STATE OF CALIFORNIA--BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
BOX 23660
OAKLAND, CA 94623-0660
(510) 286-4444
TDD (510) 286-4454

March 9, 2000

Mr. Tom Peacock
Alameda County Environmental Health Department
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577 STP 6517

Subject: Quarterly Groundwater Report for Vacant Parcel, located at the intersection of 6th and Castro Streets in Oakland, CA

Dear Mr. Peacock:

Enclosed please find a copy of the First Quarter 2000 Groundwater Monitoring Report for the subject site. If there are any questions, please contact Jill Pollock (510) 286-5638.

Sincerely,

HARRY Y. YAHATA
District Director

By: Celia McCuaig

CELIA MCCUAIG
District Branch Chief
Office of Environmental Engineering

Attachments

cc: CM, file, chron

FIRST QUARTER 2000 GROUNDWATER MONITORING REPORT

TASK ORDER NUMBER 04-952137-ES
CONTRACT NUMBER 43A0012

SIXTH AND CASTRO STREETS
OAKLAND, CALIFORNIA

Prepared for

CALIFORNIA DEPARTMENT OF TRANSPORTATION
District 4
P.O. Box 23660
Oakland, California

Prepared by

Professional Service Industries
1320 West Winton Avenue
Hayward, California 94545
(510) 785-1111

March 3, 2000
575-9G034

STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATIONS

Information provided in Professional Services Industries, Inc., (PSI) report number 575-9G034 is intended exclusively for the California Department of Transportation (Caltrans) for the evaluation of groundwater contamination as it pertains to the subject site. PSI is responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the State of California or the Federal Highway Administration. This report does not constitute a standard, specification, or regulation. The professional services provided have been performed in accordance with practices generally accepted by other geologists, hydrologists, hydrogeologists, engineers, and environmental scientists practicing in this field. No other warranty, either expressed or implied, is made. As with all subsurface investigations, there is no guarantee that the work conducted will identify any or all sources or locations of contamination.

This report is issued with the understanding that Caltrans is responsible for ensuring that the information contained in this report is brought to the attention of the appropriate regulatory agency. This report has been reviewed by a geologist who is registered in the State of California and whose signature and license number appear below.

Chris MERRITT (FOR)
Frank R. Poss
Senior Hydrogeologist

Jeffrey Friedman, R.G. (5677)
Senior Project Geologist

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1.0 INTRODUCTION

This report summarizes the results of the First Quarter 2000 groundwater monitoring activities conducted on February 7, 2000 at the intersection of 6th and Castro Streets located in Oakland, California. The subject site location is presented on Figure 1. The purpose of this project is to comply with quarterly sampling requirements for Alameda County Department of Environmental Health. This is the third quarter of groundwater monitoring conducted by PSI.

2.0 SITE HISTORY

The site is currently a vacant lot that is surrounded by Brush Street to the west, 7th Street to the north, Castro Street to the east, and 6th Street to the south. In 1987, ERM-West Consultants (ERM) conducted an environmental site assessment to identify any environmental concerns resulting from chemical hazardous waste generation at the site. Historical records searches indicated that the site has formerly been occupied by a number of businesses, most notably a gas station, an auto repair garage, Durham Farm Creamery, a machine shop, and a laundry facility. At least four underground storage tanks (USTs) were associated with the former gas station and dairy (IT, 1996). This service station was located at the intersection of 6th Street and Brush Street (Geocon, 1995).

ERM drilled seven soil borings at the site to collect soil samples for analyses. The results from the analyses of the soil samples identified up to 1.3 parts per million (ppm) ethylbenzene, 1.5 ppm toluene, and 7.9 ppm xylenes. The analytical results from groundwater samples collected during drilling had concentrations up to 0.5 ppb ethylbenzene, 0.3 ppb toluene, and 5 ppb total xylenes (ACHCSA, 1998).

In a 1995 investigation conducted by Geocon Environmental Consultants (Geocon), soil and groundwater samples were collected from seven additional locations. The results of the analyses of the soil samples identified up to 410 ppm lead and 8,000 ppm oil and grease. The results from two groundwater samples analyzed did not contain detectable concentrations of Total Petroleum Hydrocarbons as Gasoline (TPH-G); TPH as Diesel (TPH-D); and Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX) (IT,1996).

In a 1996 investigation conducted by International Technology Corporation (IT), soil and groundwater samples were collected from 11 additional borings. The maximum concentration in the soil samples analyzed are presented below:

Total Petroleum Hydrocarbons as Gasoline (TPH-G)	1,100 ppm
Benzene	2.6 ppm
Toluene	34 ppm
Ethylbenzene	25 ppm
Total Xylenes	140 ppm

Total Lead	397 ppm

The maximum concentration in the four groundwater samples collected from the above referenced borings are the following:

Total Petroleum Hydrocarbons as Gasoline (TPH-G)	1,700 ppb
Benzene	51 ppb
Toluene	200 ppb
Ethylbenzene	59 ppb
Total Xylenes	290 ppb
1,2 Dichloroethane	5.4 ppb

In a 1999 investigation completed by PSI, soil and groundwater samples were collected from 11 additional borings and three groundwater monitoring wells were installed. The maximum concentration in the soil samples analyzed are presented below:

Total Petroleum Hydrocarbons as Gasoline (TPH-G)	600 ppm
Benzene	0.2 ppm
Toluene	3.7 ppm
Ethylbenzene	17 ppm
Total Xylenes	67 ppm
Total Lead	1,700 ppm

The maximum concentration in the 14 groundwater samples analyzed are the following:

Total Petroleum Hydrocarbons as Gasoline (TPH-G)	58,000 ppb
Benzene	3,900 ppb
Toluene	3,700 ppb
Ethylbenzene	14,000 ppb
Total Xylenes	12,000 ppb
1,2 Dichloroethane	160 ppb

The petroleum hydrocarbon impacted soil and groundwater was primarily found in the southwestern corner of the site.

