Chevron

November 18, 1995

Chevron U.S.A. Products Company
6001 Bollinger Canyon Rd., Bldg L
P.O. Box 5004
San Ramon, CA 94583-0804

Mark A. Miller
SAR Engineer
Phone No 510 842-8134
Fax No. 510 842-8252

Ms. Jennifer Eberle
Alameda County Health Care Services
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Former Chevron Service Station #9-4587
609 Oak Street, Oakland, CA

Dear Ms. Eberle:

Enclosed is the System Startup Report dated October 20, 1995, prepared by our consultant Terra Vac Corporation for the above referenced site. The report documents the progress of the remedial system. Similar update report will be forwarded to your office on a monthly basis until remediation is completed.

If you have any questions or comments, please feel free to contact me at (510) 842-8134.

Sincerely,
CHEVRON U.S.A. PRODUCTS COMPANY

Mark A. Miller
Site Assessment and Remediation Engineer

Enclosure

cc: Ms. B.C. Owen
Mr. Tim Warner, Terra Vac

Mr. Dewey Bargiacchi
The Paris Company
8520 Pardee
Oakland, CA 94621

Mr. James Kimberlin
1100 Howe Avenue #415
Sacramento, CA 94825

Mr. William Kimberlin
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TERRA VAC
14798 WICKS BOULEVARD
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TEL (510) 351-8900
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October 20, 1995

Mr. Mark Miller
Chevron U.S.A. Products Company
6001 Bollinger Canyon Road
San Ramon, California 94583

Re: System Startup Report
Former Chevron Station 9-4587
609 Oak Street
Oakland, California

Dear Mr. Miller:

Enclosed please find the startup report for remediation operations at the above referenced site. This report includes operating data, duration, rates of hydrocarbon removal, cumulative pounds removed to date and air permit compliance information.

If you have any questions, please feel free to call.

Sincerely,
Terra Vac Corporation

Jason L. Nutt
Staff Engineer

Timothy M. Warner
Project Manager

Enclosure

cc: File 30-0219.20

SYSTEM STARTUP REPORT
FORMER CHEVRON STATION 9-4587
609 OAK STREET
OAKLAND, CALIFORNIA

1.0 Background

Terra Vac has been contracted by Chevron U.S.A. Products Company (Chevron) to install and operate a soil and groundwater remediation system at the above referenced site (Figure 1). The purpose of this report is to provide data on system startup, operation, and source test data for the first week of operation.

2.0 Startup

The Airex Retox 600 was activated on Monday, September 25, 1995. Before operations began, all equipment and control systems were checked for proper operation. The equipment being utilized at the site is as follows:

Vapor Abatement System: To meet the requirements of the air pollution control district, an Airex Retox 600 was mobilized to the site. This is an all electric unit and is operating on 480 volt, 3 phase service.

A 30 horsepower Lamson Turbotron will supply the necessary soil vacuum. The extraction equipment is integrated as part of the Airex Retox and is equipped with an explosion proof motor, motor controls, and noise suppression devices.

A 150-gallon vapor-liquid separator has been integrated into the system and is mounted on the Retox trailer. This separator has both high and high-high water level controls that operate the water pump and shut the system down, respectively.

Air Injection System: A 15 horsepower oil-free blower was mobilized to the site to enhance naturally occurring biodegradation. This system is expected to be operational by the end of October.

3.0 Operations

Initial testing and safety check out of the system took place on September 20, 1995, and actual startup occurred on September 25, 1995. A source test was conducted to verify air permit compliance and destruction efficiency. Upon successful completion of the source test, Terra Vac

was given verbal approval to operate prior to receipt of the permit to operate document. Operating data is shown in Table 1, and efficiency data is presented as Table 2. All eleven wells were brought on-line the first day.

Initial extraction rates were approximately 69 pounds of petroleum hydrocarbons per day (lbs/day), which rapidly increased to an extraction rate of 201 lbs/day. Presently hydrocarbon extraction rates are approximately 120 lbs/day. Based on analyses of inlet vapor samples through October 10, approximately 1,420 pounds, or 240 gallons, of hydrocarbon have been removed from the subsurface. A graph showing removal rate versus time is attached as Figure 2, and a graph showing cumulative pounds of hydrocarbons removed is attached as Figure 3.

