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

August 23, 2000

#2933

00 AUG 24 PM 2:48

Mr. Barney M. Chan
Hazardous Materials Specialist
Alameda County Environmental Health Services
Environmental Protection (LOP)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Subject: South Oakland Maintenance Station, CA - Site Investigation

Dear Mr Chan:

A final Hazardous Waste Preliminary Site Investigation Report for the above referenced site is enclosed. Our contractor, PSI, Inc., has recommended installation of additional monitoring wells in the downgradient direction. As we have discussed this subject before, I am interested in your opinion as to the off-site location of these monitoring wells. If your office agrees with this recommendation, we would like to set up a meeting to discuss possible locations.

If you have any questions or comments, please contact Kathy Gill at (510) 286-6117.

Sincerely,

RONALD M. MORIGUCHI
District Office Chief

By: Kathy Gill

for SUBHASH AGARWAL
District Branch Chief
Office of Environmental Engineering

Attachment

HAZARDOUS WASTE PRELIMINARY SITE INVESTIGATION REPORT
TASK ORDER NUMBER 04-987901-WF
CONTRACT NUMBER 43A0012

SOUTH OAKLAND MAINTENANCE STATION
1112 29th AVENUE
OAKLAND, CALIFORNIA

8-18-00

prepared for

CALIFORNIA DEPARTMENT OF TRANSPORTATION
District 4
111 Grand Avenue
Oakland, California 94623

prepared by

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

August 18, 2000
575-0G019

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STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

Information provided in this Site Investigation Report, prepared by Professional Service Industries, Inc. (PSI), is intended exclusively for the use of Caltrans for the evaluation of subsurface conditions as it pertains to the subject site. 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 identified 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 herein 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.

Frank R. Poss
Senior Hydrogeologist

John D. Whiting, RG
Senior Project Geologist

1.0 INTRODUCTION

Professional Service Industries, Inc. (PSI) has been retained by the California Department of Transportation (Caltrans), under Task Order Number 04-987901-WF and Contract Number 43A0012, to conduct an environmental site assessment of current subsurface soil and groundwater conditions at the Caltrans South Oakland Maintenance Station in the City of Oakland, California (subject site; Figure 1).

The scope of work for this investigation includes:

- Install 4 groundwater monitoring wells,
- Develop, Purge, and Sample new monitoring wells,
- Survey new monitoring wells,
- Chemical analyses of soil and groundwater samples,
- Well Survey, and
- Prepare a technical report describing the investigation and interpretation of the data generated.

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, Borings B1 through B6 were drilled at the site. The boring locations are presented in Figure 2. All of the borings were converted to 1.3-centimeter (cm) (0.5-inch) inside diameter temporary groundwater monitoring wells. Soil samples were collected from each boring 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, TPH-D, and Volatile Organic Compounds (VOCs), by 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 from temporary Wells B3 (520 µg/l) and B4 (520 µg/l). No other groundwater samples contained detectable concentrations of TPH-G. No TPH-D was detected in any of the groundwater samples. Benzene was detected in the water sample from Well WB3 (6.3 µg/l). MTBE was detected in the samples from Well WB5 (6,600 µg/l) and WB6 (24 µg/l). Concentrations of other gasoline related compounds were detected in samples from Wells WB1, WB3, WB4, and WB5. Chloroform was detected in water samples from Wells WB4 (2.4 µg/l) and WB6 (2.7 µg/l). Tetrachloroethene (synonym Perchloroethene [PCE]) was detected in the water sample from Well WB6 (12 µg/l) (PSI, 1999).

On August 13, 1999, Borings B7 through B9 were drilled at the site (Figure 2). The borings were drilled on the property boundary. The 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). The downgradient extent of MTBE has not been established.

1.2 PROJECT OBJECTIVE

The objective of the project is to evaluate the concentrations of selected potentially hazardous constituents in soil and groundwater. Analytical results from the soil and groundwater investigation will be examined with respect to regulatory criteria and published guidelines.

