DB
9/26/89

Converse Environmental Consultants California

CONVERSE ENVIRONMENTAL WEST
new name for
CONVERSE ENVIROMENTAL CONSULTANTS CALIFORNIA

55 Hawthorne Street, Suite 500
San Francisco, California 94105

Telephone **415 543-4200**
FAX 415 777-3157

September 25, 1989
88-44-361-01-198

Mr. Dennis Burn
Alameda County Health Care Services Agency
Division of Hazardous Materials
80 Swan Way, Room 200
Oakland, California 94621

Subject: Former Shell Oil Company Station
500 40th Street 94609
Oakland, California

Dear Mr. Burn:

I have recently attempted to reach you by telephone on several occasions to advise you of the progress of the sub-surface investigations at the subject site. Having not been able to reach you, I have prepared this letter describing recently completed and planned activities. This letter supplements the information presented in the latest monthly report for the site.

Converse Environmental Consultants (CEW) installed a fourth monitoring well (MW-5) onsite on September 21, 1989 (see attached drawing). Soil samples were collected and submitted for laboratory analysis. The well was developed and will be sampled during the October groundwater sampling round.

We are presently awaiting return of a Right-of-Entry agreement with the property owner of 518 40th Street. The agreement was mailed to the owner on August 1, 1989. The agreement is necessary to gain access to place drilling equipment needed to install onsite wells MW-6 through MW-8. During a conversation with the owner on September 21, 1989, the owner indicated that the agreement was under review by his attorney.

CEW will schedule our drilling subcontractor to install MW-6 through MW-8 immediately upon receipt of the executed agreement.

In order to move forward with the investigatoin, CEW will start the offsite soil and groundwater investigations prior to completion of onsite activities. On September 21, 1989, CEW applied to the City of Oakland for Encroachment and Traffic Permits to install five offiste wells (OMW-1 through OMW-5) in 40th Street. The officers responsible for issuing the permits indicated that processing the applications will require two to four weeks. We will schedule drilling and commence exploration immediately upon receipt of the city permits.

I will notify you by telephone as soon as we are able to install any of the proposed wells.

If you have any questions regarding the status of the investigation, please contact me at (415) 543-4200.

Very truly yours,

Converse Environmental Consultants California

Robin Breuer
for

Marc I. Yalom
Project Hydrogeologist

MIY:jsa

cc: Mr. Douglas Charlton, Vice President, CEW
Ms. Robin Breuer, Regulatory Specialist, CEW
Ms. Diane Lundquist, Environmental Engineer, Shell Oil
Ms. Dyan Whyte, Regional Water Quality Control Board,
San Francisco Bay Region

Attachment: Drawing

Converse Environmental Consultants California

55 Hawthorne Street, Suite 500
San Francisco, California 94105

Telephone **415 543-4200**
FAX 415 777-3157

August 4, 1989
88-44-361-01-14

Mr. Scott Hugenberger
Water Resource Control Engineer
San Francisco Bay Regional Water Quality Control Board
1111 Jackson Street, Sixth Floor
Oakland, California 94621

Subject: Shell Oil Company - Monthly Groundwater Monitoring Report
500 40th Street
Oakland, California

Dear Mr. Hugenberger:

Enclosed please find one copy of the Shell Oil Company Monthly Groundwater Monitoring Report for July 1989 prepared by Converse Environmental Consultants California - (San Francisco).

Please call if you have any questions.

Very truly yours,

Converse Environmental Consultants California

Robert K. Mansfield
California Registered Geologist #4529

MIY:aar

Enclosure

cc: Ms. Diane Lundquist - Shell Oil Company - (w/encl.)
Mr. Rafat Shahid - Alameda County Health - (w/encl.)
Ms. Robin Breuer - CECC - (w/encl.)

500 40TH ST\HUGENBERGER.14

8-7-89

Converse Environmental Consultants California

REPORT OF ACTIVITIES

SHELL OIL COMPANY FACILITY
500 40th Street
Oakland, California

For July 1989
Submitted: August 4, 1989

RWQCB Representative:	Mr. Scott Hugenberger Waste Water Control Engineer
LIA Representative:	Mr. Rafat Shahid Alameda County Health Services Agency
Shell Engineer:	Ms. Diane Lundquist Environmental Engineer
Converse Project Manager:	Marc I. Yalom, Project Manager 55 Hawthorne Street, Suite 500 San Francisco, California 94105 (415) 543-4200
Registered Geologist in Charge:	Douglas W. Charlton, Principal Geologist 55 Hawthorne Street, Suite 500 San Francisco, California 94105 (415) 543-4200
Site Owner:	Shell Oil Company

1. SITE DESCRIPTION

1.1 Maps

Vicinity Map: See Drawing 1
Plot Plan: See Drawing 2

1.2 Neighborhood Topography

Slopes gently westward towards San Francisco Bay.

1.3 Primary Surface Waters Nearby

San Francisco Bay is located approximately 1.5 miles to the west.

1.4 Water Table Information

July 1989 Depth to Water: Approximately 12 feet below grade.
Depth to Highest High Water: Approximately 11' below grade by redox boundary in soils.