Table 3 shows the individual wellhead concentrations and Table 4 shows the vapor stream components of the on-line wells utilizing BTEX compounds for fractional cuts. Percentages above 60 percent in the benzene and lighter range usually indicate proximity to relatively fresh product or that the well is drawing from a distant source. To monitor the progress of remediation, Terra Vac will track the decline in the percentage of vapors lighter than benzene.

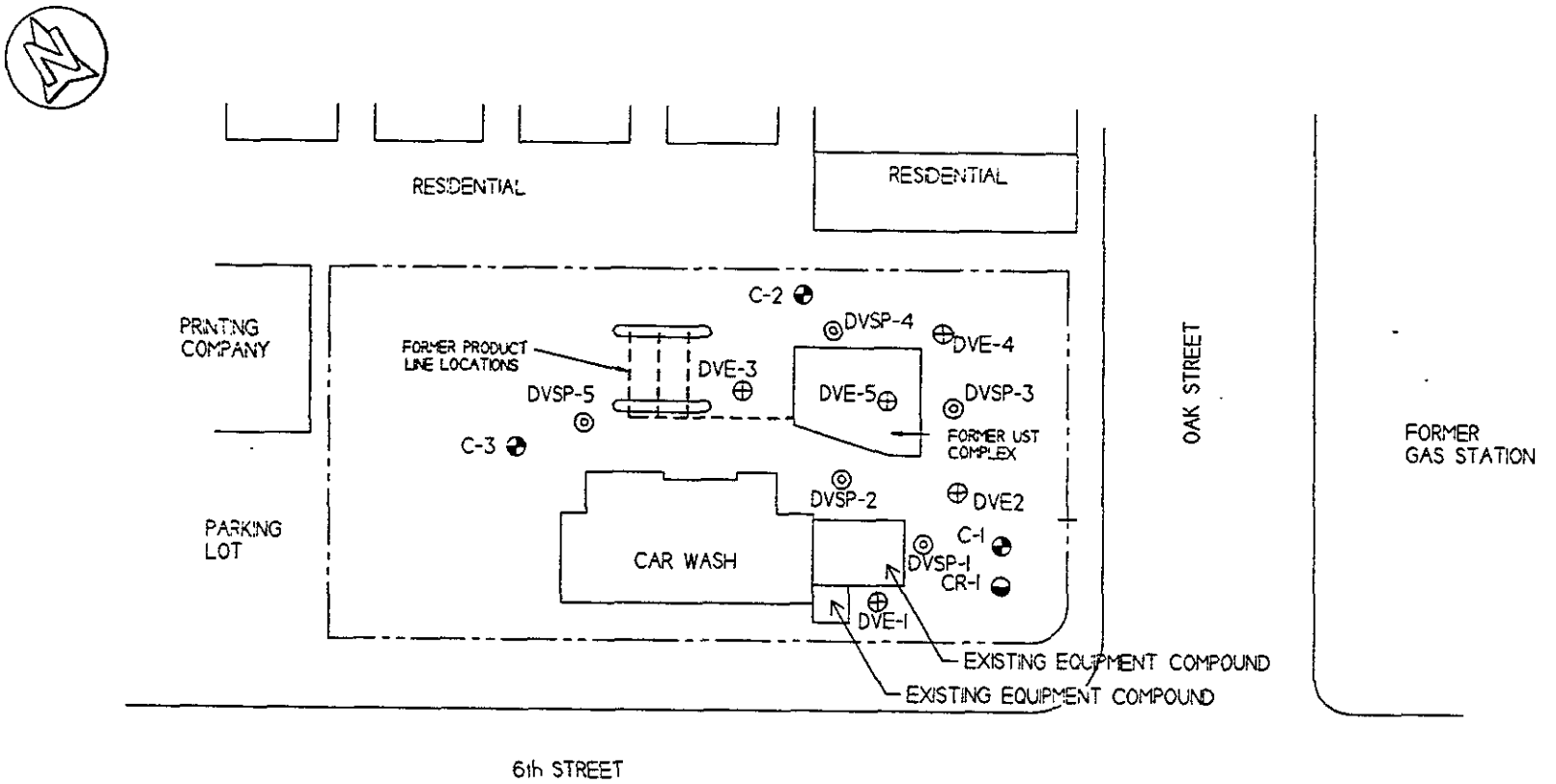
The remediation system has operated for 14.6 days, with only one minor shut down caused by high liquid level in the knock-out pot (KO). The KO was quickly emptied and the system restarted.