3.0 GROUNDWATER MONITORING ACTIVITIES

3.1 GROUNDWATER ELEVATION AND HYDRAULIC GRADIENT

On February 7, 2000, static groundwater elevations were measured in wells MW-1, MW-2, and MW-3 (Figure 2). The groundwater depths were measured using a groundwater interface probe. The average groundwater elevation increased 0.13 meters (0.42 feet) compared to last quarter. A summary of the depth to groundwater data collected during this monitoring event and previous monitoring events is presented in Table 1. Based on the groundwater data, the inferred groundwater flow direction beneath the site is to the south (Figure 2) with a hydraulic gradient of 0.007.

3.2 GROUNDWATER SAMPLING

Groundwater samples were collected from monitoring wells MW-1, MW-2, and MW-3. A duplicate sample of MW-3 was obtained and labeled MW-31. Prior to the collection of groundwater samples, the monitoring wells were purged of a minimum of three well volumes of water until pH, conductivity, and temperature stabilized. The wells were allowed to recover to at least 80 percent of their original static groundwater levels prior to sampling.

The following procedures for well monitoring, well purging, and water sampling were implemented while sampling the wells:

1. All equipment was washed prior to entering the well with an Alconox solution, followed by two tap water rinses and a deionized water rinse.

2. Prior to purging the wells, depth-to-water was measured using an Solinst groundwater interface probe to an accuracy of approximately 0.01 foot. The measurements were made to the top of the well casing on the north side.

3. Monitoring wells at the site were prepared for sampling by purging the well of approximately 3 well volumes of water using disposable Teflon bailers.

4. Water samples were collected with a single-use Teflon bailer after the well had been purged and water in the well had equilibrated to approximately 80 percent of the static water level. The water collected was immediately decanted into laboratory-supplied vials and bottles. The containers were overfilled, capped, labeled, and placed in a chilled cooler prior to delivery to the laboratory for analysis.

5. Chain-of-custody procedures, including chain-of-custody forms, were used to document water sample handling and transport from collection to delivery to the laboratory for analyses.

6. Groundwater samples were delivered to the State-certified hazardous waste laboratory within approximately 48-hours of collection.

7. Purged water was contained in a DOT approved 55-gallon drum. The drum was labeled with the contents, date, well number, client name, and project number.

The groundwater monitoring purge logs are presented in Appendix A.

3.3 LABORATORY ANALYSIS AND RESULTS

The groundwater samples were submitted for analyses to Centrum Analytical of Redlands, California, a State of California certified hazardous waste analytical laboratory. The samples were analyzed for the following:

- EPA Method 413.2 – Total Recoverable Petroleum Hydrocarbons (TRPH)
- EPA 8015 modified - TPH-G;
- EPA 8015 modified - Total Petroleum Hydrocarbons as Diesel (TPH-D);
- EPA 8260 - Volatile Organic Compounds (VOCs).
- EPA 6010 – Soluble Lead.

A summary of the laboratory results for groundwater samples is presented in Table 2. A copy of the laboratory reports and chain of custody records are presented in Appendix B. The following are the results of the groundwater sampling:

- TRPH was detected in Well MW-2 at 8.8 milligrams per liter (mg/L). This concentration is greater than the previous sampling result of 4.4 mg/L in Well MW-2.

- TPH-G was detected in Well MW-2 at 29 mg/L. This concentration is lower than the previous sampling result of 33 mg/L in Well MW-2.

- TPH-D was not detected in groundwater samples from the site this quarter. This is comparable to the previous sampling results.

- MTBE was not detected in groundwater samples from the site this quarter. This is comparable to the previous sampling results.

- Benzene was detected in Well MW-2 at 0.67 mg/L. This concentration is lower than the previous sampling result of 0.88 mg/L in Well MW-2.

- Toluene (4,800 ug/L), and Ethylbenzene (1,500 ug/L), were detected in well MW-2 at concentrations comparable to the previous sampling results. Total Xylenes (8,700 ug/L) in MW-2 had increased by approximately 45% over the previous quarter.

- Concentrations of gasoline related compounds isopropylbenzene (44 ug/L), naphthalene (620 ug/L), n-Propylbenzene (160 ug/L), 1,2,4 Trimethylbenzene (1,100 ug/L), and 1,3,5 Trimethylbenzene (320 ug/L) were detected in Well MW-2.

- 1,2 DCA (79 ug/L) was detected in MW-2 and was lower than the previous quarters result (110 ug/L). The common usage for this compound in a service station environment is as a brake and electrical parts cleaner.

- Soluble lead was not detected in groundwater samples from this quarter.