2. INVESTIGATION HISTORY

2.1 Soil Borings Drilled to Period Start

B-1 through B-11 (IT 1982-84)
MW-2 through MW-4 (CECC 5/89)

2.2 Soil Borings Abandoned to Period Start

None.

2.3 Groundwater Wells Drilled to Period Start

B-1 through B-11 (IT 1982-84)
MW-2 through MW-4 (CECC 5/89)

2.4 Groundwater Wells Abandoned to Period Start

B-6 was abandoned by IT in June, 1986. No records are available for abandonment of the other B-series wells. These wells are covered with pavement or buildings, and they can not be located.

2.5 Investigative History Summary

TABLE 1: Chronological Summary

DATE	DESCRIPTION OF ACTIVITY
7/82	IT installed 8 six inch diameter groundwater monitoring wells to 30 feet bgs. onsite. The wells were screened from 5 to 30 feet bgs. Combustible vapors were detected in the storm sewer system in the BART Station across the street.
7/82	IT Progress Report 1: Well installations and constructions were reported, and free product was noted in wells B-7 and B-8. Groundwater gradient was shown to be westward, towards the BART Station. (See Attachment 1 for well construction diagrams.)
11/82	IT Progress Report 6: Groundwater gradient still towards well B-3. From September 1 to November 19, 1982, IT removed 35 pints of product from B-4. Well TOCs were re-surveyed and groundwater gradient was confirmed toward B-3. Maximum product thickness was in B-4, at several inches.
12/82	IT Progress Report 7: Product thickness increased in B-3 in apparent response to rising water table. Product in B-4 remained at several inches.
1/83	IT Progress Report 8: Product in B-4 had diminished to film thickness.
2/83	IT Progress Report 9: Rainfall records were researched, and the relationship between rainfall, water table and product removed was charted by graph. Amount of product in B-4 appeared to vary inversely with water table; as water table rose with winter rains, the amount product in B-4 dropped. IT proposed that product was displaced downgradient as water table rose.
3/83	IT Progress Report 10: Vapor concentrations of TPH (expressed as percent lower explosive limit) were rising in wells B-1, B-2, B-3 and B-7. No product was measurable in B-4.
6/83	Rapid reappearance of product in well B-4, from negligible in May to 4+ feet by June 30 and 6.34 feet on July 15. Increase was also measured B-3, to a thickness of 0.66 feet in July. IT concluded that a reservoir of product existed in the tank backfill, and that as water table dropped in summer time this reservoir was allowed to escape by way of gravel lenses which were saturated at high water table seasons.
7/83	IT installed 8 inch diameter monitoring wells B-9 and B-10 to 20 feet bgs in native soils next to the tank backfill.
8/83	IT Progress Report 11: IT repeated the concept that product was released in surges through gravel lenses exposed to the water table during summer.
8/83	IT installed groundwater monitoring well B-11 and sand backfill in the southwest corner of the tank bed. No free-flowing product was encountered in this well.
9/83	IT drilled two 18 inch diameter borings to 30 feet bgs and completed same as 12 inch diameter recovery wells with screen intervals from 5 to 30 feet bgs. These wells, R-1 and R-2, were located near wells B-3 and B-4, directly west of the tank backfill.
10/83	IT purged and developed wells R-1 and R-2, holding a strong depression on the water table for 2 hours.
11/83	According to IT reference, the tanks were removed and, as part of this excavation wells R-1 and R-2 were also removed. No information was provided on tank excavation or associated soils/groundwater testing and reporting to regulatory agencies.
1/84	IT Progress Report 13: Wells B-3 and B-4 continued to contain measurable product, to thicknesses of 2 feet. In general, product thicknesses decreased during December and January. Product thicknesses also decreased after tank removal. Groundwater piezometric map showed a west-trending, low area encompassing wells R-1, R-2, B-3 and B-4. This extended offsite, suggesting a paleodrainage which controlled product collection and migration offsite.

