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

DEPARTMENT OF TRANSPORTATION
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RO 397

November 4, 2002

Alameda County
NOV 06 2002
Environmental Health

Mr. Barney Chan
Alameda County Environmental Health Service
Environmental Protection
1131 Harbor Bay Pkwy; Suite 250
Alameda, California 946502-6577

SUBJECT: Draft review for the third quarter 2002 groundwater monitoring report on Caltrans South Oakland Maintenance station at 1112 29th Avenue, Oakland, California

Dear Mr. Chan:

Please find attached a draft copy for the third quarter 2002 groundwater monitoring report on Caltrans South Oakland maintenance station at 1112 29th Avenue, Oakland California. This document summarizes the results found at the site from samples taken from the four monitoring wells. Please forward your comments to us so we can implement the requirements in the final copy signed by contractor and submit for your approval.

If you have any questions or require additional information, please contact Bahram Sazegar at (510) 286-5643.

JAFAR / 510-286-6384
ROUDSARI

RAY BOYER
District Branch Chief
Office of Environmental Engineering

Caltrans
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Attachments

Cc: Rboyer, File

R0397

DRAFT
THIRD QUARTER 2002
GROUNDWATER MONITORING
REPORT

TASK ORDER NUMBER 04-987901-VU
CONTRACT NUMBER 43A0078

SOUTH OAKLAND
MAINTENANCE STATION
1112 29th AVENUE
OAKLAND, CALIFORNIA

Prepared for

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

Prepared by

Professional Service Industries
4703 Tidewater Avenue, Suite B
Oakland, California 94601
(510) 434-9200

October 25, 2002
575-1G026

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STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATIONS

Information provided in Professional Services Industries, Inc., (PSI) report number 575-1G026 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.

Professional Service Industries, Inc.

Frank R. Poss
Senior Hydrogeologist

Chris Merritt R.G. (7156)
Project Geologist

1.0 INTRODUCTION

This report summarizes the results of the Third Quarter 2002 groundwater monitoring and sampling activities conducted on September 24, 2002 at the South Oakland Maintenance Yard located at 1112 29th Avenue 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. The work was conducted under Contract 43A0078 and Task Order Number 04-987901-VC.

1.1 SITE DESCRIPTION AND HISTORY

The site is currently used as a maintenance station by Caltrans. The maintenance station includes offices, a repair shop, a sign shop, and several material storage bins. The entire property covers approximately two acres. The site is paved with asphalt and is relatively flat. The Alameda/Oakland Estuary is approximately 0.5 miles southwest of the site.

One 4,000-gallon diesel underground storage tank (UST) and one 2,000-gallon gasoline UST were removed from the site on March 11, 1997. The tank pit was over-excavated and soil samples were collected. Sidewall and bottom samples collected from the excavation contained concentrations of Total Petroleum Hydrocarbons as Gasoline (TPH-G, [as high as 380 milligrams per kilogram (mg/kg)]), and Total Petroleum Hydrocarbons as Diesel (TPH-D, [as high as 21 mg/kg]). Concentrations of Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX), ranged from 0.010 to 48 mg/kg. Methyl Tertiary Butyl Ether (MTBE) concentrations ranged from 0.041 to 9.15 mg/kg. Groundwater samples were not collected (Caltrans, 1999).

On April 6 and 7, 1999, Boreholes B1 through B6 were drilled at the site. The borehole locations are presented in Figure 2. All of the boreholes were converted to 1.3-centimeter (cm) (0.5-inch) inside diameter temporary groundwater monitoring wells. Soil samples were collected from each borehole at depths of 1.52, 3, and 4.56 meters (5, 10, and 15 feet) below ground surface (bgs).

Soil samples were analyzed for TPH-G and TPH-D by EPA method 8015M. Volatile Organic Compounds (VOCs) were analyzed using EPA Method 8260. TPH-G was detected in one soil sample (B6-10 [13 mg/kg]). None of the soil samples contained detectable concentrations of TPH-D. MTBE was the only VOC detected in the soil samples analyzed. MTBE was detected in the sample B5-1.5 meters (0.16 mg/kg). No other soil sample contained a detectable concentration of MTBE (PSI, 1999).

TPH-G was detected in groundwater samples collected from temporary Wells B3 (520 µg/l) and B4 (520 µg/l). No other groundwater samples collected contained detectable concentrations of TPH-G. No TPH-D was detected in any of the groundwater samples collected. Benzene was detected in the groundwater sample collected from Well WB3

(6.3 µg/l). MTBE was detected in the groundwater samples collected from Well WB5 (6,600 µg/l) and WB6 (24 µg/l). Concentrations of other gasoline related compounds were detected in groundwater samples collected from Wells WB1, WB3, WB4, and WB5. Chloroform was detected in groundwater samples collected from Wells WB4 (2.4 µg/l) and WB6 (2.7 µg/l). Tetrachloroethene (synonym Perchloroethene [PCE]) was detected in the groundwater sample collected from Well WB6 (12 µg/l) (PSI, 1999).

On August 13, 1999, Boreholes B7 through B9 were drilled at the site (Figure 2). The boreholes were drilled along the property boundary. Results of the sampling indicated the following:

- TPH-G concentrations were detected in one soil sample [B9-15 (0.54 mg/kg)] at the site.
- TPH-D was detected in one groundwater sample [WB7 (0.73 mg/l)]
- MTBE was detected in grab groundwater samples WB7 (5,600 µg/l) and WB8 (9.0 µg/l).

In June and July 2000, PSI completed a supplemental investigation, which included the installation of four monitoring wells at the site. The conclusions and recommendations of the investigation follows:

- None of the soil samples contained detectable concentrations of TPH-G, while TPH-D was detected in two soil samples at concentrations below regulatory concern.
- None of the soil samples contained detectable concentrations of VOCs with the exception of MTBE. The highest MTBE concentration detected was 0.52 mg/kg in soil sample B3-10. All of the MTBE concentrations detected were below first encountered groundwater.
- None of the groundwater samples contained detectable concentrations of TPH-D, while TPH-G was detected in two groundwater samples at a maximum concentration of 2.7 mg/l.
- VOCs were detected in the groundwater samples collected with only benzene and MTBE at concentrations greater than the State of California Primary Drinking Water Standard (PDWS) or Secondary Drinking Water Standard (SDWS). Based on the concentrations detected, MTBE is the primary contaminant of concern (COC).
- The report recommended continued groundwater monitoring and the installation of additional monitoring wells down gradient of monitoring well MW-3. Additionally, as TPH-D was not detected in the groundwater sample from monitoring well MW-3, the report recommended the analyses for TPH-D in this well be eliminated.

In August 2001, PSI completed a subsequent investigation into the lateral extent of groundwater contamination at the site. Three boreholes were drilled at the All Aboard Mini Storage facility located down gradient of the site. Soil and groundwater samples were collected from each of the boreholes. The samples were analyzed for TPH-G and VOCs. The conclusions and recommendations of the investigation follows:

- TPH-G and VOCs were not detected in any of the soil samples above laboratory detection limits.

- TPH-G was detected in the groundwater samples collected from monitoring well MW-1 (1.7 mg/l).

- VOCs were detected in the groundwater samples from the site. However, only MTBE were detected in concentrations greater than the PDWS. Based on the concentrations detected in the groundwater at the site, the primary COC is MTBE.

- The results of the groundwater sampling conducted at the All-Aboard Mini-Storage indicates that MTBE impacted groundwater above the PDWS has not migrated down gradient onto the All-Aboard Mini-Storage site (downgradient site).

- Based on the results of the soil and groundwater sample analyses, PSI recommends no further down-gradient investigation of the South Oakland Maintenance Station.

- For complete details see PSI's Hazardous Waste Preliminary Site Investigation Report, South Oakland Maintenance Station dated September 27, 2001.

On April 10th, 2002, further data was gathered from GEOCON concerning the sampling of the wells on March 27, 2001 and June 26, 2001. The additional groundwater elevation data as well as analytical results were added into Table 1 and Table 2. GEOCON reported the following:

- On March 27, 2001 MW-3 had a TPH-G concentration of 5.2 milligrams per liter (mg/l). MTBE concentrations were: 29 micrograms per liter (ug/l) for MW-1, 110 ug/l for MW-2, 5,500 ug/l in MW-3. MW-3 also had the following VOC concentrations: 220 ug/l of benzene, 5.9 ug/l of Toluene, 2.2 ug/l of Ethylbenzene, 12 ug/l of TAME, and 270 ug/l of Tert-butanol.

- On June 26, 2001 three wells had TPH-G levels that were above the laboratory detection limit. MW-1 had a TPH-G concentration of 0.24 ug/l, MW-2 had 0.11 ug/l, and MW-3 had 2.5 ug/l. MTBE was found in concentrations of 51 ug/l in MW-2 and 2,800 ug/l in MW-3. MW-3 also had the following VOC concentrations: a benzene concentration of 20 ug/l, 12 ug/l of TAME, and 230 ug/l of Tert-butanol.

2.0 GROUNDWATER MONITORING ACTIVITIES

2.1 GROUNDWATER ELEVATION AND HYDRAULIC GRADIENT

On September 24, 2002, static groundwater elevations were measured in wells MW-1 through MW-4 (Figure 2). The groundwater depths were measured using a groundwater interface probe. 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 west (Figure 2) with a hydraulic gradient of 0.013.