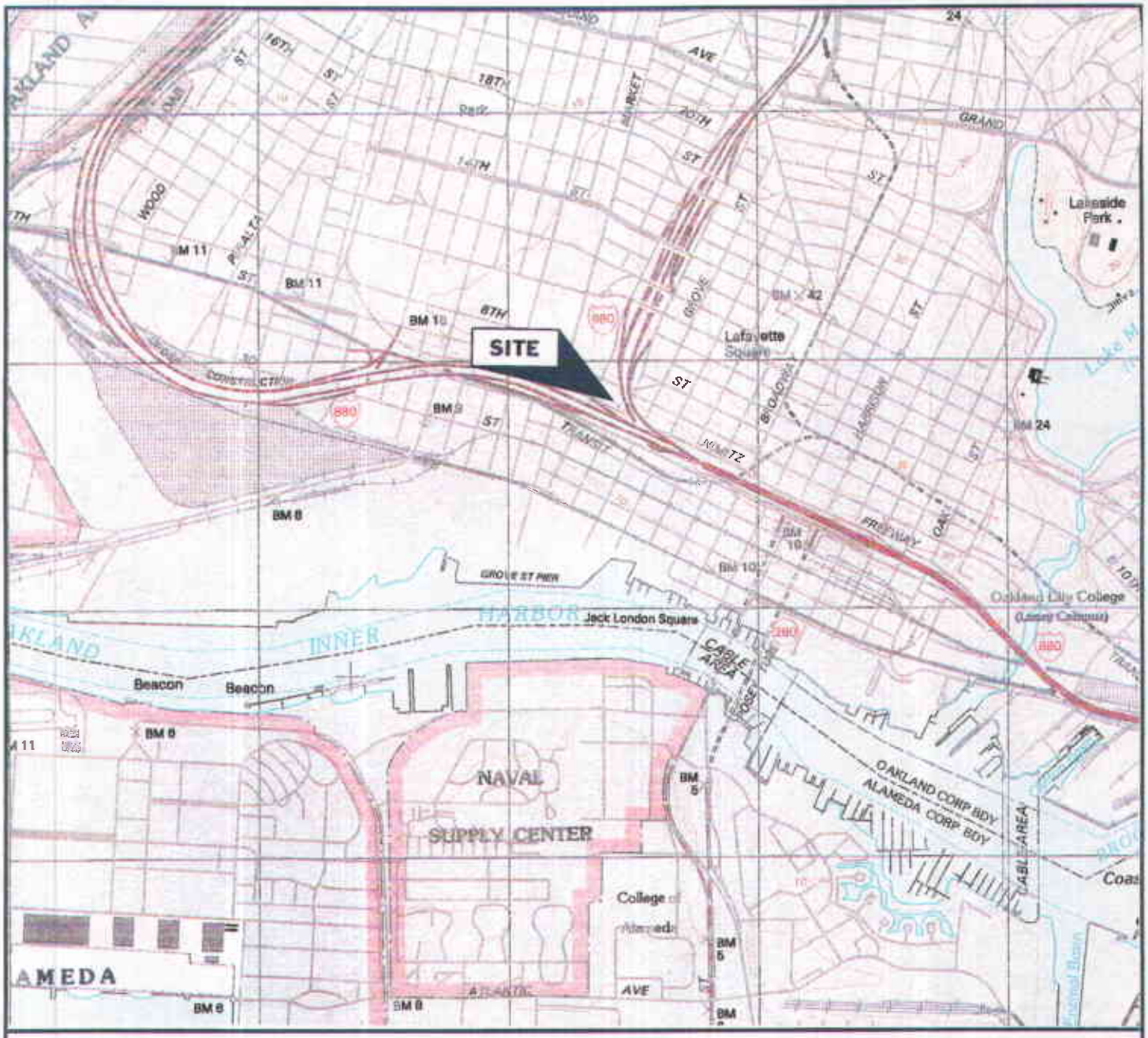
The State of California Primary Drinking Water Standards (PDWS) for benzene is 1 ug/L, toluene is 150 ug/L, ethylbenzene is 700 ug/L, total xylenes is 1,750 ug/L, and 1,2 DCA is 0.5 ug/L. The concentrations of BTEX and 1,2 DCA in the groundwater sample collected from Well MW-2 exceeded their respectable PDWS. The contaminants of concern were not detected in MW-1, MW-3 or the MW-3 duplicate (MW-31).

4.0 SUMMARY AND CONCLUSIONS

PSI performed a quarterly monitoring event on February 7, 2000. Groundwater samples were collected from the three monitoring wells with a duplicate obtained from MW-3 and labeled MW-31. Based on measurements collected and analytical data the following conclusions are provided. Groundwater elevation data indicates the groundwater flow direction beneath the site is towards the south, with a hydraulic gradient of 0.008 meter per meter (0.008 foot per foot).

- Average groundwater elevations is approximately 0.13 meters (0.42 feet) higher than the average groundwater elevation measured for the previous sampling event.
- TPH-D was not detected in groundwater samples this quarter.
- TPH-G was detected in the sample collected from Well MW-2 (29 mg/l).
- BTEX concentrations were detected in the sample collected from Well MW-2.
- The oxygenates MTBE, TBA, DIPE, ETBE, and TAME were not detected in the EPA Method 8260 analyses this quarter.
- Concentrations of the gasoline related compounds isopropylbenzene, naphthalene, n-Propylbenzene, 1,2,4 Trimethylbenzene and 1,3,5 Trimethylbenzene were detected in Well MW-2.
- 1,2 DCA was detected in MW-2 at 79 µg/l.
- The BTEX and 1,2 DCA concentrations are above their respective State of California Primary Drinking Water Standards.

PSI recommends continued groundwater monitoring at the site. Copies of this report should be provided to the appropriate regulatory agencies.