TABLE 1

CHRONOLOGICAL SUMMARY

Continued

Date	Description of Activity
5/84	IT Report: The thicknesses of product in B-3 and B-4 measured from several inches to one foot during the period January to May 1984.
7/84	IT Report: Product thicknesses increased starting in mid-May in response to lowering water tables. This pattern was similar to the pattern observed in 1983.
8/84	IT Report: The thickness of product in B-3 remained one foot, while the amount of product in B-4 decreased. IT recommended looking for possible upgradient offsite sources.
9/84	IT Report: The thickness of product in B-4 started to increase (still at less than one inch) while the thickness of product in B-3 decreased (still on the order of one foot).
10/84	IT Report: New construction was noted.
1/85	IT Report: The thickness of product of B-3 had decreased to several inches and B-4 contained negligible measurable product. This pattern of decreasing product in the winter (high water table) months was consistent with that observed in the winters of 1982-83, and 1983-84.
2/85	IT Report: Significant measurable gasoline (1.64 feet) was discovered in B-8. The gasoline appeared degraded and "old". IT concluded that this gasoline could be from the same source as that contributing to observed in wells B-3 and B-4.
6/85	IT Report: Product thicknesses in B-3, B-4 and B-8 decreased from January to mid-May, with a dramatic decrease in B-8. IT repeated its interpretation that product thickness decreased as water tables rose and increased as water tables fell. IT further proposed that the product was trapped in permeable lenses, and migrated to different geographic areas as the water tables rose and fell.
12/85	IT Report: The thickness of product in B-3 increased to approximately 2 feet during the summer, showing the seasonal increase of prior years period. Simultaneously, no product was measured in B-8 after June 3, and product reappeared in B-2 in September and October. Product thickness in B-4 fluctuated at less than one foot thick during this period. IT recommended installing a recovery extraction trench along the west boundary of the property.
5/86	IT Quarterly Report: Product thickness decreased in wells B-3 and B-4 in response to seasonal rise in the water table.
6/86	IT requested permission to abandon B-6.
7/86	IT stated that Shell planned to remove the underground storage tanks in the near future.
8/86	IT Quarterly Report: IT noted seasonal decline in water table and negligible measurable product in wells B-2 and B-4, with approximately 2 feet of floating product in B-3.
9/86	A groundwater sample from B-3 contained volatile organics: 0.90 ppm; benzene: 0.32 ppm; toluene: 0.23 ppm; xylene: 0.16 ppm.
1/4/87(?)	A commercial shopping center building was erected on the property, covering wells B-2, B-6, B-7, B-9 and B-10. Wells B-1, B-3, B-4, B-5 and B-8 were covered by site parking and a rear driveway.
1/89	Shell transfers project to CECC.
4/7/89	Revised Work Plan submitted to RWQCB.
5/23/89	Monitoring wells MW-2, MW-3 and MW-4 installed, soil sampled.
6/20/89	Groundwater sampled.
7/7/89	CECC issues Quarterly Report.
7/19/89	Groundwater sampled.

3. WORK COMPLETED THIS PERIOD

3.1 Introduction

Work initiated and completed during July 1989 followed the task descriptions and modifications of the site Work Plan dated April 5, 1989.

3.2 Groundwater Analysis and Results

Groundwater samples were collected from 3 onsite wells, properly packaged and transferred to a California State-certified analytical laboratory under proper chain-of-custody and preservation (see Quarter 2 Report of Activities, Appendices E and F). The samples were analyzed for TPH (as gasoline and diesel), BTEX, and total lead using EPA Methods 3150, 5030, 602 and 7421. The analytical results are summarized in Table 2, and certified sheets from all analyses are enclosed as Attachment 1.

TABLE 1: Summary of Groundwater Monitoring Well Installations

Well No.	Date Installed	Diameter Well (in)	TD (ft bgs)	Screen (ft bgs)	Bentonite Seal (ft bgs)	Grout Seal (ft bgs)
MW-2	5/22/89	12	25	20.0-9.0	9.0-7.0	7.0-0
MW-3	5/23/89	12	21	19.0-9.5	9.5-8.0	8.0-0
MW-4	5/23/89	12	20	15.5-9.5	9.5-7.5	7.5-0

TABLE 2: Groundwater Analytical Results (ppm)

Well No.	Sample Date	TPH-g	TPH-d	Benzene	Toluene	Ethyl-benzene	Xylenes	Lead
MW-2	6/20/89	0.8	<0.01	0.046	0.0068	0.0027	0.056	NA
MW-2	**7/18/89**	**1.4**	**0.4**	**0.033**	**0.0056**	**0.024**	**0.073**	**0.003**
MW-3	6/20/89	2.3	<0.1	0.18	0.15	0.054	0.8	NA
MW-3	**7/18/89**	**1.5**	**9.1**	**0.085**	**0.034**	**0.010**	**0.12**	**0.002**
MW-4	6/20/89	<0.05	<0.01	<0.0005	<0.0015	<0.0015	<0.0015	NA
MW-4	**7/18/89**	**<0.05**	**<0.05**	**<0.0005**	**<0.0015**	**<0.0015**	**<0.0015**	**0.003**

3.3 Physical Monitoring Results

Three wells were physically monitored for depth to water table, and measurement of floating product, if any. A summary of these results is presented in Table 3.

TABLE 3 Physical Monitoring Results: Evidence of Contamination

Well No.	Date	Depth to Water (ft.)	Petroleum Water Odor	Thickness Floating Product (inches)	Notes
MW-2	6/19/89	11.91	None	None	Soft sed. in bottom
MW-2	7/18/89	11.98	None	None	
MW-3	6/19/89	10.99	None	None	Soft sed. in bottom
MW-3	7/18/89	11.05	Slight	None	
MW-4	6/19/89	12.18	None	None	No seds.
MW-4	7/18/89	12.21	None	None	

4. REVIEW OF DATA AND INTERPRETATIONS

4.1 Groundwater Elevation and Gradient (See Drawing 3)

- Groundwater gradient is generally south-southwest, at 0.0067 ft/ft.

4.2 Distribution of Dissolved MVF Contamination in Groundwater (See Drawings 4 and 5)

- TPH-g, TPH-d and BTEX contamination were present in groundwater from two of the wells.
- Lead was detected in groundwater from all three wells.