2.2 GROUNDWATER SAMPLING

Groundwater samples were collected from monitoring wells MW-1 through MW-4. 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 or for 2 hours 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 24-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.

2.3 LABORATORY ANALYSIS AND RESULTS

The groundwater samples were submitted for analyses to Basic Laboratory of Redding, California, a State of California certified hazardous waste analytical laboratory. The samples were analyzed for the following:

- EPA 8015 modified - TPH-G;
- EPA 8260 - Volatile Organic Compounds (VOCs).

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:

- TPH-G was detected in the groundwater samples collected from monitoring wells MW-1 (0.166 mg/l) and MW-3 (2.06 mg/l). TPH-G concentrations have generally decreased since the previous sampling results.

VOCs were detected in the groundwater samples with the highest concentrations detected in the groundwater sample collected from monitoring well MW-3. The compounds detected are common constituents of gasoline. The compound with the highest concentration was MTBE at 2,020 micrograms per liter (µg/l) in monitoring well MW-3. MTBE concentrations decreased in one of the monitoring wells and increased in three of the monitoring wells since the previous sampling event.

2.4 COMPARISON OF GROUNDWATER RESULTS WITH REGULATORY CRITERIA

The concentrations of contaminants reported by the analytical laboratory were compared to PDWS or SDWS. The following samples were above their respective PDWS or SDWS.

- Benzene concentrations detected in groundwater samples MW-3 (24.0 µg/l).

- MTBE concentrations detected in groundwater samples MW-1 (60.0), MW-2 (34.6 µg/l), and MW-3 (2,020 µg/l).

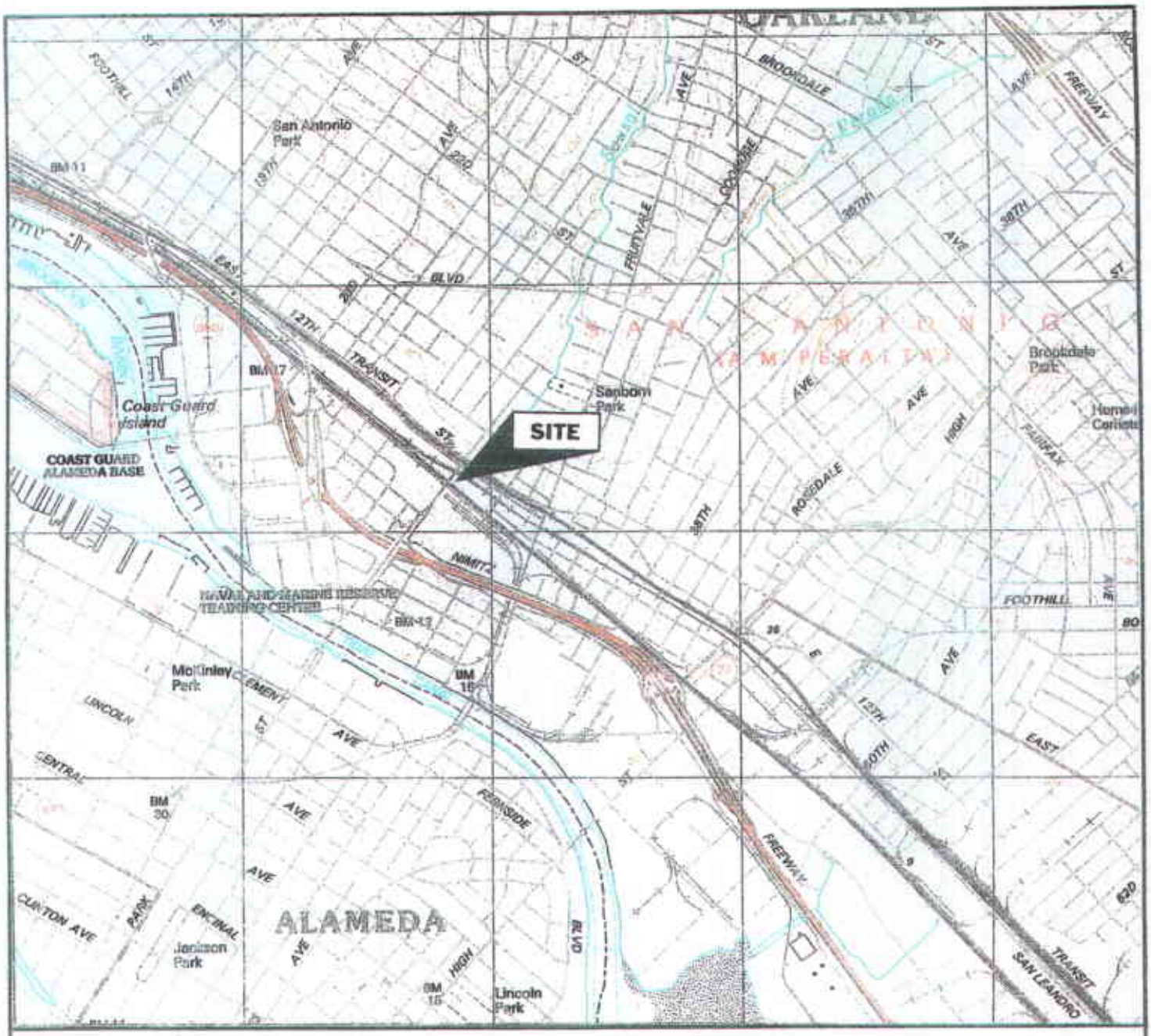
Based on the concentrations detected in the groundwater at the site, the primary COC is MTBE. The concentrations of MTBE in each of the monitoring wells are shown in Figure 3. This figure indicates that the highest concentrations of MTBE were encountered in the groundwater samples collected in the monitoring well MW-3, directly down gradient of the former USTs.

3.0 SUMMARY AND CONCLUSIONS

PSI performed a quarterly monitoring event on September 24, 2002. Groundwater samples were collected from monitoring wells MW-1 through MW-4. 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 west, with a hydraulic gradient of 0.013.

- TPH-G was detected in the groundwater samples collected from monitoring wells MW-1 (0.166 mg/l) and MW-3 (2.06 mg/l).

- VOCs were detected in all four groundwater samples collected from the monitoring wells at the site. Only benzene and MTBE were detected in concentrations greater than the PDWS. Based on the concentrations detected in the groundwater at the site, the primary COC is MTBE.



NORTH

0 1/2 1 MILE

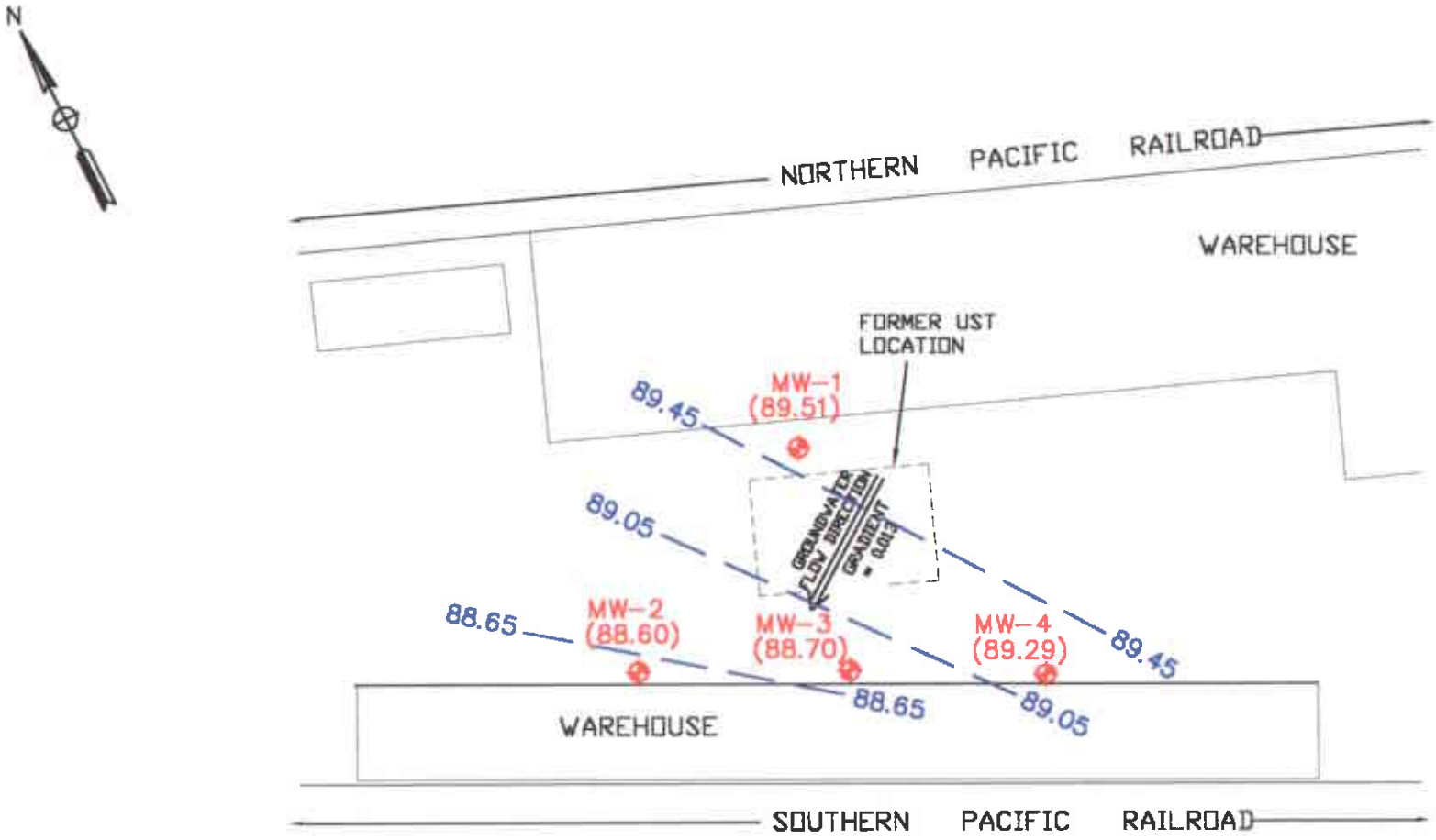
SCALE

REFERENCE:
U.S.G.S. OAKLAND EAST, CALIFORNIA, 1997

psi ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING • ENGINEERING • TESTING