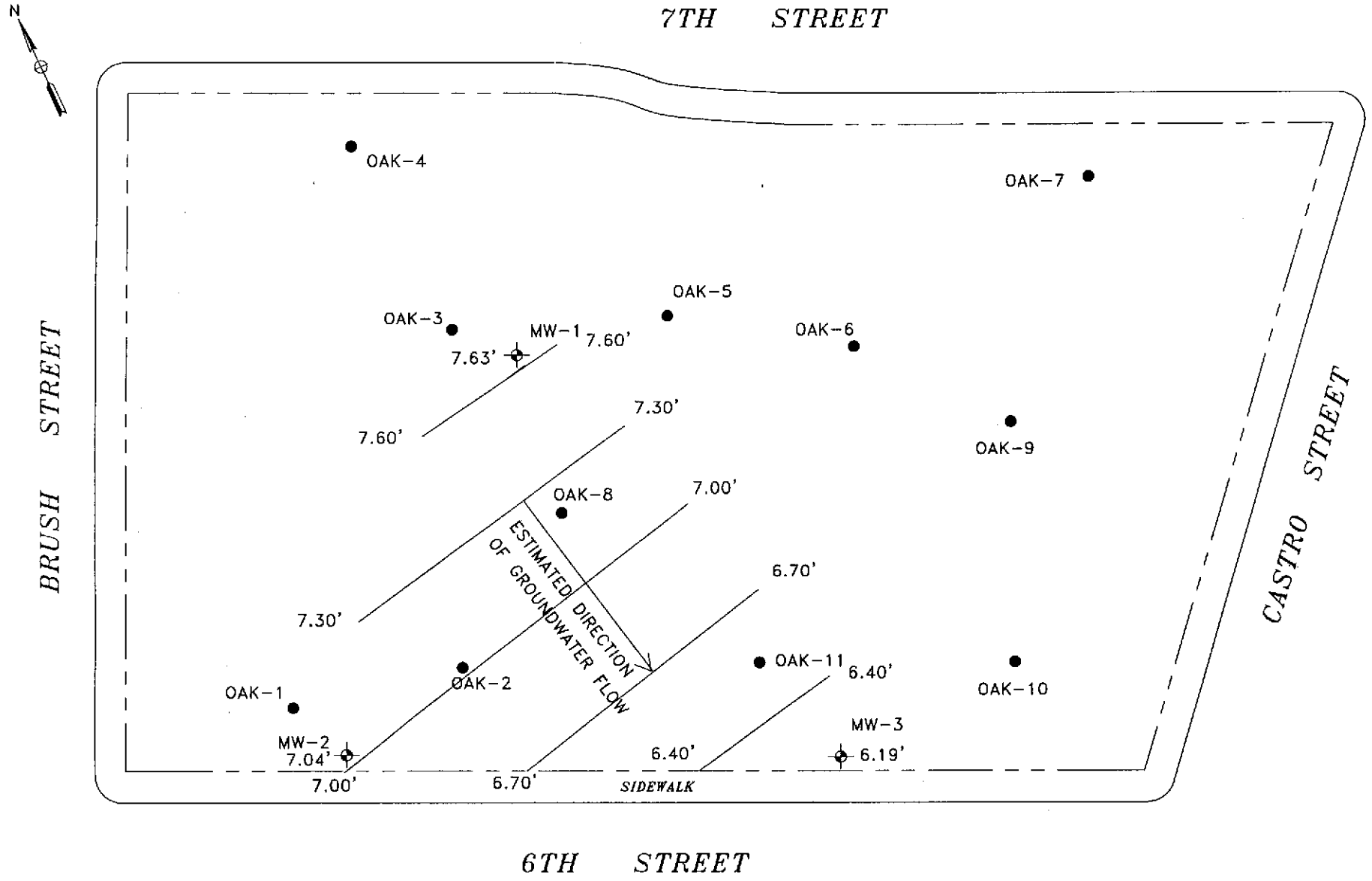


REFERENCE:
U.S.G.S. OAKLAND WEST, CALIFORNIA, 1993

psi ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING • ENGINEERING • TESTING

SITE LOCATION
STATE RIGHT-OF-WAY
SIXTH AND CASTRO STREETS
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-9G034

DATE: 5/05/99	CKD'D BY:	FIGURE NO.: 1
FILE NO.: 9G034-1		DRAWN BY: S. BOWERS



LEGEND

- SOIL BORING LOCATION
- GROUNDWATER MONITORING WELL LOCATION
- 7.3 —— 7.3 GROUNDWATER ELEVATION CONTOUR
- — — — FENCE

0 50 100

SCALE IN FEET

SOURCE: NORCAL, 1999

psi ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION

CONSULTING • ENGINEERING • TESTING

GROUNDWATER ELEVATION MAP: 2/07/00
STATE RIGHT-OF-WAY
SIXTH AND CASTRO STREETS
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-9G034

DATE: 8/25/99	CKD BY:	FIGURE NO.: 5
FILE NO: 9G034-3		DRAWN BY: S.BOWERS

TABLE 2
SUMMARY OF GROUNDWATER ANALYTICAL DATA
CALTRANS MAINTENANCE STATION
6TH CASTRO STREETS, OAKLAND, CA

All concentrations in mg/l (PPM).												
SAMPLE NUMBER	**DATE**	**OIL & GREASE**	**TPH-G**	**TPH-D**	**MTBE**	**Benzene**	**E-Benzene**	**Toluene**	**Xylenes**	**1,2, DCA**	**OTHER VOCs***	**LEAD**
MW-1	7/2/99	ND (2.4)	ND (0.5)	ND (0.4)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	ND (0.0005)	ND*	ND (0.10)
MW-1	10/25/99	ND (2.0)	ND (0.5)	ND (0.4)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	ND (0.0005)	ND*	ND (0.10)
MW-1	2/7/00	ND (2.0)	ND (0.5)	ND (0.4)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	ND (0.0005)	ND*	ND (0.10)
MW-2	7/2/99	6.3	26	ND (4.0)	ND (0.001)	0.78	1.3	4.2	5.0	0.016	2.81	ND (0.10)
MW-2	10/25/99	4.4	33	ND (0.4)	ND (0.050)	0.88	1.8	4.3	4.8	0.011	2.48	ND (0.10)
MW-2	2/7/00	8.8	29	ND (0.4)	ND (0.050)	0.67	1.5	4.8	8.7	0.079	2.24	ND (0.10)
MW-3	7/2/99	ND (2.3)	ND (0.5)	ND (0.4)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	ND (0.0005)	ND*	ND (0.10)
MW-3	10/25/99	ND (2.0)	ND (0.5)	ND (0.4)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	ND (0.0005)	ND*	ND (0.10)
MW-3	2/7/00	ND (2.0)	ND (0.5)	ND (0.4)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	ND (0.0005)	ND*	ND (0.10)

NOTES
Sample concentrations reported in mg/kg (milligram per kilogram).
TPH-G denotes Total Petroleum Hydrocarbons as Gasoline, TPH-D denotes Total Petroleum Hydrocarbons as Diesel.
MTBE denotes Methyl Tert Butyl Ether, E-Benzene denotes Ethylbenzene, VOCs* denotes Volatile Organic Compounds analyzed by EPA Method 8260.
ND denotes Not Detected, detection limit presented in parentheses.
ND* denotes all anaytes included in EPA Method 8260 analyte list not presented on this table, Not Detected.