2.0 PRE-FIELD ACTIVITIES

Prior to initiation of field activities, PSI marked the drilling locations with white paint and contacted Underground Service Alert a minimum of 48-hours prior to beginning work to locate any potential buried utilities.

A site-specific Health and Safety Plan (HSP) was developed in compliance with 29 CFR 1910.120, under the supervision of a Certified Industrial Hygienist. The HSP was designed to address the potential hazardous materials that may be encountered during field activities at the site and to minimize the exposure to potentially hazardous materials and unsafe working conditions to on-site personnel (PSI, 1999).

PSI obtained a drilling permit from the Alameda County Public Works Agency and an encroachment permit from Caltrans prior to drilling. A copy of these permits are included in Appendix A.

Missing Page 2

3.0 SUBSURFACE INVESTIGATION

3.1 SOIL BORINGS

On June 8, 2000, borings MW1 through MW-4 were drilled at the site. Each of the borings were scheduled for the installation of a monitoring well. The boring locations are presented in Figure 2. The borings were drilled using a hollow-stem auger drill rig. V&W Drilling of Rio Vista, California provided drilling services. During drilling, soil cuttings were placed in DOT approved drums.

Soil samples were collected from each boring at depths of 1.5 meter (5 foot) intervals (bgs) to a depth of 6.1 to 7.6 meters (20 to 25 feet) below ground surface (bgs). Soil samples were collected according to the protocol presented in Appendix B.

Soils were logged according to the "Soil and Rock Logging Classification Manual" of the State of California, Department of Transportation. The manual is consistent with the Unified Soil Classification System. Boring logs are presented in Appendix C. The subsurface soil observed during drilling activities consisted primarily of clayey-silty sand and sandy clay to approximately 3 meters (10 feet) bgs. A sandy gravel was encountered near the ground surface and at 4.5 meters (15 feet) bgs in Boring B4-5 and at 7. The clayey sand was underlain by a clay or sandy clay to the depth explored. Groundwater was encountered approximately 4.5 meters (15 feet) bgs, however by the time groundwater sampling was conducted the water had risen to approximately 3.0 meters (9 feet).

The soil samples were logged on chain-of-custody records and transported to PACE Analytical of Long Beach, California, a California Department of Health Services certified hazardous materials testing laboratory, following chain-of-custody protocol. The samples were maintained in a cooler with ice or a refrigerator until transported to the analytical laboratory. The analytical results are described in Section 4.

3.2 MONITORING WELL INSTALLATION AND DEVELOPMENT

PSI converted each of the borings into monitoring wells. The wells were installed using the hollow-stem auger-drilling rig. The well casing consisted of 5-centimeter (cm) (2-inch) inside diameter Schedule 40 PVC casing with 0.0508 cm (0.020-inch) machine-slotted screen. The sand pack extended approximately 0.6 meters (2 feet) above the screen interval. The sand pack was surged and developed prior to installation of the bentonite transition seal. Monterey-type number 3 sand was used for the sand pack.

Approximately 0.3 meters (1 foot) of hydrated bentonite chips was placed above the sand pack; neat cement mixed at a ratio of 5 gallons of water per 94-pound sack of cement was used for the annular seal from the top of the bentonite to grade. A flush mounted traffic rated well head was mounted at the top of each well.

3.3 GROUNDWATER SAMPLING

3.3.1 Groundwater Elevation and Hydraulic Gradient

On June 27, 2000, depth to groundwater measurements were collected from four wells (MW-1 through MW-4) at the site. The groundwater depths were measured using an electric groundwater level meter. Floating product was not encountered in any of the wells. The groundwater measurements were converted to groundwater elevation data. The data is presented in Table 1 and Figure 3. The estimated groundwater flow direction is to the southwest with a hydraulic gradient of approximately 0.005 meter per meter (foot per foot). Purge logs are presented in Appendix D.

The monitoring wells were surveyed by a State of California certified Surveyor. The results of the survey are included in Appendix E.

3.3.2 Groundwater Sampling

On June 27, 2000, groundwater samples were collected from the monitoring wells. 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. Table 1 presents the field groundwater measurements. 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 one tap water rinse and a deionized water rinse.

