
Bromofluorobenzene	50	75-125	101			

a = Report Any Value >= MDL b = Listed Compounds Are Ordered by the Laboratory Analytical Methods: Halogenated, Aromatic, then Remaining Compounds Identified by GC/MS.

SPK CONC = Spiking Concentration (<= 5 x PQL); ACP % = Acceptable Range of Percent; %REC = % Recovery

MDL = Method Detection Limit; MB = Method Blank; ND = Not Detected (Below MDL); NA = Not Applicable.

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QA / QC REPORT

Reporting Unit (Circle One) : ug/Kg **ug/L of air**

I. Sample Duplicate

DATE PERFORMED: 2/3/00
CLIENT SAMPLE I.D.: NVP4-A
LAB SAMPLE I.D.: M4-097-2

ANALYTE		Conc Sample		Conc Dup.		RPD		ACP RPD
8260 Compounds								
Tetrachloroethene		6.51		5.80		12%		25

II. Laboratory Control Check Sample

DATE PERFORMED: 2/3/00

LAB SAMPLE I.D.: Laboratory Control Sample

ANALYTE	SPK CONC	Conc LCS	% Rec LCS	Conc LCSD	% Rec LCSD	RPD	ACP % LCS	ACP RPD
8260 Compounds								
1,1-Dichloroethylene	20.0	19.3	96%	19.6	98%	2%	70-130	25
Benzene	20.0	22.5	113%	21.7	109%	4%	70-130	25
Trichloroethene	20.0	21.9	110%	21.4	107%	3%	70-130	25
Toluene	20.0	21.6	108%	20.6	103%	5%	70-130	25
Chlorobenzene	20.0	19.7	99%	19.8	99%	0%	70-130	25

MBH

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lab@centrum-labs.com

Centrum Job # M4-097

Chain of Custody Record

Page 1 of 2

Project No:

Project Name: CAL MAR

Project Manager:

Phone: 323-278-7700 Fax: 7707

Client Name: (Report and Billing) Interphase

Address: (Report and Billing) 6200 Peachtree St. LA CA 90040

Please Circle Analyses Requested

Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	8015M: Diesel, Fuel Screen, Carbon Chain	8015M: Gas only	8021B: BTEX/MtBE Only	418.1 (TRPH), 413.2		GCMS: 8260B, 8021B, 624, 524.2	GCMS: MtBE Conf. Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB		Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr			Remarks/Special Instructions
1	NVP4-1	2/3/00	750	Vapor		6 Glass Vials						X										
2	NVP4-4		815									X										
3	NVP4-A		833									X										
4	VE12D		1037									X										
5	VE6D		1100									X										
6	VE13D		1135									X										
7	VE14D		1208									X										
8	VE8		1230									X										
9	VE655		1310									X										
10	VE65		1328									X										

Turn-Around Time
- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ☒ Normal TAT

*Requires PRIOR approval, additional charges apply

Requested due date: _____

	Date:	Time:
1) Relinquished by: (Sampler's Signature)	2/3/00	
2) Received by:		
3) Relinquished by:		
4) Received by:		
5) Relinquished by:		
6) Received for Laboratory by:	2/5/00	

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

To be completed by Laboratory personnel:
- Samples chilled? ☐ Yes ☐ No ☒ From Field
- Custody seals? ☐ Yes ☒ No
- All sample containers intact? ☒ Yes ☐ No
- ☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

Sample Disposal
- ☐ Client will pick up
- ☐ Return to client
- ☐ Lab disposal

Laboratory Notes: LARWQCB

Sample Locator No.

White Copy - Original (Accompanies Samples) Yellow Copy - Centrum Files Pink Copy - Centrum duplicate Gold Copy - Client Copy

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Centrum Job # M4-097

Chain of Custody Record

Project No:

Project Name: CAL MAR

Project Manager:

Phone: 323-278-7700 Fax: 7707

Client Name: (Report and Billing) Interphase

Address: (Report and Billing) 6200 Peachtree St. LA CA 90040

Please Circle Analyses Requested

Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	8015M: Diesel, Fuel Screen, Carbon Chain	8015M: Gas only	8021B: BTEX/MtBE Only	418.1 (TRPH), 413.2		GCMS: 8260B, 8021B, 624, 524.2	GCMS: MtBE Conf. Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB		Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr			Remarks/Special Instructions
11	VE10	2/3/00	1340	Vapor		Glass 1L						X										
12	VE12S	↓	1415	↓		↓						X										

Turn-Around Time
- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ☐ Normal TAT

*Requires PRIOR approval, additional charges apply

Requested due date: _____

1) Relinquished by: (Sampler's Signature) X [signature] Date: 2/3/00 Time:

2) Received by: Date: Time:

3) Relinquished by: Date: Time:

4) Received by: Date: Time:

5) Relinquished by: Date: Time:

6) Received for Laboratory by: [signature] Date: 2/3/00 Time:

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

To be completed by Laboratory personnel:

Samples chilled? ☐ Yes ☐ No ☒ From Field

Custody seals? ☐ Yes ☒ No

All sample containers intact? ☒ Yes ☐ No

☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

Sample Disposal
- ☐ Client will pick up
- ☐ Return to client
- ☐ Lab disposal

Sample Locator No.