TABLE 1
SUMMARY OF GROUNDWATER ELEVATIONS
CALTRANS MAINTENANCE STATION
6TH AND CASTRO STREETS, OAKLAND, CA

SAMPLE NUMBER	DATE	GROUND SURFACE ELEVATION	WELL CASING ELEVATION	DEPTH TO GROUNDWATER	GROUNDWATER ELEVATION
MW-1	7/2/99	23.74	26.85	19.89	6.96
MW-1	10/25/99	23.74	26.85	19.71	7.14
MW-1	2/7/00	23.74	26.85	19.22	7.63
MW-2	7/2/99	18.67	21.56	14.21	7.35
MW-2	10/25/99	18.67	21.56	15.38	6.18
MW-2	2/7/00	18.67	21.56	14.52	7.04
MW-3	7/2/99	19.60	21.04	14.57	6.47
MW-3	10/25/99	19.60	21.04	15	6.04
MW-3	2/7/00	19.60	21.04	14.85	6.19

NOTES:
All elevation and depth data presented in feet.

WELL PURGING AND SAMPLING DATA

WELL NO: MW-1

DATE: 2-7-00 | PROJECT NAME: CALTRANS Cen + CASTRO | PROJECT NO: 96034

WEATHER CONDITIONS:

WELL DIAMETER (IN.) ☐ 1 ☒ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ■ GROUNDWATER ☐ WASTEWATER ☐ SURFACE WATER ☐ OTHER

WELL DEPTH (TOC) 23.25 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 19.22 FT.

LENGTH OF WATER 4.03 FT. | CALCULATED ONE WELL VOLUME[1]: .69 GAL.

PURGING DEVICE: ☐ DEDICATED ■ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☐ DEDICATED ■ DISPOSABLE ☐ DECONTAMINATED

EQUIP. DECON. ☐ TAP WATER WASH ☐ ISOPROPANOL ☐ ANALYTE FREE FINAL RINSE
☐ ALCONOX WASH ☐ DIST/DEION 1 RINSE ☐ OTHER SOLVENT ☐ DIST/DEION FINAL RINSE
☐ LIQUINOX WASH ☐ DIST/DEION 2 RINSE ☐ TAP WATER FINAL RINSE ☐ AIR DRY

CONTAINER PRESERVATION: ■ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL & SERIAL NO:

ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT.	pH	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
1045	INITIAL	18.9	1047	7.15				
1050	1.2	18.7	1038	6.72				
1052	2.4	18.6	1053	6.71				
1054	3.6	18.5	1064	6.67				

DEPTH TO WATER AFTER PURGING (TOC) FT. | SAMPLE FILTERED ☐ YES ☐ NO SIZE _____

NOTES:

SAMPLE TIME: 1100 ID# MW-1

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY:

PSI [1] A 1 FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE 0.17 GAL IN 2" DIA PIPE 0.65 GAL IN 4" DIA PIPE 1.5 GAL IN 6" DIA PIP
Rev. 12/95

WELL PURGING AND SAMPLING DATA

WELL NO: 2

DATE: 2/7 | PROJECT NAME: GM & Castro | PROJECT NO: 4G034

WEATHER CONDITIONS:

WELL DIAMETER (IN.) ☐ 1 ■ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ■ GROUNDWATER ☐ WASTEWATER ☐ SURFACE WATER ☐ OTHER

WELL DEPTH (TOC) 22.73 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 14.52 FT.

LENGTH OF WATER 8.21 FT. | CALCULATED ONE WELL VOLUME[1]: 1.39 GAL.

PURGING DEVICE: ☐ DEDICATED ■ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☐ DEDICATED ■ DISPOSABLE ☐ DECONTAMINATED

EQUIP. DECON. ☐ TAP WATER WASH ☐ ISOPROPANOL ☐ ANALYTE FREE FINAL RINSE
☐ ALCONOX WASH ☐ DIST/DEION 1 RINSE ☐ OTHER SOLVENT ☐ DIST/DEION FINAL RINSE
☐ LIQUINOX WASH ☐ DIST/DEION 2 RINSE ☐ TAP WATER FINAL RINSE ☐ AIR DRY

CONTAINER PRESERVATION: ■ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL & SERIAL NO:

ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP ☐ °F ☐ °C	SPECIFIC CONDUCT.	pH	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
0935	INITIAL	18.1	1000	6.88				smells like gasol. nc
0940	1.4	18.3	881	6.73				
0950	2.90	18.6	939	6.51				
0955	4.2	18.7	966	6.41				

DEPTH TO WATER AFTER PURGING (TOC) FT. | SAMPLE FILTERED ☐ YES ☐ NO SIZE _____

NOTES:

SAMPLE TIME: 1009 ID# MW-2

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY:

[1] A 1 FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE 0.17 GAL IN 2" DIA PIPE 0.65 GAL IN 4" DIA PIPE 1.5 GAL IN 6" DIA PIP

WELL PURGING AND SAMPLING DATA

WELL NO: MW-3

DATE: 2-7-00 | PROJECT NAME: CALTRANS 6th + CASTRO | PROJECT NO: 46034

WEATHER CONDITIONS: WARM, PTLY CLOY

WELL DIAMETER (IN.) ☐ 1 ■ 2 ☐ 4 ☐ 6 ☐ OTHER _____

SAMPLE TYPE: ■ GROUNDWATER ☐ WASTEWATER ☐ SURFACE WATER ☐ OTHER

WELL DEPTH (TOC) 22.41 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 14.85 FT.

LENGTH OF WATER 7.56 FT. | CALCULATED ONE WELL VOLUME[1]: 1.28 GAL.