4.0 Air Permit Compliance

As per Bay Area Air Quality Management District (BAAQMD) requirements, an on-site source test was conducted between September 25, and September 29, 1995. Samples were taken from the inlet and outlet of the abatement device to determine destruction efficiencies at the documented flow rate and stack temperature. Bag samples were taken for five consecutive days and analyzed in the Terra Vac office laboratory for TPH-g and BTEX via modified EPA methods 8015/8020.

After the first week of operation, samples will be taken and analyzed on a weekly basis for a one month period, after which Terra Vac will sample bi-monthly for the length of the project.

Destruction efficiencies for the first week are presented in Table 2, and demonstrates that the unit is maintaining a destruction efficiency of greater than 97 percent when inlet concentrations are below 2000 parts per million by volume. The resulting destruction efficiencies meet the requirements set by the BAAQMD.



LEGEND

C-1	- Groundwater Monitoring Well
CR-1	- Groundwater Recovery Well
⊕	- Entrainment Extraction Well
◎	- Dual Completed Well

EXTENDED SITE MAP
Former Chevron Station 9-4587
609 Oak Street
Oakland, California

Project	30-0219	Drawn by	CMG
Date	8/18/95	Revision	
Scale	1" = 50'	Checked	TMW

TERRA VAC
14798 Wicks Boulevard
San Leandro, CA 94577
(510) 351-8900 fax: -0221

Figure 1

Figure 2
Removal Rate

Former Chevron Station 9-4587