Laboratory Notes:

White Copy - Original (Accompanies Samples) Yellow Copy - Centrum Files Pink Copy - Centrum duplicate Gold Copy - Client Copy

102.0055 G99-0180

LFR
LEVINE • FRICKE

September 23, 1999 2455.00-01

Dr. Yi Lu
California Regional Water Quality Control Board
Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, California 90013

Subject: Soil-Gas Monitoring at the Calmar Facility, 333 South Turnbull Canyon Road, City of Industry, California (File No. 102.055)

Dear Dr. Lu:

LFR Levine · Fricke (LFR) recently completed its second quarterly soil-gas evaluation at the subject property (Figure 1). The work was conducted in accordance with our work plan dated March 11, 1999. In response to a meeting with the Los Angeles Regional Water Quality Control Board (RWQCB) on February 18, 1999, Calmar agreed to conduct quarterly soil-gas monitoring for tetrachloroethene (PCE) and trichloroethene (TCE) for one year. The data are to be used to evaluate current soil conditions at the site and to assist in determining whether soil remediation will be necessary. The scope of work includes quarterly evaluation of soil-vapor concentrations in the vapor wells and soil-gas sampling points installed at the site.

Scope of Work

The objective of the quarterly soil-gas monitoring program is to evaluate subsurface conditions in the area of chlorinated hydrocarbon affected soil (Figure 2). Twelve soil-vapor samples were collected from the following eight locations: NVP4 (three depths), VE5, VE6S/VE6D, VE8, VE10, VE12S/VE12D, VE13, and VE14. All procedures employed during the soil-vapor monitoring program are consistent with the RWQCB's publication entitled "Interim Guidance for Active Soil Gas Investigation," dated February 25, 1997.

InterPhase, a California-certified soil-gas contractor, collected the soil-gas samples, which were analyzed by Centrum Analytical Laboratories, Inc., in an on-site mobile laboratory. Optimal purge volumes were determined on the first sampling point (VE14). Purge volumes of 1.3, 2.7, and 4.1 well volumes were analyzed to determine the volume that yielded the highest detected concentrations.

1920 Main Street, Suite 750, Irvine, California 92614-7211 • (949) 955-1390 • *fax* (949) 955-0683 • *www.lfr.com*
Offices Worldwide

Purge volumes were evacuated from each well by capping the well and drawing a vacuum on the well through a coupling on the cap. Soil-gas samples were then collected by filling a glass syringe from an unbroken length of ¼-inch polyethylene tubing installed within the vapor well or from the tubing in the vapor probe.

Soil-gas samples were analyzed on site for the RWQCB's list of Primary Target Compounds using EPA Method 8260B. Soil-gas samples were analyzed in accordance with the quality assurance/quality control, analytical, and reporting requirements established by the RWQCB Well Investigation Program (WIP).

Results

PCE was detected in 11 of the 12 soil-gas samples at concentrations ranging from 1.2 to 110 micrograms per liter (μg/l). TCE was detected in four of the soil-gas samples at concentrations ranging from 1.7 to 5.4 μg/l. Additionally, 1,1-dichloroethene was detected in one soil-gas sample at a concentration of 1.0 μg/l. No other volatile organic compound analytes were detected in any of the soil-gas samples at concentrations exceeding the laboratory reporting limits. The analytical results are summarized in Table 1 and Figure 2. The complete laboratory report is included as Appendix A.

Conclusions

Soil-gas recovery from vapor wells VE-6S, VE-8, and VE-12S was successful due to increased time spent drawing a vacuum from those wells (approximately one hour per well to obtain a sample). These wells are constructed in fine-grained (silt/clay) sediments that have a very low conductivity and this is reflected in the prolonged recovery time. Subsequent soil-gas sampling will be modified to ensure that samples in the fine-grained soil layer are acquired.

Analytical results of the soil-gas samples exhibited relatively higher concentrations of PCE in the shallower fine-grained soils versus the deeper coarse-grained soils (sand). PCE concentrations from fine-grained units ranged from 1.8 to 110 µg/l. The deeper sand units had PCE concentrations ranging from 1.2 to 15 µg/l.

The apparent dichotomy of results is expected since the fine-grained sediments have higher surface areas, lower hydraulic conductivities, and retain much greater amounts of liquids than the coarser grained soils. Subsequently, these liquids do not readily migrate through the fine-grained soil. This is apparent by the lower concentrations of PCE in the lower sands than in the overlying fine-grained soil.

LFR

We anticipate that our next quarterly soil-gas evaluation report will be submitted in October 1999. If you have any questions or comments regarding this matter, please contact me at (949) 955-1390.