PURGING DEVICE: ☐ DEDICATED ■ DISPOSABLE ☐ DECONTAMINATED

SAMPLING DEVICE: ☐ DEDICATED ■ DISPOSABLE ☐ DECONTAMINATED

EQUIP. DECON. ☐ TAP WATER WASH ☐ ISOPROPANOL ☐ ANALYTE FREE FINAL RINSE
☐ ALCONOX WASH ☐ DIST/DEION 1 RINSE ☐ OTHER SOLVENT ☐ DIST/DEION FINAL RINSE
☐ LIQUINOX WASH ☐ DIST/DEION 2 RINSE ☐ TAP WATER FINAL RINSE ☐ AIR DRY

CONTAINER PRESERVATION: ■ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL & SERIAL NO:

ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT.	pH	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
1120	INITIAL	18.9	706	6.27				
1130	2.52	18.8	724	6.40				
1132	3.80	18.8	719	6.47				
1135	5.08	18.3	710	6.38				
1136	6.00	18.8	708	6.35				

DEPTH TO WATER AFTER PURGING (TOC) FT. | SAMPLE FILTERED ☐ YES ☐ NO SIZE _____

NOTES:

SAMPLE TIME: 1140 ID# MW-3

DUPLICATE ■ TIME: 1150 ID#: MW 31

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY:

PSI [1] A 1 FOOT LENGTH OF WATER = 0.05 GAL IN 1" DIA. PIPE 0.17 GAL IN 2" DIA PIPE 0.65 GAL IN 4" DIA PIPE 1.5 GAL IN 6" DIA PIP
Rev. 12/95

FLUID MEASUREMENT FIELD DATA

SHEET: 1 OF 1

DATE: 2-7-00 | PROJECT NAME: CALTRANS 6TH & CASTRO | PROJECT NO: 9G034

WATER LEVEL MEASUREMENT INSTRUMENT: SOLINST | SERIAL NO:

PRODUCT DETECTION INSTRUMENT: — | SERIAL NO:

EQUIP. DECON: ☐ ALCONOX WASH ☐ DIST/DEION 1 RINSE ☐ ISOPROPANOL ☐ ANALYTE FREE FINAL RINSE ☐ TAP WATER FINAL RINSE

☐ TAP WATER WASH ☐ LIQUINOX WASH ☐ DIST/DEION 2 RINSE ☐ OTHER SOLVENT ☐ DIST/DEION FINAL RINSE ☐ AIR DRY

WELL NUMBER	GROUND SURFACE ELEVATION	TOP OF CASING ELEVATION	DEPTH TO PRODUCT BELOW TOC	DEPTH TO WATER BELOW TOC	WELL DEPTH BELOW TOC	PRODUCT THICKNESS	WATER TABLE ELEVATION	ACTUAL TIME
MW-1				19.22'	23.25'		7.63	0905
MW-3				14.85'	22.41'		6.19	0912
MW-2				14.52	22.73		7.04	0915

REMEMBER TO CORRECT PRODUCT THICKNESS FOR DENSITY BEFORE CALCULATING WATER TABLE ELEVATION

PREPARED BY:

PSI
Rev. 12/95

Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: PSI
1320 W. Winton Ave.
Hayward, CA 94545

Date Sampled: 02/07/00
Date Received: 02/08/00
Job Number: 15992

Project: CalTrans 6th & Castro

CASE NARRATIVE

The following information applies to samples which were received on 02/08/00 :

The samples were received at the laboratory chilled and sample containers were intact.

Unless otherwise noted below, the Quality Control acceptance criteria were met for all samples for every analysis requested.

Report approved by:

Robert R. Clark, Ph.D.
Laboratory Director

ELAP # 1184

DL : Detection Limit – The lowest level at which the compound can reliably be detected under normal laboratory conditions.
ND : Not Detected – The compound was analyzed for but was not found to be present at or above the detection limit.
NA : Not Analyzed -- Per client request, this analyte was not on the list of compounds to be analyzed for.

Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

Client: PSI
1320 W. Winton Ave.
Hayward, CA 94545

Date Sampled: 02/07/00
Date Received: 02/08/00
Job Number: 15992

Project: CalTrans 6th & Castro

CASE NARRATIVE

The following information applies to samples which were received on 02/08/00 :

The samples were received at the laboratory chilled and sample containers were intact.

Unless otherwise noted below, the Quality Control acceptance criteria were met for all samples for every analysis requested.

Report approved by:

Robert R. Clark, Ph.D.
Laboratory Director

ELAP # 1184

DL : Detection Limit -- The lowest level at which the compound can reliably be detected under normal laboratory conditions.
ND : Not Detected -- The compound was analyzed for but was not found to be present at or above the detection limit.
NA : Not Analyzed -- Per client request, this analyte was not on the list of compounds to be analyzed for.

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Lead By ICP

Client:	PSI	Date Sampled:	02/07/00
Project:	CalTrans 6th & Castro	Date Received:	02/08/00
Job No.:	15992	Date Digested:	02/08/00
Matrix:	Water	Date Analyzed:	02/08/00
Analyst:	RLB	Batch Number:	6010W1468
		Method Number:	6010

	Detection Limit	Lead
Sample ID	mg/L	mg/L
Method Blank	0.1	ND
MW-1	0.1	ND
MW-2	0.1	ND
MW-3	0.1	ND

QC Sample Report - Metals

Matrix: Water
Batch #: 6010W1468

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Compound	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Lead	50	111.2	75 - 125	Pass

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: 15981-35

Compound	Spike Sample Recovery mg/L	Spike Duplicate Recovery mg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Lead	1.011	0.963	5%	20%	Pass

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

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EPA 413.2 - Oil & Grease

Client:	PSI	Date Sampled:	02/07/00
Project:	CalTrans 6th & Castro	Date Received:	02/08/00
Job No.:	15992	Date Extracted:	02/11/00
Matrix:	Water	Date Analyzed:	02/11/00
Analyst:	JL	Batch Number:	4132W1142

	Detection Limit	Total Oil & Grease
Sample ID	mg/L	mg/L
Method Blank	2.0	ND
MW-1	2.0	ND
MW-2	2.0	8.8
MW-3	2.0	ND

QC Report - EPA 413.2 Oil & Grease

Matrix: Water
Batch #: 4132W1142

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/Kg	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Reference Oil	10	**108**	70 - 130	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: Laboratory Control Sample

Analyte	Spike Sample Recovery mg/Kg	Spike Duplicate Recovery mg/Kg	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Reference Oil	10.80	10.80	**0%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

Modified 8015 - Total Extractable Petroleum Hydrocarbons as Diesel

Client:	PSI	Date Sampled:	02/07/00
Project:	CalTrans 6th & Castro	Date Received:	02/08/00
Job No.:	15992	Date Extracted:	02/09/00
Matrix:	Water	Date Analyzed:	02/09-10/00
Analyst:	CP	Batch Number:	8015DW1844

	Detection Limit	Diesel	Surrogate (OTP)
Sample ID	mg/L	mg/L	Limit: 50 - 150%
Method Blank	0.40	ND	87 %
MW-1	0.40	ND	97 %
MW-2	0.40	ND	96 %
MW-3	0.40	ND	109 %

*The chromatographic pattern displayed by this sample indicates the presence of petroleum hydrocarbons lighter than diesel. The concentration of petroleum hydrocarbons has been quantitated against diesel and reported here as diesel.