SITE LOCATION
CALTRANS MAINTENANCE STATION
1112 29TH AVENUE
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-9G014

DATE: 3/23/99	CK'D BY:	FIGURE NO.: 1
FILE NO.: 9G014-1		DRAWN BY: S. BOWERS



0 50 100 ft

APPROXIMATE SCALE

EXPLANATION:

MW-4 (89.29) – GROUNDWATER MONITORING WELL LOCATION (GROUNDWATER ELEVATION GIVEN IN FEET MSL)

89.45 – GROUNDWATER ELEVATION CONTOUR (ELEVATION IN FEET MSL)

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Oakland, California 94601
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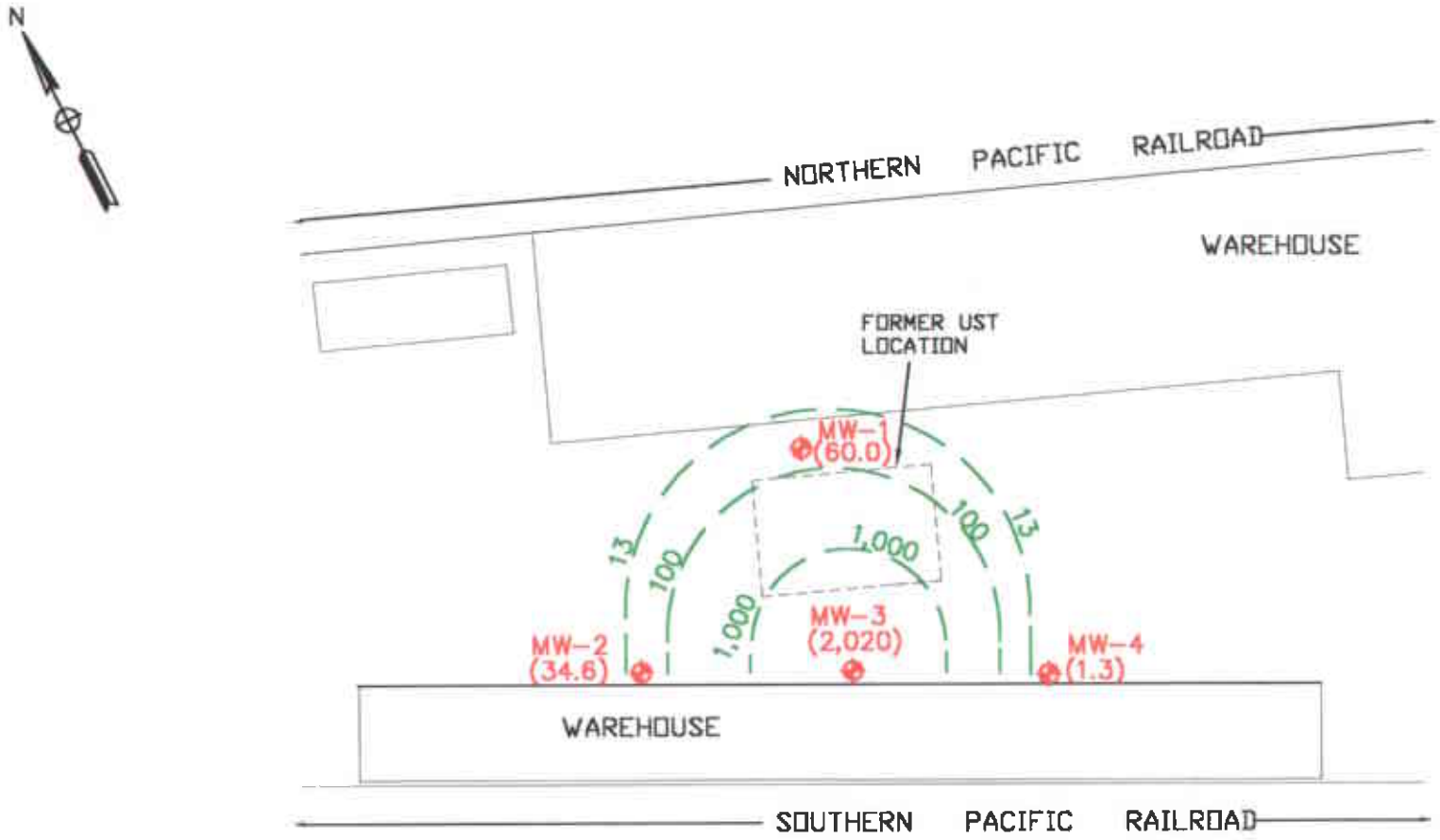
Project Name: CALTRANS MAINTENANCE STATION, 1112 29TH AVENUE, OAKLAND, CALIFORNIA	Drawn By: B.B.	Date: 10/02	File No.: 1C026-08	Figure No.: 2
Title: GROUNDWATER ELEVATION MAP (September 24, 2002)	Approved By: F.P.	Project No.: 575-1C026		



0 50 100 ft

APPROXIMATE SCALE

EXPLANATION:

100 – MTBE CONCENTRATION CONTOUR (IN MICROGRAMS PER LITER (UG/L))

MW-3 – GROUNDWATER MONITORING WELL LOCATION

(2,020) – CONCENTRATION (ug/L) OF MTBE DETECTED IN GROUNDWATER SAMPLES (ND INDICATES NOT DETECTED ABOVE LAB METHOD DETECTION LIMITS)

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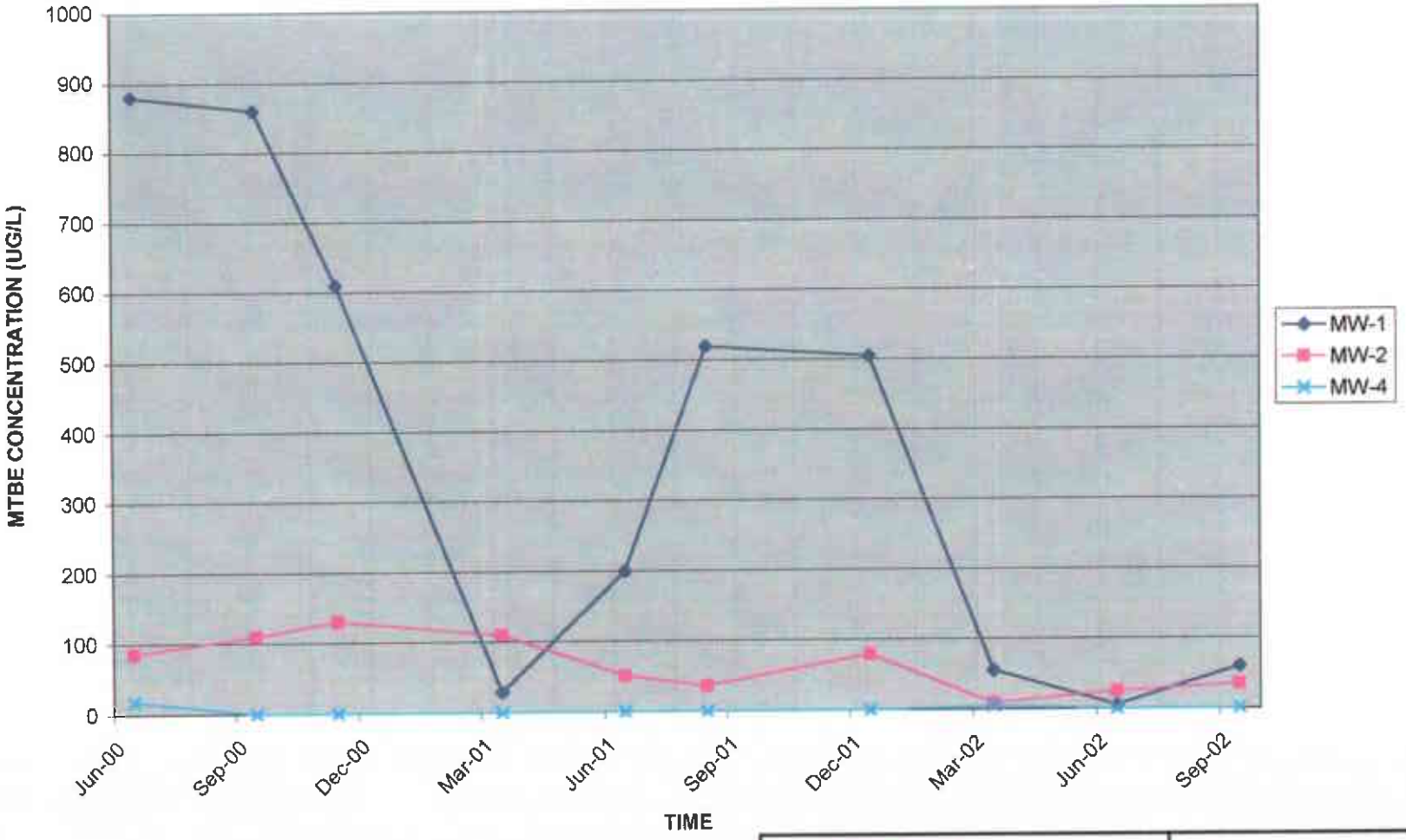
Project Name	Drawn By	Date	File No.	Figure No.
CALTRANS MAINTENANCE STATION 1112 28TH AVENUE, OAKLAND, CALIFORNIA	B.B.	10/02	1C026-07	3
Title: MTBE CONCENTRATION CONTOUR MAP (9/24/02)	Approved By: F.P.	Project No.: 575-1C026		