Sincerely,

Martin Hamann, R.G., C.H.G.
Senior Hydrogeologist

Attachments

Table 1:

Summary of Soil-Gas Analytical Results

Second Quarterly Sampling Event 1999

Calmar Facility

LFR 2455.00

All results reported in micrograms per liter as air (µg/l) as parts per billion (ppb)

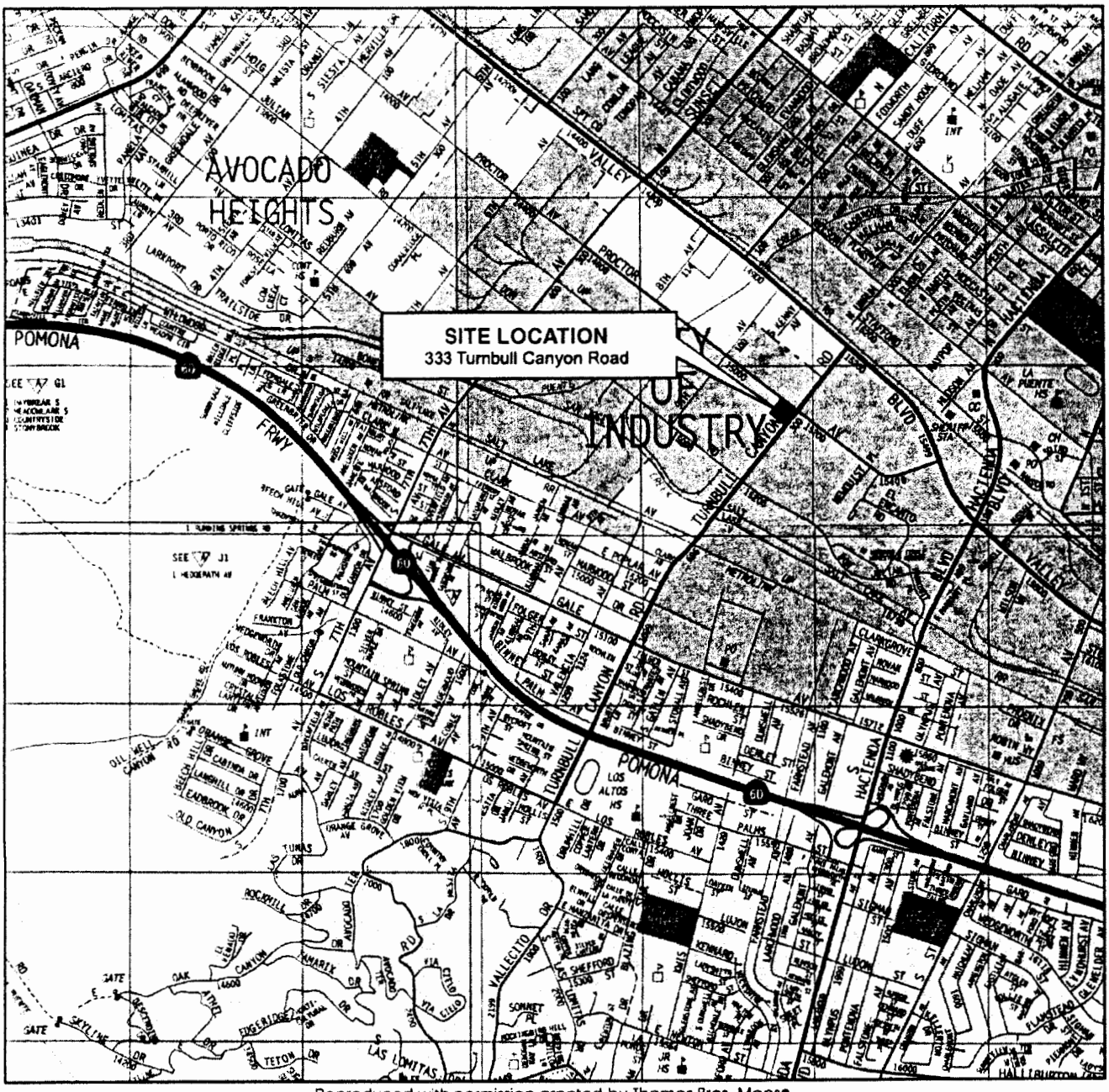
Compound	Date Sampled	Well Identification and Screened Interval (ft. bgs *)											
		NVP4-1 (8-9 ft.)	NVP4-4 (24-25 ft.)	NVP4-A	VE5 (7-10 ft.)	VE6S (3-8 ft.)	VE6D (13-23 ft.)	VE8 (3-8 ft.)	VE10 (3-8 ft.)	VE12S (3-8 ft.)	VE12D (12-22 ft.)	VE13 (12-22 ft.)	VE14 (12-22 ft.)
Tetrachloroethene (PCE)	04/22/99	1.1	2.9	< 1.0	19	---	16	---	9.3	---	4.6	18	34
	07/20/99	1.8	2.3	3.2	42	80	15	110	35	16	1.2	11	< 1.0
Trichloroethene (TCE)	04/22/99	< 1.0	< 1.0	< 1.0	< 1.0	---	1.0	---	< 1.0	---	< 1.0	1.4	1.0
	07/20/99	< 1.0	< 1.0	< 1.0	1.9	3.8	< 1.0	5.4	1.7	< 1.0	< 1.0	< 1.0	< 1.0
1,1 Dichlorethene (1,1-DCE)	04/22/99	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	1.4	< 1.0
	07/20/99	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	1.0	< 1.0

Notes:

--- = Not sampled due to low/inadequate vapor flow rate.