QC Sample Report - EPA 8015M Diesel

Matrix: Water
Batch #: 8015DW1844

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Diesel	0.8	**78**	70 - 130	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: Laboratory Control Sample

Analyte	Spike Sample Recovery mg/L	Spike Duplicate Recovery mg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Diesel	0.63	0.62	**2%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

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Modified 8015 - Total Volatile Hydrocarbons as Gasoline

Client:	PSI	Date Sampled:	02/07/00
Project:	CalTrans 6th & Castro	Date Received:	02/08/00
Job No.:	15992	Date Analyzed:	02/09-10/00
Matrix:	Water	Batch Number:	8015GW2506
Analyst:	TPW		

	Detection Limit	Petroleum Hydrocarbons as Gasoline
Sample ID	mg/L	mg/L
Method Blank	0.5	ND
MW-1	0.5	ND
MW-2	0.5	**29**
MW-3	0.5	ND
MW-31	0.5	ND

QC Sample Report - EPA 8015M Gasoline

Matrix: Water
Batch #: 8015GW2506

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Gasoline	10.0	113	70 - 130	Pass

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: 15996-4

Analyte	Spike Sample Recovery mg/L	Spike Duplicate Recovery mg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Gasoline	10.14	9.50	7%	25%	Pass

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	02/07/00
Project:	CalTrans 6th & Castro	Date Received:	02/08/00
Job No.:	15992	Date Analyzed:	02/08-09/00
Matrix:	Water	Batch Number:	8260W2004
Analyst:	GR		

Sample ID:	Blank	MW-1	MW-3	MW-31
Compounds	**DL**	µg/L	µg/L	µg/L	µg/L
Acetone	50	ND	ND	ND	ND
tert-Amyl Methyl Ether (TAME)	5.0	ND	ND	ND	ND
Benzene	0.5	ND	ND	ND	ND
Bromobenzene	1.0	ND	ND	ND	ND
Bromochloromethane	1.0	ND	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND	ND
Bromoform	0.5	ND	ND	ND	ND
Bromomethane	0.5	ND	ND	ND	ND
tert-Butanol (TBA)	50	ND	ND	ND	ND
2-Butanone (MEK)	10	ND	ND	ND	ND
n-Butylbenzene	0.5	ND	ND	ND	ND
sec-Butylbenzene	0.5	ND	ND	ND	ND
tert-Butylbenzene	0.5	ND	ND	ND	ND
Carbon disulfide	10	ND	ND	ND	ND
Carbon tetrachloride	0.5	ND	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND	ND
Chloroethane	0.5	ND	ND	ND	ND
Chloroform	0.5	ND	ND	ND	ND
Chloromethane	0.5	ND	ND	ND	ND
2-Chlorotoluene	0.5	ND	ND	ND	ND
4-Chlorotoluene	0.5	ND	ND	ND	ND
Dibromochloromethane	0.5	ND	ND	ND	ND
1,2-Dibromoethane	0.5	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	10	ND	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND	ND	ND
Dichlorodifluoromethane	0.5	ND	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND	ND
1,2-Dichloroethane	0.5	ND	ND	ND	ND
1,1-Dichloroethene	0.5	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND	ND	ND
1,2-Dichloropropane	0.5	ND	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND	ND

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EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	02/07/00
Project:	CalTrans 6th & Castro	Date Received:	02/08/00
Job No.:	15992	Date Analyzed:	02/08-09/00
Matrix:	Water	Batch Number:	8260W2004
Analyst:	GR		

	Sample ID:	Blank	MW-1	MW-3	MW-31
Compounds	**DL**	µg/L	µg/L	µg/L	µg/L
cis-1,3-Dichloropropene	0.5	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	5.0	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND
Ethyl tert-Butyl Ether (EtBE)	5.0	ND	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND	ND
2-Hexanone	10	ND	ND	ND	ND
Isopropylbenzene	0.5	ND	ND	ND	ND
p-Isopropyltoluene	0.5	ND	ND	ND	ND
Methylene chloride	50	ND	ND	ND	ND
4-Methyl-2-pentanone	5.0	ND	ND	ND	ND
Methyl-tert-butyl ether (MtBE)	1.0	ND	ND	ND	ND
Napthalene	0.5	ND	ND	ND	ND
n-Propylbenzene	0.5	ND	ND	ND	ND
Styrene	0.5	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	1.0	ND	ND	ND	ND
Tetrachloroethene	0.5	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.5	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.5	ND	ND	ND	ND
1,1,1-Trichloroethane	0.5	ND	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND	ND
Trichloroethene	0.5	ND	ND	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND	ND	ND
Trichlorofluoromethane	0.5	ND	ND	ND	ND
Trichlorotrifluoroethane	5.0	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.5	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.5	ND	ND	ND	ND
Vinyl chloride	0.5	ND	ND	ND	ND
Xylenes (total)	1.5	ND	ND	ND	ND

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	Blank	MW-1	MW-3	MW-31
Dibromofluoromethane	106	105	107	107
Toluene-d8	100	99	100	99
Bromofluorobenzene	105	104	103	104

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EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	02/07/00
Project:	CalTrans 6th & Castro	Date Received:	02/08/00
Job No.:	15992	Date Analyzed:	02/08-09/00
Matrix:	Water	Batch Number:	8260W2004
Analyst:	GR		