4.3 Distribution of Floating Product on Groundwater

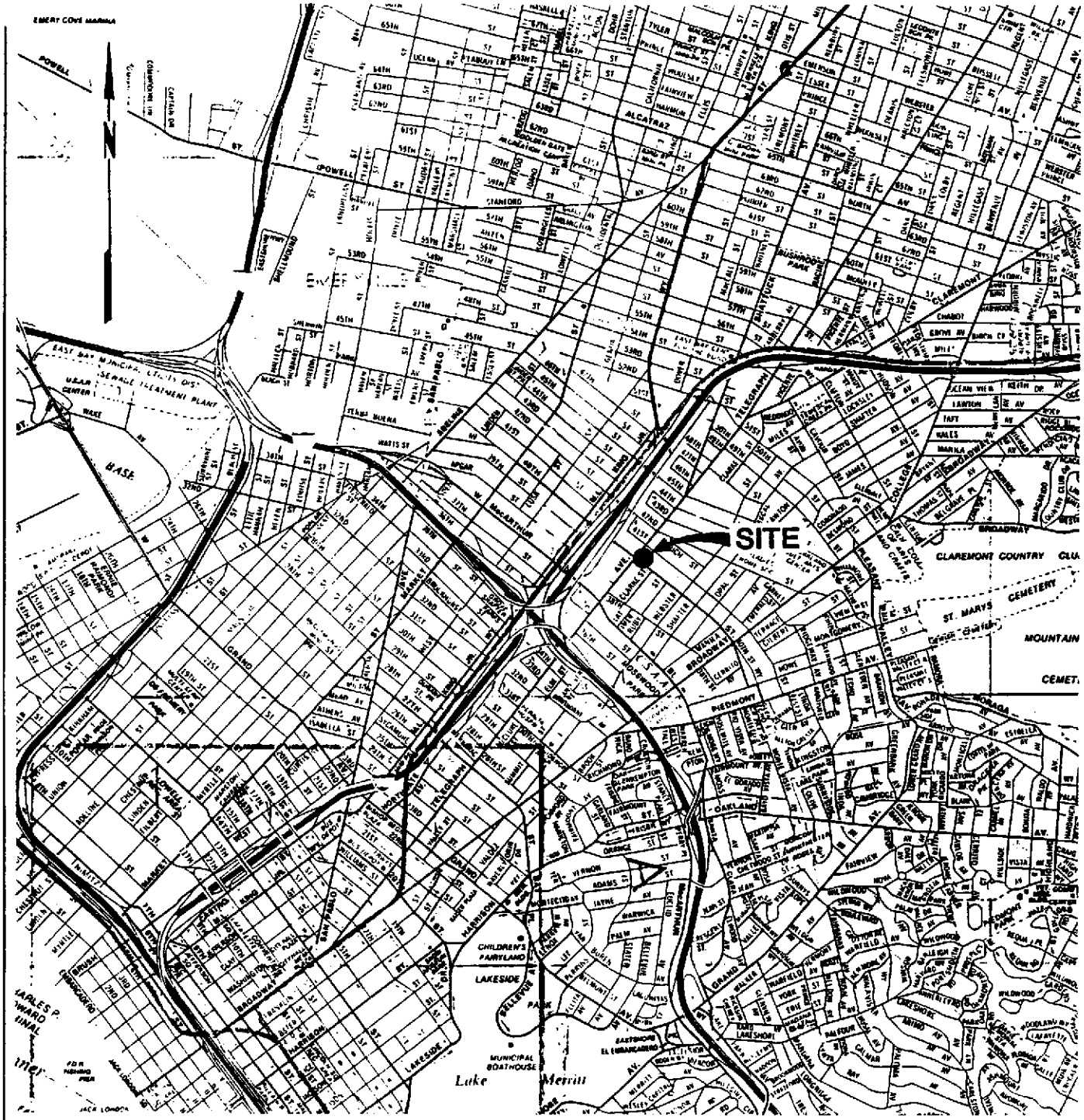
- No floating product was observed.

5. WORK PLAN MODIFICATIONS

Task 16 was modified to include Monthly Groundwater Sampling.

6. WORK PLANNED FOR NEXT MONTH

Groundwater will be sampled, analyzed and results reported in August 1989.