* = Below ground surface

QA/QC: MH



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MAP SOURCE: Thomas Bros Guide®, Los Angeles County, California, pp.637, 638,677 & 678 , 1996.

0 1/4 1/2 1 mile

Site Vicinity

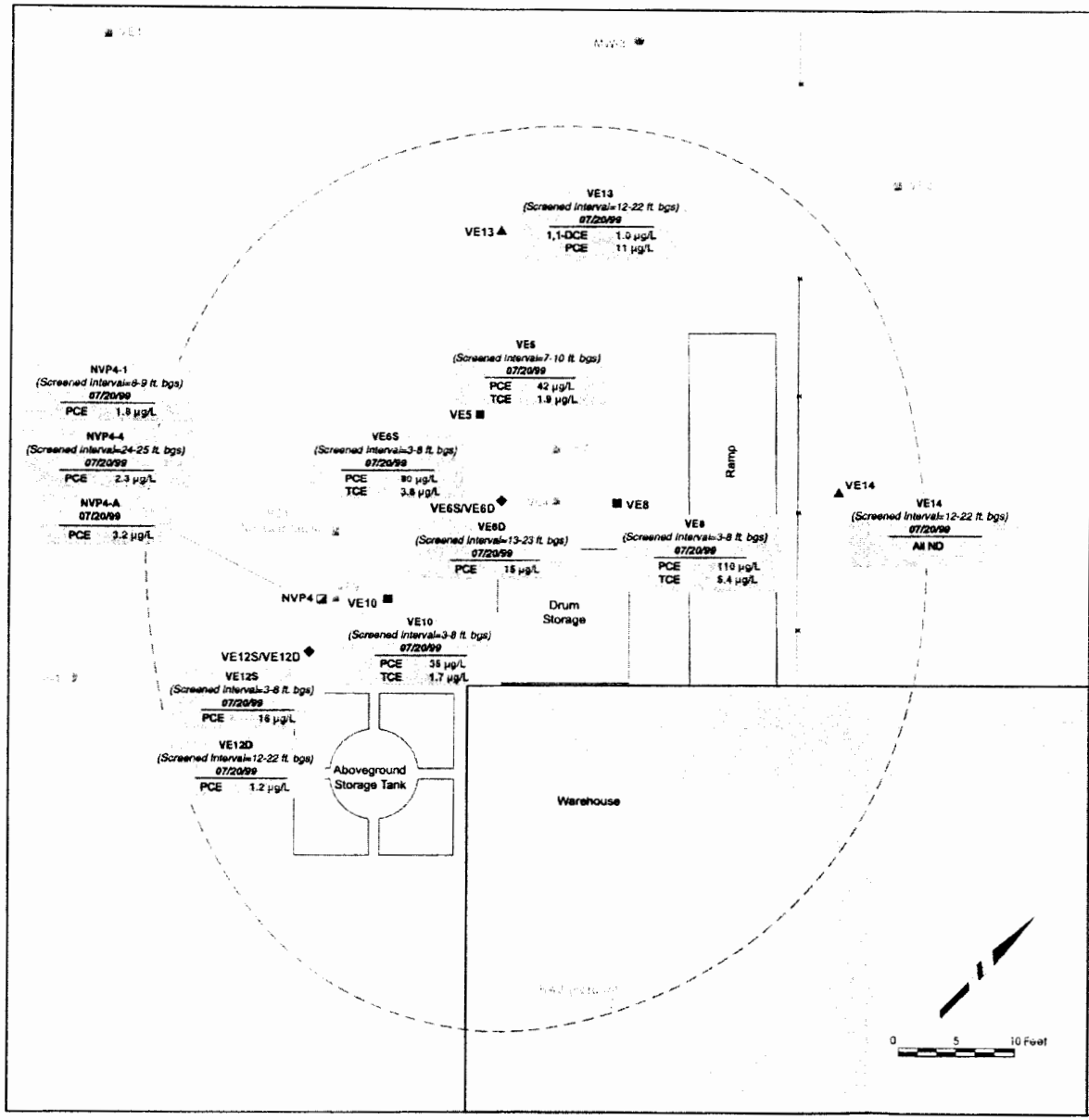
Levine·Fricke·Recon

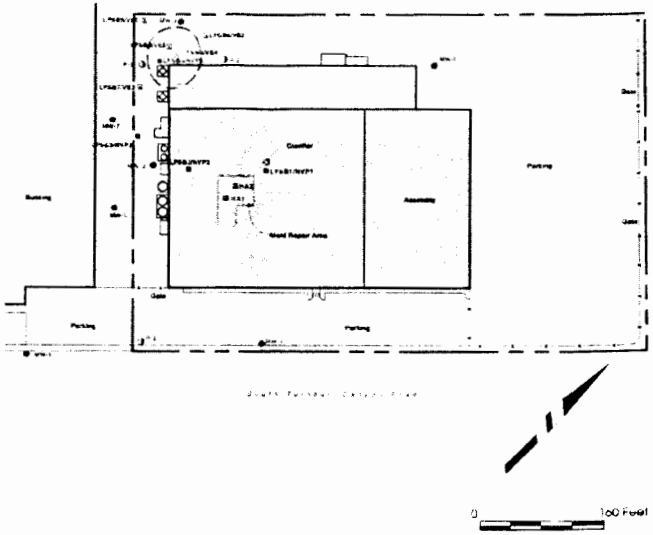
Calmar

Figure 1

Project No. 2455

2455-70 _ 112196MEH/scj





EXPLANATION

- Property Boundary
- Shallow Vapor Well Location (clay)
- Nested Vapor Well Location (clay and sand)
- Deep Vapor Well Location (sand)
- Monitoring Well Location
- Piezometer Location
- Nested Vapor Probe Location
- Approximate Extent of On-Site Chlorinated Hydrocarbon-Affected Soil

TCE Trichloroethene
PCE Tetrachloroethene
1,1-DCE 1,1 Dichloroethene

µg/L Micrograms per Liter as Air

ft. bgs Feet Below Ground Surface

Caimar, City of Industry

Vapor Monitoring Well Locations and Summary of Soil-Gas Analytical Results Second Quarterly Monitoring Event, 1999

Figure 2

Project No. 2455

LFR LEVINE•FRICKE

APPENDIX A

Laboratory Results and Chain-of-Custody Documentation

INTERPHASE ENVIRONMENTAL, INC.

MOBILE LABORATORIES AND DIRECT PUSH DRILLING

Thursday, July 29, 1999

Rodney A. Crother, R. G.
Levine-Fricke-Recon
1920 Main Street, Suite 750
Irvine, CA 92614

Re: Cal Mar Project Site
InterPhase Project # 99047-2

Dear Mr. Crother:

Please find enclosed the vapor analysis results for the project site as referenced above as submitted by Centrum Analytical Laboratories. On-site analysis of gas samples was performed in accordance with the California Regional Water Quality Control Board, Los Angeles Region, Soil Gas Investigation Interim Guidelines for Well Investigation Program.

Please do not hesitate to give us a call if you have any questions or need further information. I am happy to be of service to you.

Sincerely,

Paola Calderon

Paola L. Calderon
InterPhase Environmental, Inc.

6200 PEACHTREE STREET
LOS ANGELES, CA 90040
323·278·7700 800·457·3300
FAX 323·278·7707

Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

LABORATORY REPORT FORM

Laboratory Name: Centrum Analytical Laboratories, Inc.

Address: 290 Tennessee Street, Redlands, CA 92373

Telephone: (909) 798-9336

Laboratory Certification (ELAP) No.: _____ Expiration Date: May 2000.

Laboratory Director's Name (Print) : Dr. Robert R. Clark

Laboratory Director's Signature :

Client: Interphase

Project No: Cal Mar

Analytical Method:	EPA 502.1		EPA 502.2	EPA 524.1
				EPA 524.2
	EPA 601			EPA 624
	EPA 8010		EPA 8021	EPA 8240
				EPA 8260B
Other				
Date Sampled:				07/20/99
Date Received:				07/20/99
Date Reported:				07/20/99
Sample Matrix:				Vapor
Extraction Method:				
Extraction Material:				

Chain of Custody Received: **Yes** No

Sample Condition: Samples were received in glass syringes.

- - Sample Headspace description (%) NA
- - Sample Container Material: Glass

(RWQCB LabForm; Ves11/92)