MTBE CONCENTRATION vs. TIME



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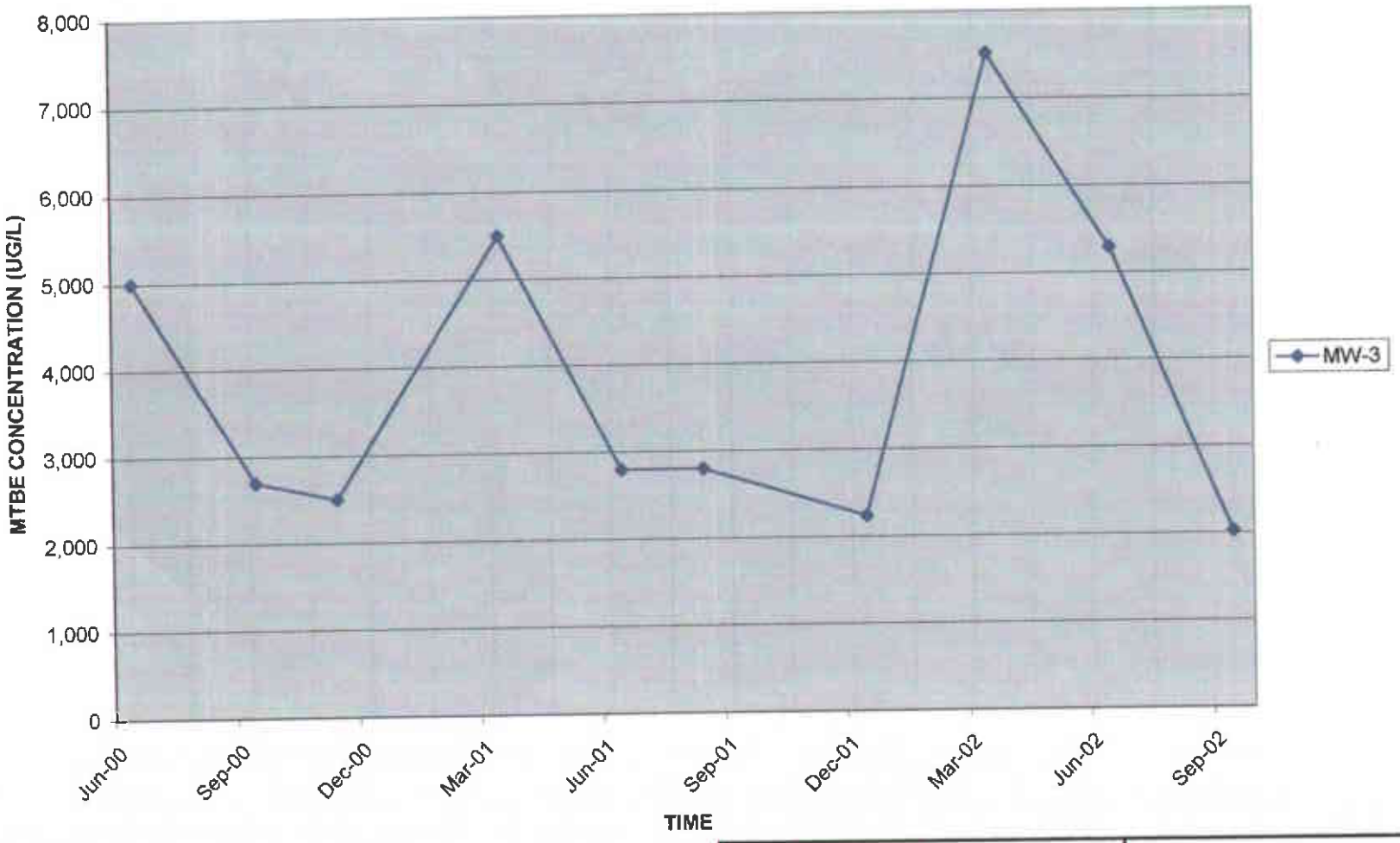
Project Name: CALTRANS MAINTENANCE STATION 1118 29TH AVENUE, OAKLAND, CALIFORNIA	Drawn By: B.S.	Date: 10/02	File No.: 1C026-09	Figure No.: 4
Title: MTBE vs. TIME (9/24/02) (MW-1, MW-2, and MW-4)	Approved By: F.P.	Project No.: 575-1C026		

MTBE CONCENTRATION vs. TIME



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Project Name: CALTRANS MAINTENANCE STATION 1112 80TH AVENUE, OAKLAND, CALIFORNIA		Drawn By: B.S.	Date: 10/02	File No.: 1C026-09
Title: MTBE vs. TIME (9/24/02) (MW-3)		Approved By: F.P.	Project No.: 575-1C026	Figure No.: 5

TABLE 1

GROUNDWATER ELEVATION
SOUTH OAKLAND MAINTENANCE STATION
SOUTH OAKLAND, CALIFORNIA

Sample Location	Date	TOC Elevation (feet msl)*	Depth To Groundwater	Groundwater Elevation (feet msl)*
MW-1	6/27/00	99.57	9.13	90.44
	9/11/00	99.57	9.52	90.05
	11/28/00	99.57	9.62	89.95
	3/27/01	99.57	8.79	90.78
	6/26/01	99.57	9.80	89.77
	12/5/01	99.57	8.32	91.25
	3/4/02	99.57	8.66	90.91
	6/14/02	99.57	9.53	90.04
	9/24/02	99.57	10.06	89.51
MW-2	6/27/00	98.91	9.05	89.86
	9/11/00	98.91	9.95	88.96
	11/28/00	98.91	9.94	88.97
	3/27/01	98.91	8.35	90.56
	6/26/01	98.91	10.76	88.15
	12/5/01	98.91	8.53	90.38
	3/4/02	98.91	8.25	90.66
	6/14/02	98.91	9.50	89.41
	9/24/02	98.91	10.31	88.60
MW-3	6/27/00	98.98	8.76	90.22
	9/11/00	98.98	9.28	89.70
	11/28/00	98.98	9.36	89.62
	3/27/01	98.98	8.35	90.63
	6/26/01	98.98	10.51	88.47
	12/5/01	98.98	8.05	90.93
	3/4/02	98.98	8.05	90.93
	6/14/02	98.98	9.35	89.63
	9/24/02	98.98	10.28	88.70
MW-4	6/27/00	99.04	8.74	90.30
	9/11/00	99.04	9.30	89.74
	11/28/00	99.04	9.32	89.72
	3/27/01	99.04	7.96	91.08
	6/26/01	99.04	9.56	89.48
	12/5/01	99.04	8.58	90.46
	3/4/02	99.04	8.00	91.04
	6/14/02	99.04	8.79	90.25
	9/24/02	99.04	9.75	89.29

Notes:

All measurements are recorded in feet.
* TOC Measurements are from data supplied by Meridian Surveying
Feet msl = feet above mean sea level