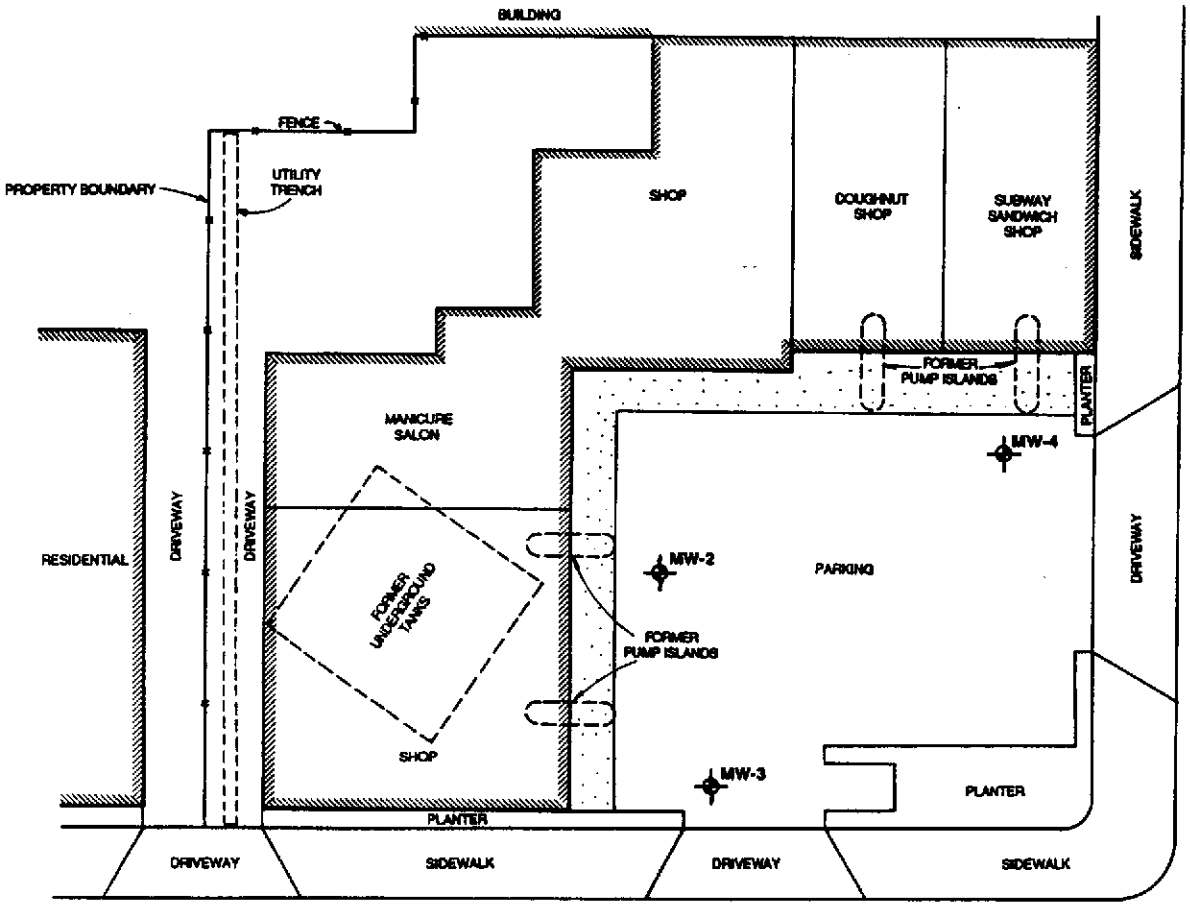
SOURCE: California State Automobile Association.

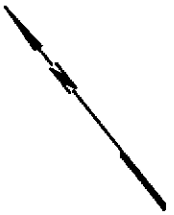
SITE LOCATION MAP

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental
Consultants California

Scale: AS SHOWN	Project No.: 88-44-361-01
Prepared by: KGC	Date: 4/4/89
Checked by: RMB/MIY	Drawing No.: 1
Approved by: DWC	