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ANALYTICAL TEST RESULT

Reporting Unit: ug/L of air

		DATE ANALYZED	07/20/99	07/20/99	07/20/99	07/20/99
		DATE EXTRACTED	NA	NA	NA	NA
		DILUTION FACTOR	1	1	1	1
		LAB SAMPLE I.D.	Amb. Blank	M4-029-01	M4-029-02	M4-029-03
		CLIENT SAMPLE I.D.	NA	VE14a	VE14b	VE14c
COMPOUND		MDL				
Carbon Tetrachloride		1.0	ND	ND	ND	ND
Chloroethane		1.0	ND	ND	ND	ND
Chloroform		1.0	ND	ND	ND	ND
Dichlorodifluoromethane		1.0	ND	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)		1.0	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)		1.0	ND	ND	ND	ND
1-1-Dichloroethylene (1,1-DCE)		1.0	ND	ND	ND	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
1,1,1,2-Tetrachlorethane		1.0	ND	ND	ND	ND
1,1,2,2-Tetrachlorethane		1.0	ND	ND	ND	ND
Tetrachloroethylene (PCE)		1.0	ND	ND	ND	ND
1,1,1-Trichlorethane (111-TCA)		1.0	ND	ND	ND	ND
1,1,2-Trichlorethane (112-TCA)		1.0	ND	ND	ND	ND
Trichloroethylene (TCE)		1.0	ND	ND	ND	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
Trichlorofluoromethane		1.0	ND	ND	ND	ND
Vinyl Chloride		1.0	ND	ND	ND	ND
Benzene		1.0	ND	ND	ND	ND
Ethylbenzene		1.0	ND	ND	ND	ND
Toluene		1.0	ND	ND	ND	ND
m,p-Xylene		2.0	ND	ND	ND	ND
o-Xylene		1.0	ND	ND	ND	ND
SURROGATE	SPK CONC	ACP%	%REC	%REC	%REC	%REC
Dibromodifluoromethane	50	75-125	87	86	89	88
Toluene-d8	50	75-125	98	101	99	99
Bromofluorobenzene	50	75-125	97	98	95	95

a = Report Any Value >= MDL b = Listed Compounds Are Ordered by the Laboratory Analytical Methods: Halogenated, Aromatic, then Remaining Compounds Identified by GC/MS.

SPK CONC = Spiking Concentration (<= 5 x PQL); ACP % = Acceptable Range of Percent; %REC = % Recovery

MDL = Method Detection Limit; MB = Method Blank; ND = Not Detected (Below MDL); NA = Not Applicable.

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ANALYTICAL TEST RESULT

Reporting Unit: ug/L of air

		DATE ANALYZED	07/20/99	07/20/99	07/20/99	07/20/99
		DATE EXTRACTED	NA	NA	NA	NA
		DILUTION FACTOR	1	1	1	1
		LAB SAMPLE I.D.	M4-029-04	M4-029-05	M4-029-06	M4-029-07
		CLIENT SAMPLE I.D.	VE13	VE5	VE6S	VE6D
COMPOUND		MDL				
Carbon Tetrachloride		1.0	ND	ND	ND	ND
Chloroethane		1.0	ND	ND	ND	ND
Chloroform		1.0	ND	ND	ND	ND
Dichlorodifluoromethane		1.0	ND	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)		1.0	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)		1.0	ND	ND	ND	ND
1-1-Dichloroethylene (1,1-DCE)		1.0	**1.0**	ND	ND	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
1,1,1,2-Tetrachlorethane		1.0	ND	ND	ND	ND
1,1,2,2-Tetrachlorethane		1.0	ND	ND	ND	ND
Tetrachloroethylene (PCE)		1.0	**11**	**42**	**80**	**15**
1,1,1-Trichlorethane (111-TCA)		1.0	ND	ND	ND	ND
1,1,2-Trichlorethane (112-TCA)		1.0	ND	ND	ND	ND
Trichloroethylene (TCE)		1.0	ND	**1.9**	**3.8**	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
Trichlorofluoromethane		1.0	ND	ND	ND	ND
Vinyl Chloride		1.0	ND	ND	ND	ND
Benzene		1.0	ND	ND	ND	ND
Ethylbenzene		1.0	ND	ND	ND	ND
Toluene		1.0	ND	ND	ND	ND
m,p-Xylene		2.0	ND	ND	ND	ND
o-Xylene		1.0	ND	ND	ND	ND
SURROGATE	SPK CONC	ACP%	%REC	%REC	%REC	%REC
Dibromodifluoromethane	50	75-125	87	86	85	88
Toluene-d8	50	75-125	99	100	100	102
Bromofluorobenzene	50	75-125	96	93	95	93

a = Report Any Value >= MDL b = Listed Compounds Are Ordered by the Laboratory Analytical Methods: Halogenated, Aromatic, then Remaining Compounds Identified by GC/MS.

SPK CONC = Spiking Concentration (<= 5 x PQL); ACP % = Acceptable Range of Percent; %REC = % Recovery

MDL = Method Detection Limit; MB = Method Blank; ND = Not Detected (Below MDL); NA = Not Applicable.