TABLE 2

ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES
SOUTH OAKLAND MAINTENANCE STATION
SOUTH OAKLAND, CALIFORNIA

Sample I.D.	Date	TPH-G mg/l	TPH-D mg/l	MTBE µg/l	tert-Butanol (TBA) ug/l	tert-Amyl Methyl Ether (TAME) ug/l	Benzene µg/l	Toluene µg/l	Ethyl-benzene µg/l	Total Xylenes µg/l	ETBE ug/l	Di-isopropyl ether ug/l	Other VOCs ug/l
MW-1	6/27/00	0.85	---	880	<50	<5	20	<1.0	<1.0	19	---	---	---
	9/11/00	0.92	---	860	190	<5	14	<1.0	1.5	3.6	---	---	---
	11/28/00	<0.5	---	610	<250	<25	3.6	<2.5	<2.5	<7.5	---	---	---
	3/27/01	<0.20	---	29	<200	<5.0	<0.50	<0.50	<0.50	<1.0	<5.0	<5.0	<5.0
	6/26/01	0.24	---	200	<200	<5.0	<0.50	<0.50	<0.50	<1.0	<5.0	<5.0	<5.0
	8/24/01	<0.5	---	520	<1,200	<50	<25	<25	<25	<75	---	---	---
	12/5/01	0.388	---	505	<100	<0.5	3.5	<0.3	2.4	15.4	---	---	---
	3/4/02	0.69	---	55	<50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	---
	6/14/02	<0.5	---	5.3	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	---
	9/24/02	0.166	---	80.0	<50	<0.5	<0.5	<0.5	0.50	1.80	<0.5	<0.5	napthalene - 0.6 n-propylbenzene - 0.7 1,2,4-trimethylbenzene - 4.8 1,3,5-trimethylbenzene - 1.4 n-Butylbenzene - 2.3
MW-2	6/27/00	<0.5	---	86	<50	<5	<1.0	<1.0	<1.0	<3.0	---	---	---
	9/11/00	<0.5	---	110	<50	<5	<1.0	<1.0	<1.0	<3.0	---	---	---
	11/28/00	<0.5	---	130	<50	<5	<1.0	<1.0	<1.0	<3.0	---	---	---
	3/27/01	<0.20	---	110	<200	<5.0	<0.50	<0.50	<0.50	<1.0	<5.0	<5.0	<5.0
	6/26/01	0.11	---	51	<200	<5.0	<0.50	<0.50	<0.50	<1.0	<5.0	<5.0	<5.0
	8/24/01	<0.5	---	36	<100	<4	<2.0	<2.0	<2.0	<6.0	---	---	---
	12/5/01	0.06	---	79	<100	<0.5	<0.3	<0.3	<0.3	<0.6	---	---	---
	3/4/02	<0.5	---	9	<50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	---
	6/14/02	<0.5	---	25.0	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	---
	9/24/02	<0.05	---	34.6	<50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	---
Sample I.D.	Date	TPH-G mg/l	TPH-D mg/l	MTBE µg/l	tert-Butanol (TBA) ug/l	tert-Amyl Methyl Ether (TAME) ug/l	Benzene µg/l	Toluene µg/l	Ethyl-benzene µg/l	Total Xylenes µg/l	ETBE ug/l	Di-isopropyl ether ug/l	Other VOCs ug/l
MW-3	6/27/00	2.7	<0.4	5,000	1,500	11	73	1.7	1.2	4.6	---	---	---
	9/11/00	1.9	---	2,700	310	10	19	<1.0	<1.0	<3.0	---	---	---
	11/28/00	1.7	---	2,500	<1,000	<100	27	92	<10	<30	---	---	---
	3/27/01	5.2	---	5,500	270	12	220	5.9	2.2	<1.0	<5.0	<5.0	---
	6/26/01	2.5	---	2,800	230	12	20	<0.50	<0.50	<1.0	<5.0	<5.0	---
	8/24/01	1.7	---	2,800	<5,000	<200	<100	<100	<100	<300	---	---	---
	12/5/01	1.86	---	2,240	<5,000	<200	18.3	0.3	1.2	1	---	---	---
	3/4/02	3.23	---	7,520	<50	11	94.2	0.8	2.4	6.9	<0.5	<0.5	---
	6/14/02	2.32	---	5,290	<0.5	8.9	3.6	<0.5	<0.5	<1	<0.5	<0.5	---
	9/24/02	2.08	---	2,020	<50	7.6	24.0	0.5	1.2	3.4	<0.5	<0.5	---
MW-4	6/27/00	<0.5	---	18	<50	<5	<1.0	<1.0	<1.0	<3.0	---	---	---
	9/11/00	<0.5	---	<1.0	<50	<5	<1.0	<1.0	<1.0	<3.0	---	---	---
	11/28/00	<0.5	---	<1.0	<50	<5	<0.5	<0.5	<0.5	<1.5	---	---	---
	3/27/01	<0.20	---	<5.0	<200	<5.0	<0.50	<0.50	<0.50	<1.0	<5.0	<5.0	Chloroform = 5.1
	6/26/01	<0.05	---	<5.0	<200	<5.0	<0.50	<0.50	<0.50	<1.0	<5.0	<5.0	<5.0
	8/24/01	<0.5	---	<2	<100	<4	<1.0	<1.0	<1.0	<3.0	---	---	---
	12/5/01	<0.05	---	<0.3	<100	<0.5	<0.3	<0.3	<0.3	<0.6	---	---	---
	3/4/02	<0.5	---	5	<0.5	<0.5	0.5	<0.5	<0.5	<1.0	<0.5	<0.5	---
	6/14/02	<0.5	---	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1	<0.5	<0.5	Chloroform = 5.4
	9/24/02	<0.05	---	1.3	<50	<0.5	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	Chloroform = 5.3

NOTES:

TPH-D = Total Petroleum Hydrocarbons as Diesel by EPA Method 8015M
TPH-G = Total Petroleum Hydrocarbons as Gasoline by EPA Method 8015M
MTBE = Methyl Tertiary Butyl Ether
ETBE = Ethyl Tertiary Butylether

VOCs = Volatile Organic Compounds
mg/l = milligrams per liter
ug/l = micrograms per liter
--- = Not measured/ N

APPENDIX A

GROUNDWATER PURGE LOGS

FLUID MEASUREMENT FIELD DATA

SHEET: 1 OF 1

DATE: 9/24/02 | PROJECT NAME: Caltrans South Oakland | PROJECT NO: 575-16026

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				10.00	25.18			9:56
MW2				10.31	19.47			9:58
MW3				10.29	20.20			10:00
MW4				9.75	24.37			10.04

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

PREPARED BY: BS

PSI
Rev. 12/95

WELL PURGING AND SAMPLING DATA

WELL NO: MW-1

DATE: 9/24/02 PROJECT NAME: South Oakland PROJECT NO: 575-16026

WEATHER CONDITIONS: Sunny, warm

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

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

WELL DEPTH (TOC) 25.18 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 10.06 FT.

LENGTH OF WATER 15.12 FT. | CALCULATED ONE WELL VOLUME[1]: 2.57 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: Myron L 602154

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) ORP TDS
10:32	INITIAL	21.8	506.2	7.78			CL	49.0 344.2
10:37	2.6	22.2	573.9	7.78			CL	48.2 390.5
10:42	5.0	21.6	473.7	7.87			CL	50.3 320.8
10:45	7.5	21.4	480.7	7.82			CL	50.3 325.2

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

NOTES: None

SAMPLE TIME: 10:50 ID# MW-1

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: BS

PSI Rev. 12/95

[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-2

DATE: 9/26/02 | PROJECT NAME: Caltrans South Oakland | PROJECT NO: 575-16026

WEATHER CONDITIONS: Sunny, warm

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

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

WELL DEPTH (TOC) 19.47 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 10.31 FT.

LENGTH OF WATER 9.16 FT. | CALCULATED ONE WELL VOLUME[1]: 1.56 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: Myron L 602154

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) ORP TDS
11:09	INITIAL	23.1	566.6	7.78			CL	0 387.2
11:15	1.6	22.1	565.1	7.82			CL	527 385.6
11:18	3.0	21.6	572.7	7.82			CL	525 389.3
11:23	4.8	22.6	567.0	7.80			CL	518 385.5

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

NOTES:

SAMPLE TIME: 12:06 ID# MW-2

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: BS

PSI Rev. 12/95

[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: 9/24/02 | PROJECT NAME: Caltrans South Oakland | PROJECT NO: 575-1G026

WEATHER CONDITIONS: Sunny, Warm

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

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

WELL DEPTH (TOC) 20.20 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 10.28 FT.

LENGTH OF WATER 9.92 FT. | CALCULATED ONE WELL VOLUME[1]: 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: Myron L 602154

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) ORP	TDS
11:30	INITIAL	22.0	581.9	7.82			CL	520	377.6
11:33	1.7	21.5	553.8	7.80			CL	524	369.8
11:36	3.4	21.6	556.1	7.85			CL	528	378.0
11:39	5.1	22.7	591.2	7.83			CL	529	403.4

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

NOTES:

SAMPLE TIME: 12:13 ID# MW-3

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: RS

PSI Rev. 12/95

[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-4

DATE: 9/24/02 | PROJECT NAME: South Oakland | PROJECT NO: 575-16026

WEATHER CONDITIONS: Sunny, Warm

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

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

WELL DEPTH (TOC)	24.37 FT.	DEPTH TO WATER BEFORE PURGING (TOC)	9.75 FT.
LENGTH OF WATER	14.62 FT.	CALCULATED ONE WELL VOLUME[1]:	2.49 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: Myron L 602154

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) ORP TDS
11:45	INITIAL	21.8	493.4	7.83			CL	534 336.5
11:54	2.5	22.2	496.2	7.80			CO	27 335.9
11:57	5.0	22.0	498.0	7.83			CO	13 338.9
12:00	7.5	21.8	498.9	7.84			CO	11 339.2

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

NOTES:

SAMPLE TIME: 12:20 ID# MW-4

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: BS

PSI Rev. 12/95

[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

APPENDIX B

LABORATORY REPORTS AND CHAIN-OF-CUSTODY FORMS

BASIC LABORATORY, INC.

EPA METHOD 8015 / 8260

Report To:	PROFESSIONAL SERVICE INDUSTRIES INC	***Lab Number:***	0209757-1
	4703 TIDEWATER AVE SUITE B	***Date:***	10/09/02
	OAKLAND CA 94601	***Phone:***	510-434-9200
		Date Sampled:	09/24/02
Attention:	FRANK POSS	***Date Received:***	09/25/02
		Date Analyzed:	09/28/02
Project Name:	CALTRANS / SOUTH OAKLAND	***P.O. #:***	
Sample Type:	WATER	***Page 1 of 12***	

Sample Description: MW-1

COMPOUND	RESULTS	REPORTING UNITS	QUANTITATION LIMIT
TPH - Gas	166	ug/l	50
SURROGATES	**RECOVERY**	**%**	**CONTROL LIMITS (%)**
4-Bromofluorobenzene	103	%	43-155

Comments:
California D.O.H.S Cert # 1677
n - Not detected at the Quantitation limit.