LEGEND

MW-2 GROUNDWATER MONITORING WELL

NOTE: GROUNDWATER MONITORING WELL MW-1 WAS NOT INSTALLED

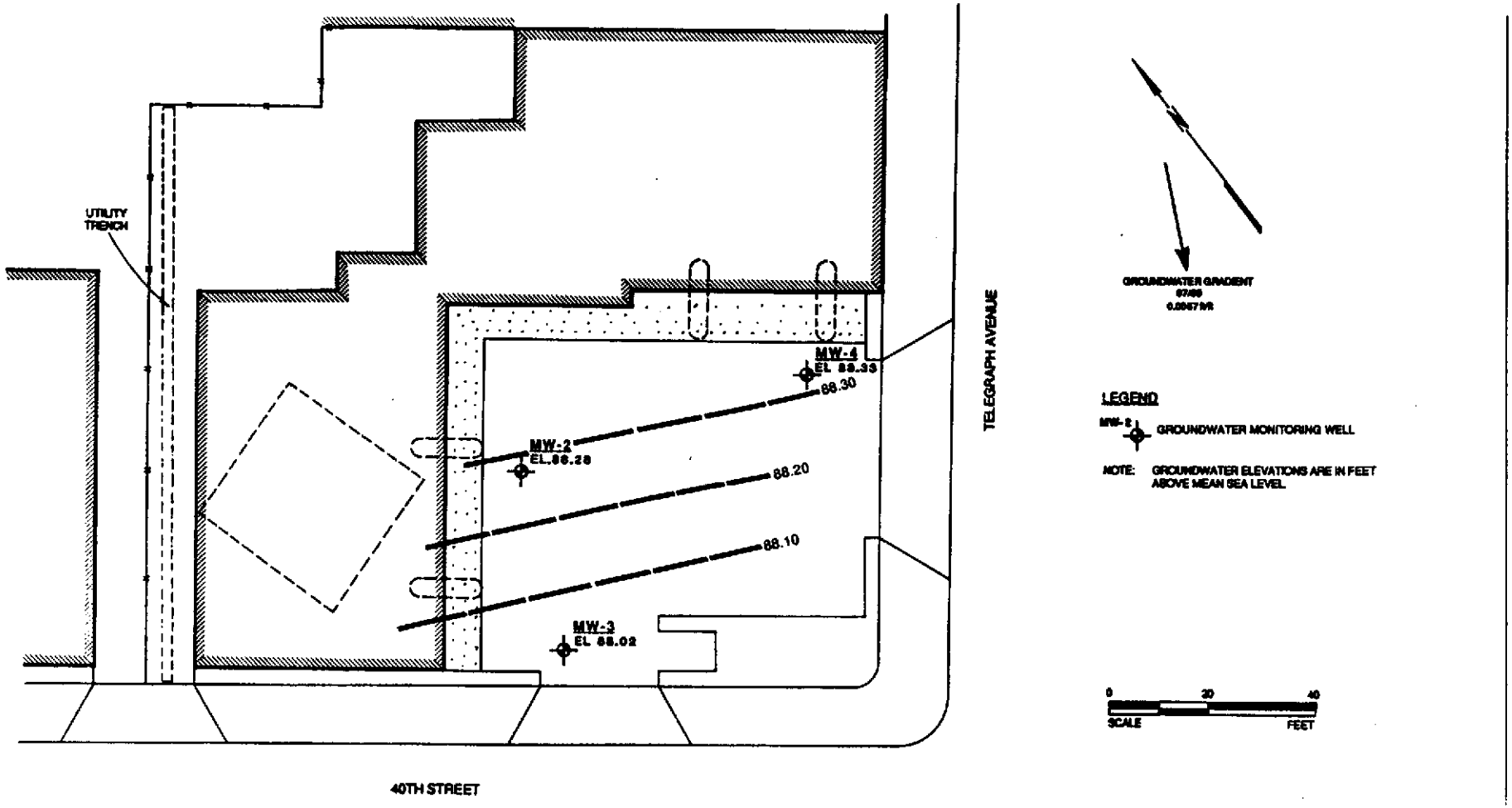
1989 PLOT PLAN

SHELL OIL COMPANY
500 40th Street
Oakland, California

Scale	AS SHOWN
Date	7/6/89
Prepared By	KGC
Checked By	RMB
Approved By	DWC
Project No.	88-44-381-01
Drawing No.	2

Converse Environmental Consultants California

Base Map: Surveyed with EDM, Converse 1989.