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ANALYTICAL TEST RESULT

Reporting Unit: ug/L of air

		DATE ANALYZED	07/20/99	07/20/99	07/20/99	07/20/99
		DATE EXTRACTED	NA	NA	NA	NA
		DILUTION FACTOR	1	1	1	1
		LAB SAMPLE I.D.	M4-029-08	M4-029-09	M4-029-10	M4-029-11
		CLIENT SAMPLE I.D.	VE8	VE10	VE12S	VE12D
COMPOUND		MDL				
Carbon Tetrachloride		1.0	ND	ND	ND	ND
Chloroethane		1.0	ND	ND	ND	ND
Chloroform		1.0	ND	ND	ND	ND
Dichlorodifluoromethane		1.0	ND	ND	ND	ND
1,1-Dichloroethane (1,1-DCA)		1.0	ND	ND	ND	ND
1,2-Dichloroethane (1,2-DCA)		1.0	ND	ND	ND	ND
1-1-Dichloroethylene (1,1-DCE)		1.0	ND	ND	ND	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
1,1,1,2-Tetrachlorethane		1.0	ND	ND	ND	ND
1,1,2,2-Tetrachlorethane		1.0	ND	ND	ND	ND
Tetrachloroethylene (PCE)		1.0	**110**	**35**	**16**	**1.2**
1,1,1-Trichlorethane (111-TCA)		1.0	ND	ND	ND	ND
1,1,2-Trichlorethane (112-TCA)		1.0	ND	ND	ND	ND
Trichloroethylene (TCE)		1.0	**5.4**	**1.7**	ND	ND
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	ND
Trichlorofluoromethane		1.0	ND	ND	ND	ND
Vinyl Chloride		1.0	ND	ND	ND	ND
Benzene		1.0	ND	ND	ND	ND
Ethylbenzene		1.0	ND	ND	ND	ND
Toluene		1.0	ND	ND	ND	ND
m,p-Xylene		2.0	ND	ND	ND	ND
o-Xylene		1.0	ND	ND	ND	ND
SURROGATE	SPK CONC	ACP%	%REC	%REC	%REC	%REC
Dibromodifluoromethane	50	75-125	90	87	87	84
Toluene-d8	50	75-125	101	102	101	102
Bromofluorobenzene	50	75-125	93	96	93	94

a = Report Any Value >= MDL b = Listed Compounds Are Ordered by the Laboratory Analytical Methods: Halogenated, Aromatic, then Remaining Compounds Identified by GC/MS.

SPK CONC = Spiking Concentration (<= 5 x PQL); ACP % = Acceptable Range of Percent; %REC = % Recovery

MDL = Method Detection Limit; MB = Method Blank; ND = Not Detected (Below MDL); NA = Not Applicable.

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Centrum
(800) 798-9336

ANALYTICAL TEST RESULT

Reporting Unit: ug/L of air

		DATE ANALYZED	07/20/99	07/20/99	07/20/99	
		DATE EXTRACTED	NA	NA	NA	
		DILUTION FACTOR	1	1	1	
		LAB SAMPLE I.D.	M4-029-12	M4-029-13	M4-029-14	
		CLIENT SAMPLE I.D.	NVP4-1	NVP4-4	NVP4-A	
COMPOUND		MDL				
Carbon Tetrachloride		1.0	ND	ND	ND	
Chloroethane		1.0	ND	ND	ND	
Chloroform		1.0	ND	ND	ND	
Dichlorodifluoromethane		1.0	ND	ND	ND	
1,1-Dichloroethane (1,1-DCA)		1.0	ND	ND	ND	
1,2-Dichloroethane (1,2-DCA)		1.0	ND	ND	ND	
1-1-Dichloroethylene (1,1-DCE)		1.0	ND	ND	ND	
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	
1,1,1,2-Tetrachlorethane		1.0	ND	ND	ND	
1,1,2,2-Tetrachlorethane		1.0	ND	ND	ND	
Tetrachloroethylene (PCE)		1.0	**1.8**	**2.3**	**3.2**	
1,1,1-Trichlorethane (111-TCA)		1.0	ND	ND	ND	
1,1,2-Trichlorethane (112-TCA)		1.0	ND	ND	ND	
Trichloroethylene (TCE)		1.0	ND	ND	ND	
cis-1,2-Dichloroethylene		1.0	ND	ND	ND	
trans-1,2-Dichloroethylene		1.0	ND	ND	ND	
Trichlorofluoromethane		1.0	ND	ND	ND	
Vinyl Chloride		1.0	ND	ND	ND	
Benzene		1.0	ND	ND	ND	
Ethylbenzene		1.0	ND	ND	ND	
Toluene		1.0	ND	ND	ND	
m,p-Xylene		2.0	ND	ND	ND	
o-Xylene		1.0	ND	ND	ND	
SURROGATE	SPK CONC	ACP%	%REC	%REC	%REC	
Dibromodifluoromethane	50	75-125	86	79	90	
Toluene-d8	50	75-125	100	107	102	
Bromofluorobenzene	50	75-125	94	95	95	

a = Report Any Value >= MDL b = Listed Compounds Are Ordered by the Laboratory Analytical Methods: Halogenated, Aromatic, then Remaining Compounds Identified by GC/MS.