609 Oak Street
Oakland, CA

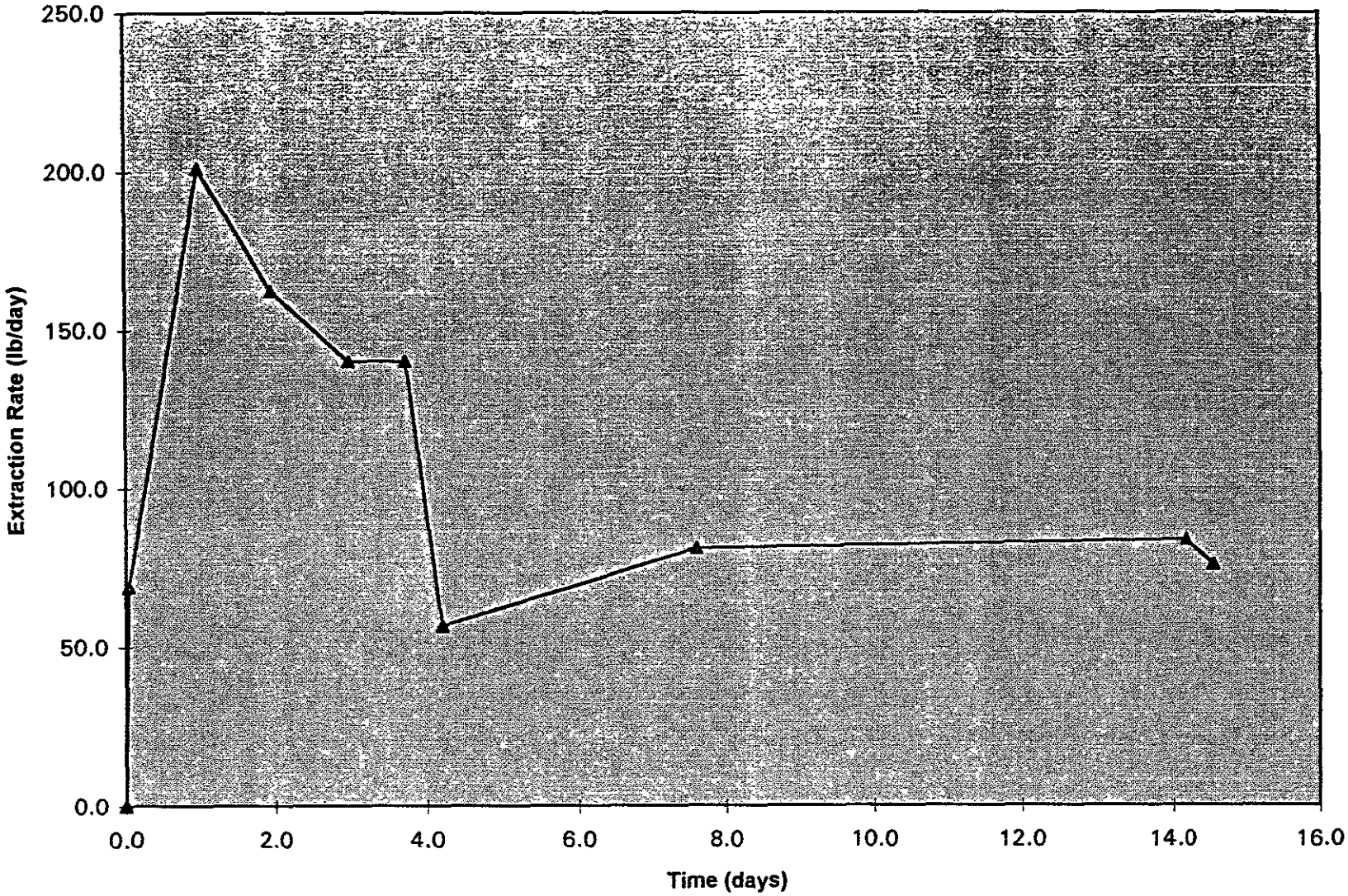


FIGURE 3
Cumulative Removal Rate

Former Chevron Station 9-4587
609 Oak Street
Oakland, CA

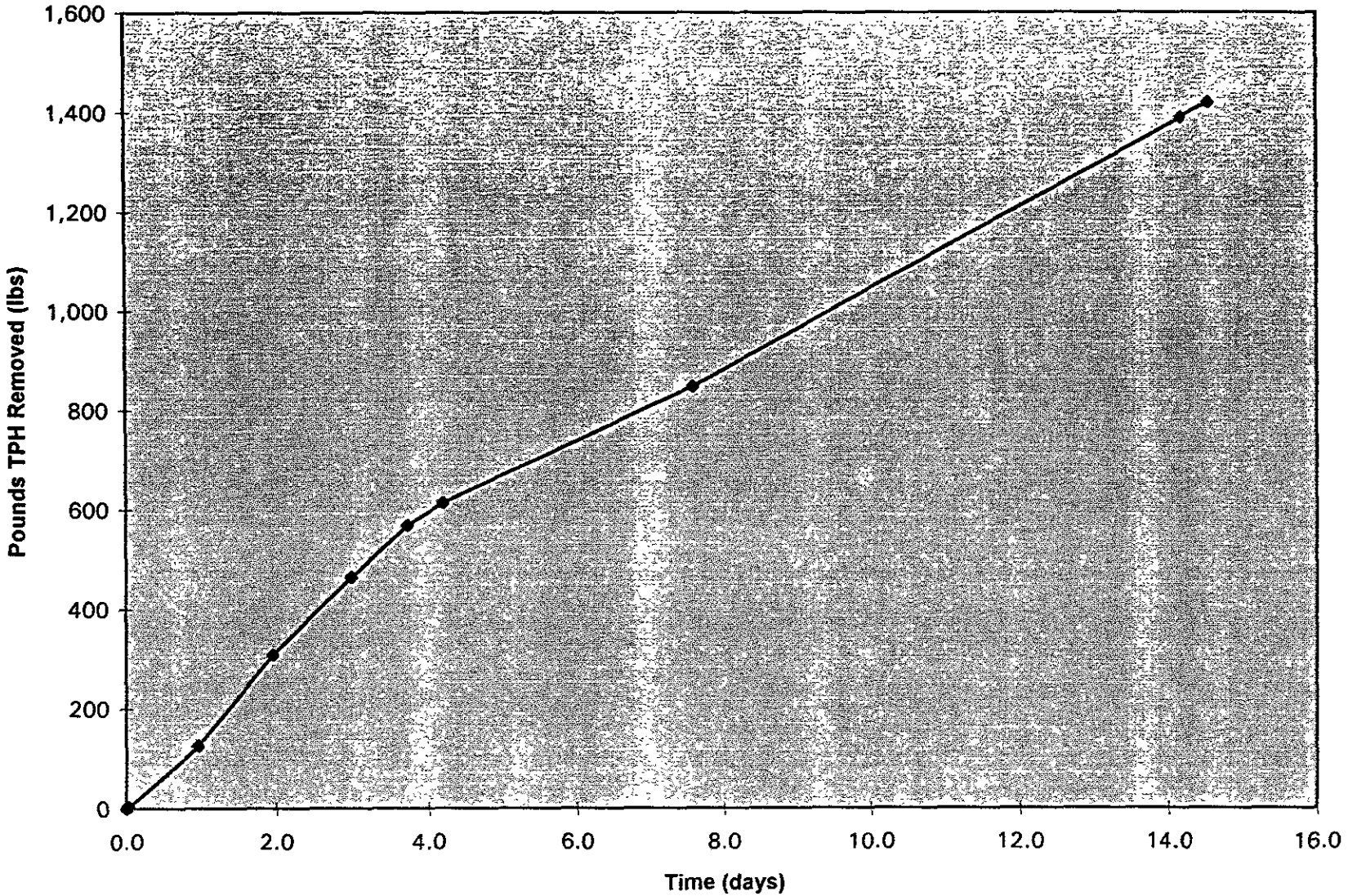


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Table 1
Operation Summary

Former Chevron Station 9-4587
609 Oak Street
Oakland, CA

Date	Run Time (days)	Sample	Extracted Flow (scfm)	Extracted Conc. (mg/l)	Extracted Rate (lb/day)	Cumulative Extraction (lb)	Cumulative Water (gal)
09/25/95	0.0	start	353		0.0	0	
09/25/95	0.0	1	353	2.17	68.8	3	
09/26/95	1.0	3	272	8.23	201.1	127	9,680
09/27/95	2.0	16	294	6.15	162.4	308	19,910
09/28/95	3.0	18	303	5.15	140.1	464	29,950
09/29/95	3.7	stop	0		140.1	568	
09/29/95	3.7	start	0		140.1	568	
09/29/95	4.2	20	241	2.61	56.5	614	37,163
10/03/95	7.6	22	308	2.93	81.0	848	72,850
10/09/95	14.2	24	212	4.39	83.5	1,388	122,310
10/10/95	14.6	26	191	4.42	75.8	1,419	131,460

Table 2
Destruction Efficiency Data

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Former Chevron Station 9-4587
609 Oak Street
Oakland, CA

Date	Run Time (days)	Outlet Temp (deg F)	Outlet Flow (scfm)	Conc (mg/l)	Benzene Conc (mg/l)	Emissions Rate pounds per day POC	Emissions Rate pounds per day Benzene	Abatement Efficiency (%)
09/25/95	0.0	261	353	0.038	0.002	1.20	0.06	98.25
09/26/95	1.0	261	272	0.120	0.002	2.93	0.05	98.54
09/27/95	2.0	261	294	0.150	0.004	3.96	0.11	97.56
09/28/95	3.0	261	303	0.150	0.004	4.08	0.11	97.09