Sample ID:	MW-2	
Compounds	**DL**	**µg/L**
Acetone	500	ND
tert-Amyl Methyl Ether (TAME)	50	ND
Benzene	5.0	**670**
Bromobenzene	10	ND
Bromochloromethane	10	ND
Bromodichloromethane	5.0	ND
Bromoform	5.0	ND
Bromomethane	5.0	ND
tert-Butanol (TBA)	500	ND
2-Butanone (MEK)	100	ND
n-Butylbenzene	5.0	ND
sec-Butylbenzene	5.0	ND
tert-Butylbenzene	5.0	ND
Carbon disulfide	100	ND
Carbon tetrachloride	5.0	ND
Chlorobenzene	5.0	ND
Chloroethane	5.0	ND
Chloroform	5.0	ND
Chloromethane	5.0	ND
2-Chlorotoluene	5.0	ND
4-Chlorotoluene	5.0	ND
Dibromochloromethane	5.0	ND
1,2-Dibromoethane	5.0	ND
1,2-Dibromo-3-chloropropane	100	ND
Dibromomethane	5.0	ND
1,2-Dichlorobenzene	5.0	ND
1,3-Dichlorobenzene	5.0	ND
1,4-Dichlorobenzene	5.0	ND
Dichlorodifluoromethane	5.0	ND
1,1-Dichloroethane	5.0	ND
1,2-Dichloroethane	5.0	**79**
1,1-Dichloroethene	5.0	ND
cis-1,2-Dichloroethene	5.0	ND
trans-1,2-Dichloroethene	5.0	ND
1,2-Dichloropropane	5.0	ND
1,3-Dichloropropane	5.0	ND
2,2-Dichloropropane	5.0	ND
1,1-Dichloropropene	5.0	ND

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	02/07/00
Project:	CalTrans 6th & Castro	Date Received:	02/08/00
Job No.:	15992	Date Analyzed:	02/08-09/00
Matrix:	Water	Batch Number:	8260W2004
Analyst:	GR		

Sample ID:		MW-2
Compounds	**DL**	µg/L
cis-1,3-Dichloropropene	5.0	ND
trans-1,3-Dichloropropene	5.0	ND
Diisopropyl Ether (DIPE)	50	ND
Ethylbenzene	5.0	**1,500**
Ethyl tert-Butyl Ether (EtBE)	50	ND
Hexachlorobutadiene	5.0	ND
2-Hexanone	100	ND
Isopropylbenzene	5.0	**44**
p-Isopropyltoluene	5.0	ND
Methylene chloride	500	ND
4-Methyl-2-pentanone	50	ND
Methyl-tert-butyl ether (MtBE)	10	ND
Napthalene	5.0	**620**
n-Propylbenzene	5.0	**160**
Styrene	5.0	ND
1,1,1,2-Tetrachloroethane	5.0	ND
1,1,2,2-Tetrachloroethane	10	ND
Tetrachloroethene	5.0	ND
Toluene	5.0	**4,800**
1,2,3-Trichlorobenzene	5.0	ND
1,2,4-Trichlorobenzene	5.0	ND
1,1,1-Trichloroethane	5.0	ND
1,1,2-Trichloroethane	5.0	ND
Trichloroethene	5.0	ND
1,2,3-Trichloropropane	5.0	ND
Trichlorofluoromethane	5.0	ND
Trichlorotrifluoroethane	50	ND
1,2,4-Trimethylbenzene	5.0	**1,100**
1,3,5-Trimethylbenzene	5.0	**320**
Vinyl chloride	5.0	ND
Xylenes (total)	15	**8,700**

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	MW-2
Dibromofluoromethane	106
Toluene-d8	102
Bromofluorobenzene	102

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QC Sample Report - EPA Method 8260

Matrix: Water
Batch #: 8260W2004

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration µg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
1,1-Dichloroethene	20	**100**	59 - 172	**Pass**
Benzene	20	**104**	66 - 142	**Pass**
Trichloroethene	20	**106**	71 - 137	**Pass**
Toluene	20	**104**	59 - 139	**Pass**
Chlorobenzene	20	**106**	60 - 133	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: Laboratory Control Sample

Analyte	Spike Sample Recovery µg/L	Spike Duplicate Recovery µg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
1,1-Dichloroethene	20.0	18.4	**8%**	22%	**Pass**
Benzene	20.8	19.0	**9%**	21%	**Pass**
Trichloroethene	21.2	19.2	**10%**	24%	**Pass**
Toluene	21.1	19.5	**8%**	21%	**Pass**
Chlorobenzene	21.1	18.9	**11%**	21%	**Pass**

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

Analytical Notes:

Centrum Analytical Laboratories, Inc.

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Centrum Job # 15992

Chain of Custody Record

Page 1 of 1

Project No: 96034
Project Name: CALTRANS 6th + CASTRO
Project Manager: FRANK POSS
Phone: (510) 785-1111
Fax: (510) 785-1192
Client Name: (Report and Billing) PSI
Address: (Report and Billing) 1320 W. WINTON AVE HAYWARD, CA 94545

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	OIL AND GREASE EPA 1664	GCMS: (8260B), 8021B, 624, 524.2	GCMS: MtBE Conf. Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB	TOTAL Pb	Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr			Remarks/Special Instructions
1	MW-1	2/1/00	1100	H_2O		6 VOA 1 L AMB 2 NAOH	X	X			X	X				X						
2	MW-2	↓	1009	↓		↓	X	X			X	X				X						
3	MW-3		1140				X	X			X	X				X						
4	MW-31		1230			6 VOA		X				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) CHRIS MERRITT	2/1/00	1700
2) Received by:		
3) Relinquished by:		
4) Received by:		
5) Relinquished by:		
6) Received for Laboratory by: Jen Noriega	2/8/00	9:45

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: FILTER METALS BEFORE DIGESTION → 8260B – WITH OXYGENATES AND ETHYLENE DIBROMIDE / DICHLORIDE

Sample Locator No. VOA/F-5

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