SPK CONC = Spiking Concentration (<= 5 x PQL); ACP % = Acceptable Range of Percent; %REC = % Recovery

MDL = Method Detection Limit; MB = Method Blank; ND = Not Detected (Below MDL); NA = Not Applicable.

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QA / QC REPORT

Reporting Unit (Circle One) : ug/Kg **ug/L of air**

I. Sample Duplicate

DATE PERFORMED: 07/20/99
CLIENT SAMPLE I.D.: VE13
LAB SAMPLE I.D.: M4-29-04

ANALYTE		Conc Sample		Conc Dup.		RPD		ACP RPD
8260 Compounds								
1,1-Dichloroethene		1.02		0.98		4%		25
Tetrachloroethene		10.64		8.42		23%		25

II. Laboratory Control Check Sample

DATE PERFORMED: 07/20/99

LAB SAMPLE I.D.: Laboratory Control Sample

ANALYTE	SPK CONC	Conc LCS	% Rec LCS	Conc LCSD	% Rec LCSD	RPD	ACP % LCS	ACP RPD
8260 Compounds								
1,1-Dichloroethylene	20.0	18.4	92%	19.7	98%	6%	70-130	25
Benzene	20.0	19.3	97%	20.0	100%	3%	70-130	25
Trichloroethene	20.0	19.9	99%	19.9	99%	0%	70-130	25
Toluene	20.0	20.1	100%	20.7	103%	3%	70-130	25
Chlorobenzene	20.0	18.0	90%	19.1	96%	6%	70-130	25

MBH

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Centrum Analytical Laboratories, Inc.

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(909) 798-9336 • (800) 798-9336
FAX (909) 793-1559
lab@centrum-labs.com

Centrum Job # M4-27.

Chain of Custody Record

Project No.:

Project Name: CAL MAR

Project Manager:

Phone: 323-278-7700 Fax: 278-7707

Client Name: (Report and Billing) Interphase

Address: (Report and Billing) 6200 Peachtree St. LA, CA 90040

Please Circle Analyses Requested

Centrum ID (lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	8015M: Diesel, Fuel Screen, Carbon Chain	8015M: Gas only	8021B: BTEX/MBE ONLY	418.1 (TRPH), 413.2		GCMS: 8260B / 8021B, 624, 524.2	GCMS: MBE Conf. Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB		Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr			Remarks/Special Instructions
1	VE 14 a	7/20/99	830	V		Glass syringe						X										1.3 Vol.
2	VE 14 b		845									X										2.7 Vol.
3	VE 14 c		850									X										4.1 Vol.
4	VE 13		1030									X										2.7 Vol.
5	VE 5		1100									X										2.7 Vol.
6	VE 6S8 (MS)		1120									X										2.7 Vol.
7	VE 6D ~~22~~ (MSD)		1140									X										2.7 Vol.
8	VE 8		1248									X										2.7 Vol.
9	VE 10		1308									X										2.7 Vol.
10	VE 12S		1355									X										2.7 Vol.

1) Relinquished by: (Sampler's Signature) — Date: 7/20/99 Time:

2) Received by: — Date: Time:

3) Relinquished by: — Date: Time:

4) Received by: — Date: Time:

5) Relinquished by: — Date: Time:

6) Received for Laboratory by: — Date: 7/20/99 Time:

The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.

Laboratory Notes:

To be completed by Laboratory personnel:

Samples chilled? ☐ Yes ☒ No ☐ From Field

Custody seals? ☐ Yes ☒ No

All sample containers intact? ☒ Yes ☐ No

☐ Courier ☐ UPS/Fed Ex ☒ Hand carried

Turn-Around Time

☐ 24 Hr RUSH*
☐ 48 Hr RUSH*
☒ Normal TAT

*Requires PRIOR approval, additional charges apply

Requested due date:

Sample Disposal

☐ Client will pick up
☐ Return to client
☐ Lab disposal

Sample Locator No.:

White Copy - Original (Accompanies Samples) Yellow Copy - Centrum Files Pink Copy - Centrum duplicate Gold Copy - Client Copy

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Centrum Job # M4-29

Chain of Custody Record

Project No.:

Project Name: CAL MAR

Project Manager:

Phone:

Fax:

Client Name: (Report and Billing) Interphase

Address: (Report and Billing) 6200 Peachtree St. LA, CA 90040

Please Circle Analyses Requested

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11	VE12D (MSD)	7/20/99	1413	V		Glass syringe						X										2.7 Vol.
12	NVP4-1	↓	1415	↓		↓						X										2.7 Vol.
13	NVP4-4		1440									X										2.7 Vol.
14	NVP4-A	↓	1445	↓		↓						X										2.7 Vol.

1) Relinquished by: (Sampler's Signature) [signature] Date: 7/20/99 Time:

2) Received by: [signature] Date: Time:

3) Relinquished by: Date: Time:

4) Received by: Date: Time:

5) Relinquished by: Date: Time:

6) Received for Laboratory by: [signature] Date: 7/20/99 Time:

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