09/29/95	4.2	261	241	0.064	0.003	1.39	0.06	97.55
10/03/95	7.6	308	308	0.048	0.002	1.33	0.06	98.36
10/09/95	14.2	320	212	0.121	0.002	2.30	0.04	97.24
10/10/95	14.6	395	191	0.094	0.002	1.61	0.03	97.87

Notes: 1.) Detection limit = 0.002 mg/l

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Table 3
Speciation Data

Former Chevron Station 9-4587
609 Oak Street
Oakland, CA

Date	09/26/95
CR-1	
lighter than benzene	50%
benzene to toluene	11%
toluene to xylene	16%
heavier than xylene	23%
DVE-2	
lighter than benzene	64%
benzene to toluene	21%
toluene to xylene	10%
heavier than xylene	5%
DVE-4	
lighter than benzene	48%
benzene to toluene	30%
toluene to xylene	14%
heavier than xylene	8%
DVE-5	
lighter than benzene	7%
benzene to toluene	20%
toluene to xylene	39%
heavier than xylene	34%
DVSP-3	
lighter than benzene	63%
benzene to toluene	26%
toluene to xylene	8%
heavier than xylene	3%
DVSP-5	
lighter than benzene	66%
benzene to toluene	23%
toluene to xylene	9%
heavier than xylene	2%
INLET	
lighter than benzene	39%
benzene to toluene	26%
toluene to xylene	20%
heavier than xylene	15%

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Table 4
Well Concentration Data

Former Chevron Station 9-4587
609 Oak Street
Oakland, CA

Well	Vapor Concentrations (mg/L)											
	CR-1	DVE-1	DVE-2	DVE-3	DVE-4	DVE-5	DVSP-1	DVSP-2	DVSP-3	DVSP-4	DVSP-5	Inlet
Date												
09/26/95	1.20	0.72	10.11	0.79	3.87	9.08	1.64	1.12	13.74	6.85	34.37	8.23