Reported By

2218 Railroad Ave. • Redding, CA 96001 • v 530.243.7234 • f 530.243.7494 • www.basiclabinc.com

BASIC LABORATORY, INC.

EPA METHOD 8015 / 8260

Report To:	PROFESSIONAL SERVICE INDUSTRIES INC	***Lab Number:***	0209757-2
	4703 TIDEWATER AVE SUITE B	***Date:***	10/09/02
	OAKLAND CA 94601	***Phone:***	510-434-9200
		Date Sampled:	09/24/02
Attention:	FRANK POSS	***Date Received:***	09/25/02
		Date Analyzed:	09/28/02
Project Name:	CALTRANS / SOUTH OAKLAND	***P.O. #:***	
Sample Type:	WATER	***Page 2 of 12***	

Sample Description: MW-2

COMPOUND	RESULTS	REPORTING UNITS	QUANTITATION LIMIT
TPH - Gas	n	ug/l	50
SURROGATES	**RECOVERY**	**%**	**CONTROL LIMITS (%)**
4-Bromofluorobenzene	89.8	%	43-155

Comments:
California D.O.H.S Cert # 1677
n - Not detected at the Quantitation limit.

Reported By

2218 Railroad Ave. • Redding, CA 96001 • v 530.243.7234 • f 530.243.7494 • www.basiclabinc.com

BASIC LABORATORY, INC.

EPA METHOD 8015 / 8260

Report To:	PROFESSIONAL SERVICE INDUSTRIES INC	***Lab Number:***	0209757-3
	4703 TIDEWATER AVE SUITE B	***Date:***	10/09/02
	OAKLAND CA 94601	***Phone:***	510-434-9200
		Date Sampled:	09/24/02
Attention:	FRANK POSS	***Date Received:***	09/25/02
		Date Analyzed:	09/28/02
Project Name:	CALTRANS / SOUTH OAKLAND	***P.O. #:***	
Sample Type:	WATER	***Page 3 of 12***	

Sample Description: MW-3

COMPOUND	RESULTS	REPORTING UNITS	QUANTITATION LIMIT
TPH - Gas	2060	ug/l	50

SURROGATES	RECOVERY	%	CONTROL LIMITS (%)
4-Bromofluorobenzene	83.3	%	43-155

Comments:
California D.O.H.S Cert # 1677
n - Not detected at the Quantitation limit.

Reported By

2218 Railroad Ave. • Redding, CA 96001 • v 530.243.7234 • f 530.243.7494 • www.basiclabinc.com

BASIC LABORATORY, INC.

EPA METHOD 8015 / 8260

Report To:	PROFESSIONAL SERVICE INDUSTRIES INC	***Lab Number:***	0209757-4
	4703 TIDEWATER AVE SUITE B	***Date:***	10/09/02
	OAKLAND CA 94601	***Phone:***	510-434-9200
		Date Sampled:	09/24/02
Attention:	FRANK POSS	***Date Received:***	09/25/02
		Date Analyzed:	10/04/02
Project Name:	CALTRANS / SOUTH OAKLAND	***P.O. #:***	
Sample Type:	WATER	***Page 4 of 12***	

Sample Description: MW-4

COMPOUND	RESULTS	REPORTING UNITS	QUANTITATION LIMIT
TPH - Gas	n	ug/l	50
SURROGATES	**RECOVERY**	**%**	**CONTROL LIMITS (%)**
4-Bromofluorobenzene	82.8	%	43-155

Comments:
California D.O.H.S Cert # 1677
n - Not detected at the Quantitation limit.

Reported By

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BASIC LABORATORY, INC.

EPA METHOD 8260

Report To:	PROFESSIONAL SERVICE INDUSTRIES INC 4703 TIDEWATER AVE SUITE B OAKLAND CA 94601	***Lab Number:*** ***Phone:***	0209757-1 510-434-9200
		Date Sampled:	09/24/02
Attention:	FRANK POSS	***Date Received:***	09/25/02
Project Name:	CALTRANS / SOUTH OAKLAND	***Date Analyzed:***	09/28/02
Project Number:	1G026	***Date Reported:***	10/09/02
Sampling Location:			
Sample ID:	MW-1		
Sample Matrix:	WATER		
Sample Collected By:	BRIAN STOZEK		

COMPOUND	RESULT	REPORTING UNITS	QUANTITATION LIMIT
Acetone	n	ug/l	5.0
Acrylonitrile	n	ug/l	5.0
Benzene	n	ug/l	0.5
Bromobenzene	n	ug/l	0.5
Bromochloromethane	n	ug/l	0.5
Bromodichloromethane	n	ug/l	0.5
Bromoform	n	ug/l	0.5
Bromomethane	n	ug/l	0.5
2-Butanone (MEK)	n	ug/l	5.0
n-Butylbenzene	2.3	ug/l	0.5
sec-Butylbenzene	n	ug/l	0.5
tert-Butylbenzene	n	ug/l	0.5
Carbon Disulfide	n	ug/l	0.5
Carbon tetrachloride	n	ug/l	0.5
Chlorobenzene	n	ug/l	0.5
Chloroethane	n	ug/l	0.5
2-Chloroethylvinylether	n	ug/l	0.5
Chloroform	n	ug/l	0.5
Chloromethane	n	ug/l	0.5
2-Chlorotoluene	n	ug/l	0.5
4-Chlorotoluene	n	ug/l	0.5
Dibromochloromethane	n	ug/l	0.5
1,2-Dibromo-3-Chloropropane	n	ug/l	0.5
1,2-Dibromoethane	n	ug/l	0.5
Dibromomethane	n	ug/l	0.5
1,2-Dichlorobenzene	n	ug/l	0.5
1,3-Dichlorobenzene	n	ug/l	0.5
1,4-Dichlorobenzene	n	ug/l	0.5
Dichlorodifluoromethane	n	ug/l	0.5
1,1-Dichloroethane	n	ug/l	0.5
1,2-Dichloroethane	n	ug/l	0.5
1,1-Dichloroethene	n	ug/l	0.5
cis-1,2-Dichloroethene	n	ug/l	0.5
trans-1,2-Dichloroethene	n	ug/l	0.5
1,2-Dichloropropane	n	ug/l	0.5

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EPA METHOD 8260

Report To: PROFESSIONAL SERVICE INDUSTRIES INC ***Lab Number:*** 0209757-1

COMPOUND	RESULT	REPORTING UNITS	QUANTITATION LIMIT
1,3-Dichloropropane	n	ug/l	0.5
2,2-Dichloropropane	n	ug/l	0.5
1,1-Dichloropropene	n	ug/l	0.5
cis-1,3-Dichloropropene	n	ug/l	0.5
trans-1,3-Dichloropropene	n	ug/l	0.5
1,4-Dioxane	n	ug/l	25
Ethyl Benzene	0.5	ug/l	0.5
Ethyl-Tert-Butyl Ether (ETBE)	n	ug/l	0.5
Hexachlorobutadiene	n	ug/l	0.5
2-Hexanone (MBK)	n	ug/l	5.0
Isopropylbenzene	0.5	ug/l	0.5
Di-Isopropyl Ether (DIPE)	n	ug/l	0.5
p-Isopropyltoluene	n	ug/l	0.5
4-Methyl-2-Pentanone (MIBK)	n	ug/l	5.0
Methylene Chloride	n	ug/l	1.0
Methyl Tert-Butyl Ether (MTBE)	60.0	ug/l	0.5
Napthalene	0.6	ug/l	0.5
n-Propylbenzene	0.7	ug/l	0.5
Styrene	n	ug/l	0.5
Tert-Amyl Methyl Ether (TAME)	n	ug/l	0.5
1,1,1,2-Tetrachloroethane	n	ug/l	0.5
1,1,2,2-Tetrachloroethane	n	ug/l	0.5
Tetrachloroethene	n	ug/l	0.5
Tetrahydrofuran	n	ug/l	5.0
tert - Butanol (TBA)	n	ug/l	50
Toluene	n	ug/l	0.5
1,2,3-Trichlorobenzene	n	ug/l	0.5
1,2,4-Trichlorobenzene	n	ug/l	0.5
1,1,1-Trichloroethane	n	ug/l	0.5
1,1,2-Trichloroethane	n	ug/l	0.5
Trichloroethene	n	ug/l	0.5
1,1,2-Trichlorotrifluoroethane	n	ug/l	0.5
Trichlorofluoromethane	n	ug/l	0.5
1,2,3-Trichloropropane	n	ug/l	0.5
1,2,4-Trimethylbenzene	4.8	ug/l	0.5
1,3,5-Trimethylbenzene	1.4	ug/l	0.5
Vinyl Acetate	n	ug/l	0.5
Vinyl Chloride	n	ug/l	0.5
Total Xylenes	1.6	ug/l	1.0

SURROGATES	RECOVERY	%	CONTROL LIMITS (%)
1,2-Dichloroethane-d4	108	%	28-129
Toluene-d8	117	%	52-150
4-Bromofluorobenzene	103	%	43-155

Comments:
California D.O.H.S Cert # 1677
n - Not detected at the quantitation limit.