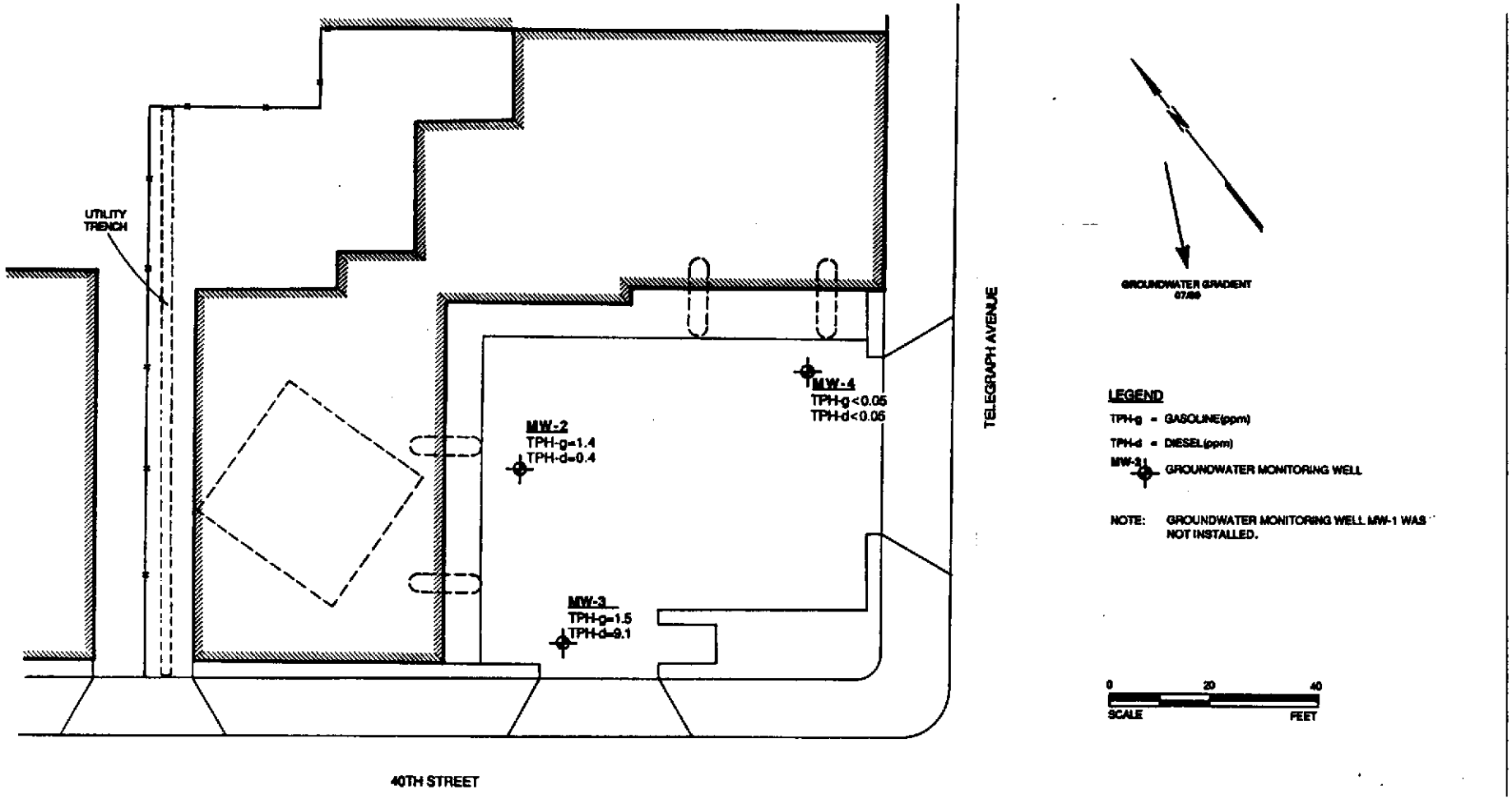
GROUNDWATER GRADIENT

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental Consultants California

Scale	AS SHOWN
Date	7/28/89
Prepared By	CRB/KGC
Checked By	RMB
Approved By	DWC
Project No	88-44-361-01
Drawing No	3

Base Map Surveyed with EDM Converse 1989



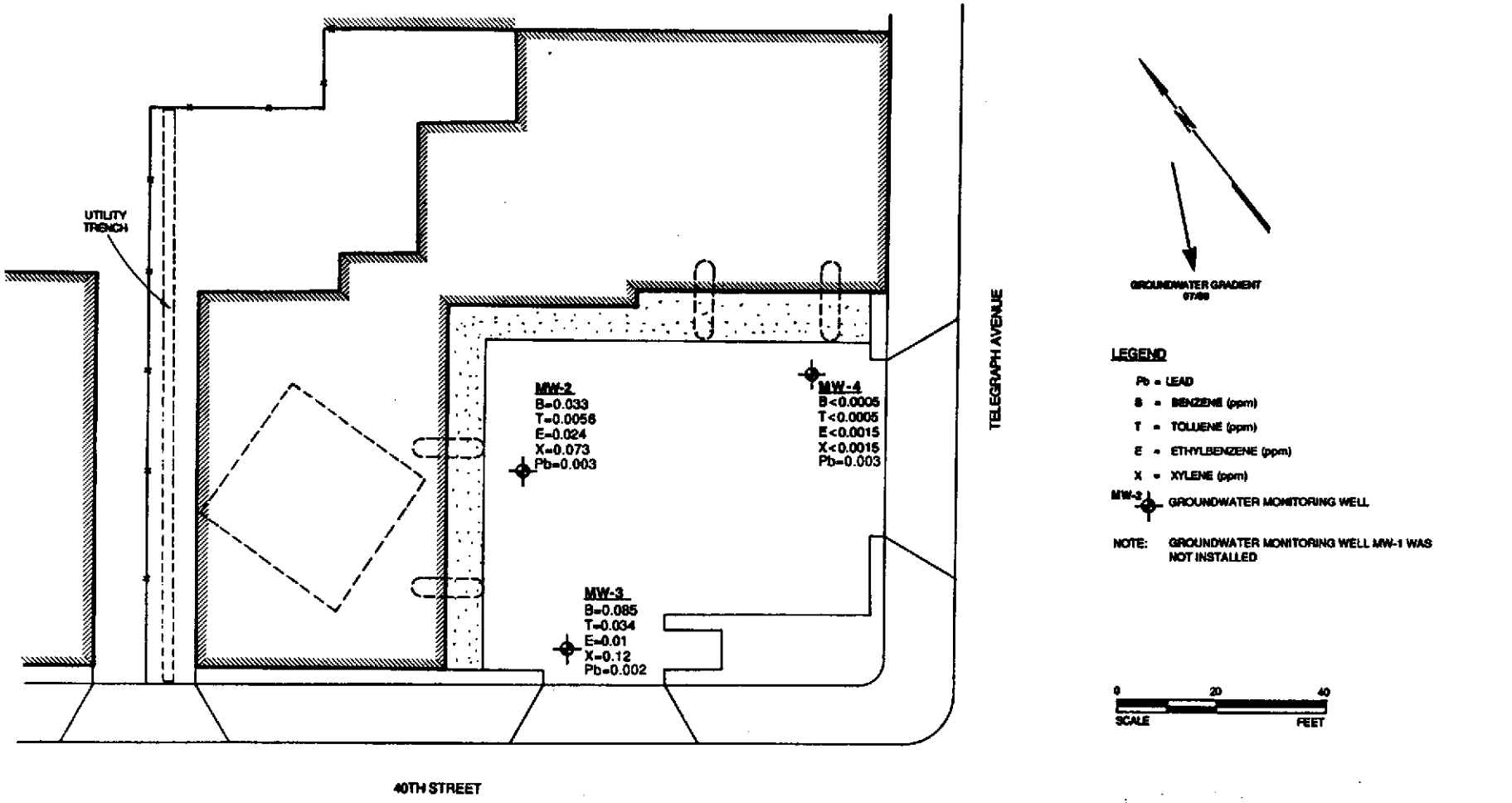
PLAN: GROUNDWATER TPHg AND TPHd

SHELL OIL COMPANY
500 40th Street
Oakland, California

Scale	AS SHOWN
Date	7/28/89
Prepared By	CRB/KGC
Checked By	RMB
Approved By	DWC
Project No.	88-44-381-01
Drawing No.	4