Reported By

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BASIC LABORATORY, INC.

EPA METHOD 8260

Report To:	PROFESSIONAL SERVICE INDUSTRIES INC 4703 TIDEWATER AVE SUITE B OAKLAND CA 94601	***Lab Number:***	0209757-2
		Phone:	510-434-9200
		Date Sampled:	09/24/02
Attention:	FRANK POSS	***Date Received:***	09/25/02
Project Name:	CALTRANS / SOUTH OAKLAND	***Date Analyzed:***	09/28/02
Project Number:	1G026	***Date Reported:***	10/09/02
Sampling Location:			
Sample ID:	MW-2		
Sample Matrix:	WATER		
Sample Collected By:	BRIAN STOZEK		

COMPOUND	RESULT	REPORTING UNITS	QUANTITATION LIMIT
Acetone	n	ug/l	5.0
Acrylonitrile	n	ug/l	5.0
Benzene	n	ug/l	0.5
Bromobenzene	n	ug/l	0.5
Bromochloromethane	n	ug/l	0.5
Bromodichloromethane	n	ug/l	0.5
Bromoform	n	ug/l	0.5
Bromomethane	n	ug/l	0.5
2-Butanone (MEK)	n	ug/l	5.0
n-Butylbenzene	n	ug/l	0.5
sec-Butylbenzene	n	ug/l	0.5
tert-Butylbenzene	n	ug/l	0.5
Carbon Disulfide	n	ug/l	0.5
Carbon tetrachloride	n	ug/l	0.5
Chlorobenzene	n	ug/l	0.5
Chloroethane	n	ug/l	0.5
2-Chloroethylvinylether	n	ug/l	0.5
Chloroform	n	ug/l	0.5
Chloromethane	n	ug/l	0.5
2-Chlorotoluene	n	ug/l	0.5
4-Chlorotoluene	n	ug/l	0.5
Dibromochloromethane	n	ug/l	0.5
1,2-Dibromo-3-Chloropropane	n	ug/l	0.5
1,2-Dibromoethane	n	ug/l	0.5
Dibromomethane	n	ug/l	0.5
1,2-Dichlorobenzene	n	ug/l	0.5
1,3-Dichlorobenzene	n	ug/l	0.5
1,4-Dichlorobenzene	n	ug/l	0.5
Dichlorodifluoromethane	n	ug/l	0.5
1,1-Dichloroethane	n	ug/l	0.5
1,2-Dichloroethane	n	ug/l	0.5
1,1-Dichloroethene	n	ug/l	0.5
cis-1,2-Dichloroethene	n	ug/l	0.5
trans-1,2-Dichloroethene	n	ug/l	0.5
1,2-Dichloropropane	n	ug/l	0.5

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EPA METHOD 8260

Report To: PROFESSIONAL SERVICE INDUSTRIES INC **Lab Number:** 0209757-2

COMPOUND	RESULT	REPORTING UNITS	QUANTITATION LIMIT
1,3-Dichloropropane	n	ug/l	0.5
2,2-Dichloropropane	n	ug/l	0.5
1,1-Dichloropropene	n	ug/l	0.5
cis-1,3-Dichloropropene	n	ug/l	0.5
trans-1,3-Dichloropropene	n	ug/l	0.5
1,4-Dioxane	n	ug/l	25
Ethyl Benzene	n	ug/l	0.5
Ethyl-Tert-Butyl Ether (ETBE)	n	ug/l	0.5
Hexachlorobutadiene	n	ug/l	0.5
2-Hexanone (MBK)	n	ug/l	5.0
Isopropylbenzene	n	ug/l	0.5
Di-Isopropyl Ether (DIPE)	n	ug/l	0.5
p-Isopropyltoluene	n	ug/l	0.5
4-Methyl-2-Pentanone (MIBK)	n	ug/l	5.0
Methylene Chloride	n	ug/l	1.0
Methyl Tert-Butyl Ether (MTBE)	34.6	ug/l	0.5
Napthalene	n	ug/l	0.5
n-Propylbenzene	n	ug/l	0.5
Styrene	n	ug/l	0.5
Tert-Amyl Methyl Ether (TAME)	n	ug/l	0.5
1,1,1,2-Tetrachloroethane	n	ug/l	0.5
1,1,2,2-Tetrachloroethane	n	ug/l	0.5
Tetrachloroethene	n	ug/l	0.5
Tetrahydrofuran	n	ug/l	5.0
tert - Butanol (TBA)	n	ug/l	50
Toluene	n	ug/l	0.5
1,2,3-Trichlorobenzene	n	ug/l	0.5
1,2,4-Trichlorobenzene	n	ug/l	0.5
1,1,1-Trichloroethane	n	ug/l	0.5
1,1,2-Trichloroethane	n	ug/l	0.5
Trichloroethene	n	ug/l	0.5
1,1,2-Trichlorotrifluoroethane	n	ug/l	0.5
Trichlorofluoromethane	n	ug/l	0.5
1,2,3-Trichloropropane	n	ug/l	0.5
1,2,4-Trimethylbenzene	n	ug/l	0.5
1,3,5-Trimethylbenzene	n	ug/l	0.5
Vinyl Acetate	n	ug/l	0.5
Vinyl Chloride	n	ug/l	0.5
Total Xylenes	n	ug/l	1.0
SURROGATES	**RECOVERY**	**%**	**CONTROL LIMITS (%)**
1,2-Dichloroethane-d4	105	%	28-129
Toluene-d8	92.8	%	52-150
4-Bromofluorobenzene	89.8	%	43-155

Comments:
California D.O.H.S Cert # 1677
n - Not detected at the quantitation limit.

Reported By

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EPA METHOD 8260

Report To:	PROFESSIONAL SERVICE INDUSTRIES INC 4703 TIDEWATER AVE SUITE B OAKLAND CA 94601	***Lab Number:*** ***Phone:***	0209757-3 510-434-9200
		Date Sampled:	09/24/02
Attention:	FRANK POSS	***Date Received:***	09/25/02
Project Name:	CALTRANS / SOUTH OAKLAND	***Date Analyzed:***	09/28/02
Project Number:	1G026	***Date Reported:***	10/09/02
Sampling Location:			
Sample ID:	MW-3		
Sample Matrix:	WATER		
Sample Collected By:	BRIAN STOZEK		

COMPOUND	RESULT	REPORTING UNITS	QUANTITATION LIMIT
Acetone	n	ug/l	5.0
Acrylonitrile	n	ug/l	5.0
Benzene	24.0	ug/l	0.5
Bromobenzene	n	ug/l	0.5
Bromochloromethane	n	ug/l	0.5
Bromodichloromethane	n	ug/l	0.5
Bromoform	n	ug/l	0.5
Bromomethane	n	ug/l	0.5
2-Butanone (MEK)	n	ug/l	5.0
n-Butylbenzene	n	ug/l	0.5
sec-Butylbenzene	n	ug/l	0.5
tert-Butylbenzene	0.5	ug/l	0.5
Carbon Disulfide	n	ug/l	0.5
Carbon tetrachloride	n	ug/l	0.5
Chlorobenzene	n	ug/l	0.5
Chloroethane	n	ug/l	0.5
2-Chloroethylvinylether	n	ug/l	0.5
Chloroform	n	ug/l	0.5
Chloromethane	n	ug/l	0.5
2-Chlorotoluene	n	ug/l	0.5
4-Chlorotoluene	n	ug/l	0.5
Dibromochloromethane	n	ug/l	0.5
1,2-Dibromo-3-Chloropropane	n	ug/l	0.5
1,2-Dibromoethane	n	ug/l	0.5
Dibromomethane	n	ug/l	0.5
1,2-Dichlorobenzene	n	ug/l	0.5
1,3-Dichlorobenzene	n	ug/l	0.5
1,4-Dichlorobenzene	n	ug/l	0.5
Dichlorodifluoromethane	n	ug/l	0.5
1,1-Dichloroethane	n	ug/l	0.5
1,2-Dichloroethane	n	ug/l	0.5
1,1-Dichloroethene	n	ug/l	0.5
cis-1,2-Dichloroethene	n	ug/l	0.5
trans-1,2-Dichloroethene	n	ug/l	0.5
1,2-Dichloropropane	n	ug/l	0.5

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EPA METHOD 8260

Report To:	PROFESSIONAL SERVICE INDUSTRIES INC	***Lab Number:***	0209757-4
	4703 TIDEWATER AVE SUITE B	***Phone:***	510-434-9200
	OAKLAND CA 94601		
		Date Sampled:	09/24/02
Attention:	FRANK POSS	***Date Received:***	09/25/02
Project Name:	CALTRANS / SOUTH OAKLAND	***Date Analyzed:***	10/04/02
Project Number:	1G026	***Date Reported:***	10/09/02
Sampling Location:			
Sample ID:	MW-4		
Sample Matrix:	WATER		
Sample Collected By:	BRIAN STOZEK		