Converse Environmental Consultants California

Base Map . Surveyed with EDM, Converse 1989.



Base Map Surveyed with EDM, Converse 1989

PLAN: GROUNDWATER BTEX AND LEAD

SHELL OIL COMPANY
500 40th Street
Oakland, California

Converse Environmental Consultants California

Scale	AS SHOWN
Date	7/28/89
Prepared By	CRB/KGC
Checked By	RMB
Approved By	DWC
Project No.	88-44-361-01
Drawing No.	5

ATTACHMENT 1

Groundwater Analytical Results

NET NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

Formerly: ANATEC Labs, Inc.

Marc Yalom
Converse Consultants
55 Hawthorne St, Ste 500
San Francisco, CA 94105

07-27-89
NET Pacific Log No: 7135
Series No: 212
Client Ref: Proj. # 88-44-361-02

Subject: Analytical Results for "Shell - 500 40th" Received 07-19-89.

Dear Mr. Yalom:

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Submitted by:

Susan Joy Griffin
Group Leader
Gas Chromatography

Approved by:

Sue J. Long
Group Leader
Classical Chemistry

/sm
Enc: Sample Custody Document

KEY TO ABBREVIATIONS

mean	:	Average; the sum of the measurements divided by the total number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample, unless noted otherwise.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
ND	:	Not detected; the analyte concentration is less than the listed reporting limit.
NR	:	Not requested.
NTU	:	Nephelometric turbidity units.
RL	:	Reporting limit.
RPD	:	Relative percent difference, $[V^1-V^2/V \text{ mean}]x100$.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
ug/filter	:	Concentration in units of micrograms of analyte per filter.
umhos/cm	:	Micromhos per centimeter.
*	:	See cover letter for details.

Parameter	Reporting Limit (ppm)	Descriptor, Lab No. and Results MW-2 07-18-89 1321 (-31103)	MW-3 07-18-89 1347 (-31104)	MW-4 07-18-89 1300 (-31105)
Lead	0.002	0.003	0.002	0.003
METHOD 7421				
PETROLEUM HYDROCARBONS-				
Volatile, as Gasoline	0.05	1.4	1.5	ND
DATE ANALYZED		07-20-89	07-20-89	07-20-89
METHOD GCFID/5030				
Extractable,				
as Motor Oil	0.05	ND	ND	ND
as Diesel Fuel	0.05	0.40[a]	9.1[a]	ND
DATE ANALYZED		07-20-89	07-20-89	07-20-89
DATE EXTRACTED		07-19-89	07-19-89	07-19-89
METHOD GCFID/3510				
PURGEABLE AROMATICS				
Benzene	0.0005	0.033	0.085	ND
Ethylbenzene	0.0015	0.024	0.010	ND
Toluene	0.0005	0.0056	0.034	ND
Xylenes, total	0.0015	0.073	0.12	ND
METHOD 602				

[a]Sample contains lower boiling hydrocarbons not characteristic of diesel.

PM - MARC YALOM

Converse Consultants

CHAIN OF CUSTODY RECORD

7135

Project No.	Project Name
88-44-361-02	SHELL

Samplers: (signature) Thomas Smith

Station No.	Date	Time	Comp.	Grab	Station Location	Number of Containers (12 Litres, 12 VOAS, 24 bbl)	BTEX	TPH-GAS	TPH-DIESEL	TOL-TAL			Remarks
MW-2	7/18/89	1:20	X		500 40th	8	X	X	X	X			STANDARD T.A.T.
MW-3	7/18/89	1:47	X		" "	8	X	X	X	X			
MW-4	7/18/89	1:00	X		" "	8	X	X	X	X			

total lead per Ref 7/19 Exp 9/15/89

SHELL

Relinquished by: (signature)	Date/Time	Received by: (signature)	Relinquished by: (signature)	Date/Time	Received by: (signature)
Thomas Smith	7/18/89 18:00	Jeff Nickle	Jeff Nickle	1-19 0215	SEC
Relinquished by: (signature)	Date/Time	Received by: (signature)	Relinquished by: (signature)	Date/Time	Received by: (signature)
Relinquished by Courier: (signature)	Date/Time	Received by Mobile Lab: (signature)	Relinquished by Mobile Lab: (signature)	Date/Time	Received by Courier: (signature)
Method of Shipment		Shipped by: (signature)	Courier from Airport: (signature) (VIA NCS)	Received for Laboratory: (signature) K Temple	Date/Time 7/19/89