COMPOUND	RESULT	REPORTING UNITS	QUANTITATION LIMIT
Acetone	n	ug/l	5.0
Acrylonitrile	n	ug/l	5.0
Benzene	n	ug/l	0.5
Bromobenzene	n	ug/l	0.5
Bromochloromethane	n	ug/l	0.5
Bromodichloromethane	n	ug/l	0.5
Bromoform	n	ug/l	0.5
Bromomethane	n	ug/l	0.5
2-Butanone (MEK)	n	ug/l	5.0
n-Butylbenzene	n	ug/l	0.5
sec-Butylbenzene	n	ug/l	0.5
tert-Butylbenzene	n	ug/l	0.5
Carbon Disulfide	n	ug/l	0.5
Carbon tetrachloride	n	ug/l	0.5
Chlorobenzene	n	ug/l	0.5
Chloroethane	n	ug/l	0.5
2-Chloroethylvinylether	n	ug/l	0.5
Chloroform	5.3	ug/l	0.5
Chloromethane	n	ug/l	0.5
2-Chlorotoluene	n	ug/l	0.5
4-Chlorotoluene	n	ug/l	0.5
Dibromochloromethane	n	ug/l	0.5
1,2-Dibromo-3-Chloropropane	n	ug/l	0.5
1,2-Dibromoethane	n	ug/l	0.5
Dibromomethane	n	ug/l	0.5
1,2-Dichlorobenzene	n	ug/l	0.5
1,3-Dichlorobenzene	n	ug/l	0.5
1,4-Dichlorobenzene	n	ug/l	0.5
Dichlorodifluoromethane	n	ug/l	0.5
1,1-Dichloroethane	n	ug/l	0.5
1,2-Dichloroethane	n	ug/l	0.5
1,1-Dichloroethene	n	ug/l	0.5
cis-1,2-Dichloroethene	n	ug/l	0.5
trans-1,2-Dichloroethene	n	ug/l	0.5
1,2-Dichloropropane	n	ug/l	0.5

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EPA METHOD 8260

Report To: PROFESSIONAL SERVICE INDUSTRIES INC ***Lab Number:*** 0209757-3

COMPOUND	RESULT	REPORTING UNITS	QUANTITATION LIMIT
1,3-Dichloropropane	n	ug/l	0.5
2,2-Dichloropropane	n	ug/l	0.5
1,1-Dichloropropene	n	ug/l	0.5
cis-1,3-Dichloropropene	n	ug/l	0.5
trans-1,3-Dichloropropene	n	ug/l	0.5
1,4-Dioxane	n	ug/l	25
Ethyl Benzene	1.2	ug/l	0.5
Ethyl-Tert-Butyl Ether (ETBE)	n	ug/l	0.5
Hexachlorobutadiene	n	ug/l	0.5
2-Hexanone (MBK)	n	ug/l	5.0
Isopropylbenzene	n	ug/l	0.5
Di-Isopropyl Ether (DIPE)	n	ug/l	0.5
p-Isopropyltoluene	n	ug/l	0.5
4-Methyl-2-Pentanone (MIBK)	n	ug/l	5.0
Methylene Chloride	n	ug/l	1.0
Methyl Tert-Butyl Ether (MTBE)	2020	ug/l	0.5
Napthalene	n	ug/l	0.5
n-Propylbenzene	0.7	ug/l	0.5
Styrene	n	ug/l	0.5
Tert-Amyl Methyl Ether (TAME)	7.6	ug/l	0.5
1,1,1,2-Tetrachloroethane	n	ug/l	0.5
1,1,2,2-Tetrachloroethane	n	ug/l	0.5
Tetrachloroethene	n	ug/l	0.5
Tetrahydrofuran	n	ug/l	5.0
tert - Butanol (TBA)	n	ug/l	50
Toluene	0.5	ug/l	0.5
1,2,3-Trichlorobenzene	n	ug/l	0.5
1,2,4-Trichlorobenzene	n	ug/l	0.5
1,1,1-Trichloroethane	n	ug/l	0.5
1,1,2-Trichloroethane	n	ug/l	0.5
Trichloroethene	n	ug/l	0.5
1,1,2-Trichlorotrifluoroethane	n	ug/l	0.5
Trichlorofluoromethane	n	ug/l	0.5
1,2,3-Trichloropropane	n	ug/l	0.5
1,2,4-Trimethylbenzene	0.9	ug/l	0.5
1,3,5-Trimethylbenzene	n	ug/l	0.5
Vinyl Acetate	n	ug/l	0.5
Vinyl Chloride	n	ug/l	0.5
Total Xylenes	3.4	ug/l	1.0

SURROGATES	RECOVERY	%	CONTROL LIMITS (%)
1,2-Dichloroethane-d4	104	%	28-129
Toluene-d8	91.3	%	52-150
4-Bromofluorobenzene	83.3	%	43-155

Comments:
California D.O.H.S Cert # 1677
n - Not detected at the quantitation limit.

Reported By

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EPA METHOD 8260

Report To: PROFESSIONAL SERVICE INDUSTRIES INC ***Lab Number:*** 0209757-4

COMPOUND	RESULT	REPORTING UNITS	QUANTITATION LIMIT
1,3-Dichloropropane	n	ug/l	0.5
2,2-Dichloropropane	n	ug/l	0.5
1,1-Dichloropropene	n	ug/l	0.5
cis-1,3-Dichloropropene	n	ug/l	0.5
trans-1,3-Dichloropropene	n	ug/l	0.5
1,4-Dioxane	n	ug/l	25
Ethyl Benzene	n	ug/l	0.5
Ethyl-Tert-Butyl Ether (ETBE)	n	ug/l	0.5
Hexachlorobutadiene	n	ug/l	0.5
2-Hexanone (MBK)	n	ug/l	5.0
Isopropylbenzene	n	ug/l	0.5
Di-Isopropyl Ether (DIPE)	n	ug/l	0.5
p-Isopropyltoluene	n	ug/l	0.5
4-Methyl-2-Pentanone (MIBK)	n	ug/l	5.0
Methylene Chloride	n	ug/l	1.0
Methyl Tert-Butyl Ether (MTBE)	1.3	ug/l	0.5
Napthalene	n	ug/l	0.5
n-Propylbenzene	n	ug/l	0.5
Styrene	n	ug/l	0.5
Tert-Amyl Methyl Ether (TAME)	n	ug/l	0.5
1,1,1,2-Tetrachloroethane	n	ug/l	0.5
1,1,2,2-Tetrachloroethane	n	ug/l	0.5
Tetrachloroethene	n	ug/l	0.5
Tetrahydrofuran	n	ug/l	5.0
tert - Butanol (TBA)	n	ug/l	50
Toluene	n	ug/l	0.5
1,2,3-Trichlorobenzene	n	ug/l	0.5
1,2,4-Trichlorobenzene	n	ug/l	0.5
1,1,1-Trichloroethane	n	ug/l	0.5
1,1,2-Trichloroethane	n	ug/l	0.5
Trichloroethene	n	ug/l	0.5
1,1,2-Trichlorotrifluoroethane	n	ug/l	0.5
Trichlorofluoromethane	n	ug/l	0.5
1,2,3-Trichloropropane	n	ug/l	0.5
1,2,4-Trimethylbenzene	n	ug/l	0.5
1,3,5-Trimethylbenzene	n	ug/l	0.5
Vinyl Acetate	n	ug/l	0.5
Vinyl Chloride	n	ug/l	0.5
Total Xylenes	n	ug/l	1.0
SURROGATES	**RECOVERY**	**%**	**CONTROL LIMITS (%)**
1,2-Dichloroethane-d4	106	%	28-129
Toluene-d8	92.2	%	52-150
4-Bromofluorobenzene	82.8	%	43-155

Comments:
California D.O.H.S Cert # 1677
n - Not detected at the quantitation limit.

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BASIC LABORATORY CHAIN OF CUSTODY RECORD

2218 Railroad Ave., Redding, CA 96001 (530) 243-7234 FAX (530) 243-7494

LAB #: 0209757

CLIENT NAME: PSI

PROJECT NAME: Caltrans South Oakland

PROJECT #: 16026

SAMPLE TYPE: W

ADDRESS: on file

REQUESTED COMP. DATE: 10-10-02

STATE FORMS? ☐

OF SAMPLES: 4

TURN AROUND TIME: STD ☒ RUSH ☐

PAGE 1 OF 1

PROJECT MANAGER: Frank Poss

PHONE: (510) 434-9200 FAX: E-MAIL:

INVOICE TO: Same PO#:

SPECIAL MAIL ☐ E-MAIL ☒ FAX ☒ EDT ☐

ANALYSIS REQUESTED

DATE	TIME	WATER	COMP	SOIL	SAMPLE DESCRIPTION	# OF BOTTLES	TPH-G / 8260 w/oxy.	LAB ID	REMARKS
9/24/02	10:50	X			MW-1	3* 4	X	1	
↓	12:06	X			MW-2	4	X	2	
	12:13	X			MW-3	4	X	3	
↓	12:20	X			MW-4	4	X	4	

REP:

ID#:

SYSTEM#:

GLOBAL ID #:

QC = 1 2 3 4

* 1 voa broken in shipment

NO - TB

PRESERVED WITH: HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ ZnAce/NaOH ☐ HCL ☐ NaThio ☐ OTHER_____

SAMPLED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
Brian Storek	9/24/02 10:50 12:20	Brian Storek	9/24/02 17:30
RECEIVED BY:	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY: (SAMPLES UNVERIFIED)	DATE/TIME:	RELINQUISHED BY:	DATE/TIME:
RECEIVED BY LAB: (VERIFIED) Rochelle M Knowlton 9-25	DATE/TIME: 02 3:00	SAMPLES SHIPPED VIA: UPS FEDEX POST BUS OTHER_____	

INSTRUCTIONS, TERMS AND CONDITIONS ON BACK.