2. Prior to purging the wells, depth-to-water was measured using a groundwater interface probe to an accuracy of 0.003 meters (0.01 foot). The measurements were made to the top of the well casing on the north side.

3. The monitoring wells were purged of a minimum of three well volumes of water until pH, conductivity, and temperature stabilized. The wells were purged with a Teflon bailer, which was decontaminated between wells.

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.

4.0 LABORATORY ANALYSIS PROGRAM

The soil and groundwater samples collected during this investigation were submitted to Centrum Analytical, a State of California Department of Health Services certified hazardous waste laboratory.

The soil and groundwater samples collected were analyzed for the following constituents:

- EPA Method 8015 modified – Total Petroleum Hydrocarbons as Gasoline (TPH-G);
- EPA Method 8260 – Volatile Organic Compounds (VOC); including MTBE, Halogenated Volatile Organics Compounds (HVOC) and oxygenates.

Additionally, the soil and groundwater samples from boring/monitoring well MW-3 was analyzed for TPH as Diesel (TPH-D) according to a modified EPA Method 8015.

5 .0 LABORATORY RESULTS

Summaries of the analytical results are presented in Tables 2 and 3. A copy of the laboratory reports and chain-of-custody records are included in Appendix F.

5.1 LABORATORY ANALYTICAL RESULTS - SOIL

The soil analytical results are presented in Table 2. None of the soil samples contained detectable concentrations of TPH-G. TPH-D was detected in two of the soil samples with a maximum concentration of 23 milligrams per kilogram (mg/kg).

None of the soil samples contained detectable concentrations of VOCs with the exception of MTBE. MTBE was detected in seven of the 17 soil samples collected. The highest MTBE concentration detected was 0.52 mg/kg in soil sample B3-10. All of the MTBE concentrations detected were below first groundwater.

5.2 LABORATORY ANALYTICAL RESULTS - GROUNDWATER

The groundwater analytical results are presented in Table 3. TPH-G was detected in the groundwater samples collected from monitoring wells MW-1 (0.85 milligrams per liter (mg/l)) and MW-3 (2.7 mg/l). TPH-D was not detected in the groundwater sample collected from monitoring well MW-3

Numerous VOCs were detected in the groundwater samples with the highest concentrations detected being found in monitoring well MW-3. All of the compounds detected were common constituents of gasoline. The compound with the highest concentration was MTBE at 5,000 micrograms per liter (ug/l). MTBE was the only compound detected in each of the monitoring wells.

5.3 COMPARISON OF GROUNDWATER RESULTS WITH REGULATORY CRITERIA

The concentrations of contaminants reported by the analytical laboratory were compared to State of California Primary and Secondary Drinking Water Standards (PDWS and SDWS). The following samples were above their respective PDWS or SDWS.

- Benzene concentrations detected in groundwater samples MW-1 (20 ug/l) and MW-3 (73 ug/l).
- MTBE concentrations detected in groundwater samples MW-1 (880 ug/l), MW-2 (86 ug/l), MW-3 (5,000 ug/l), and MW-4 (18 ug/l).

Based on the concentrations detected in the groundwater at the site, the primary contaminant of concern (COC) is MTBE. The concentrations of MTBE in each of the monitoring wells is shown in Figure 4. This figure indicates that the highest concentrations of MTBE are found in the monitoring well directly down gradient of the former USTs and in the well adjacent to the former USTs. Based on the data obtained, the lateral extent of MTBE impacted groundwater has not been defined.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the information presented in this report, the following conclusions have been reached:

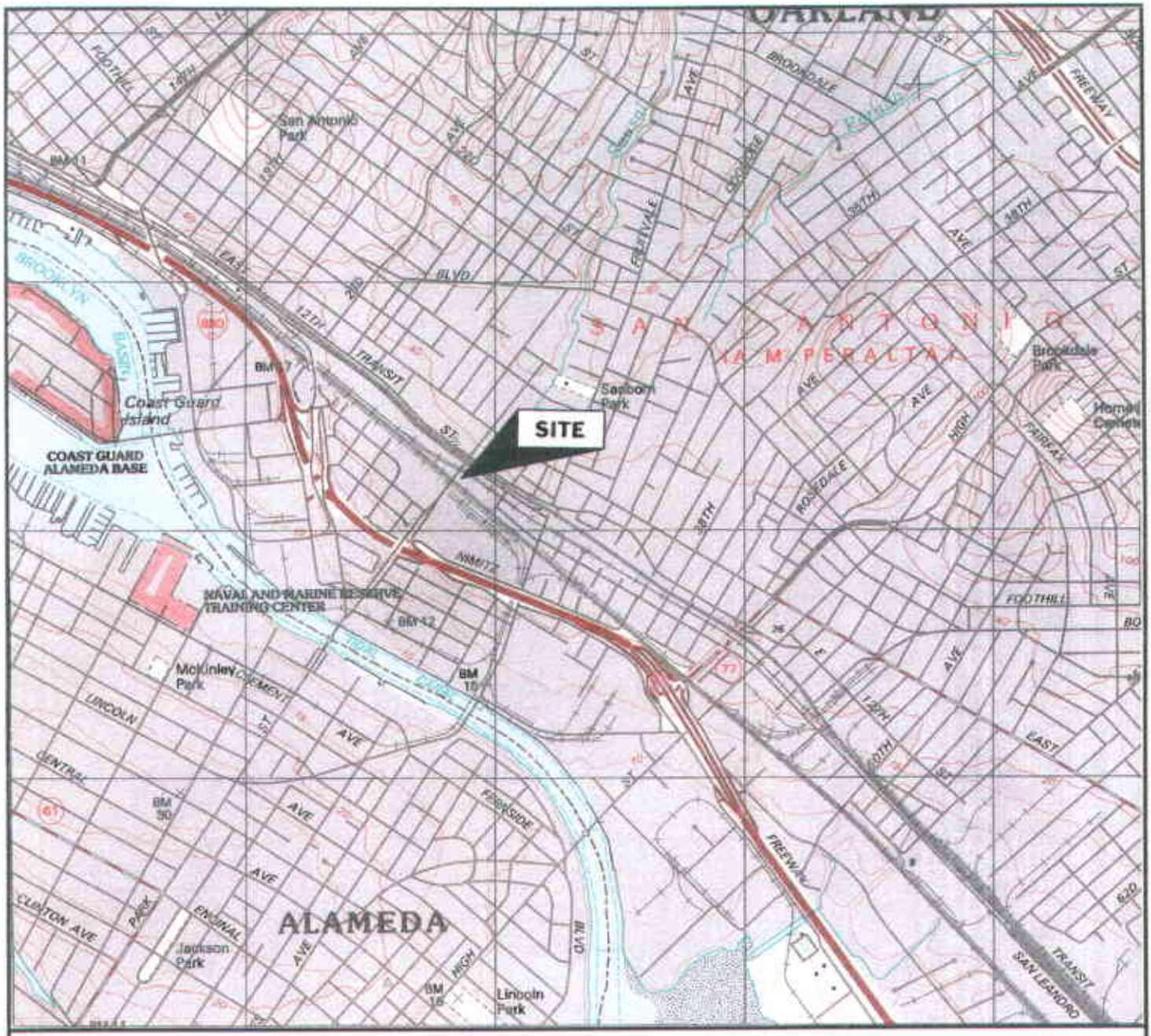
- None of the soil samples contained detectable concentrations of TPH-G, while TPH-D was detected in two soil samples at concentrations below regulatory concern.

- 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 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.

- Numerous VOCs were detected in the groundwater with only benzene and MTBE being at concentrations greater than the PDWS or SDWS. Based on the concentrations detected, MTBE appears to be the primary COC. The lateral extent of MTBE has not been defined.

Based on the results presented in this report, PSI recommends 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, PSI recommends that the analyses for TPH-D in this well be eliminated.

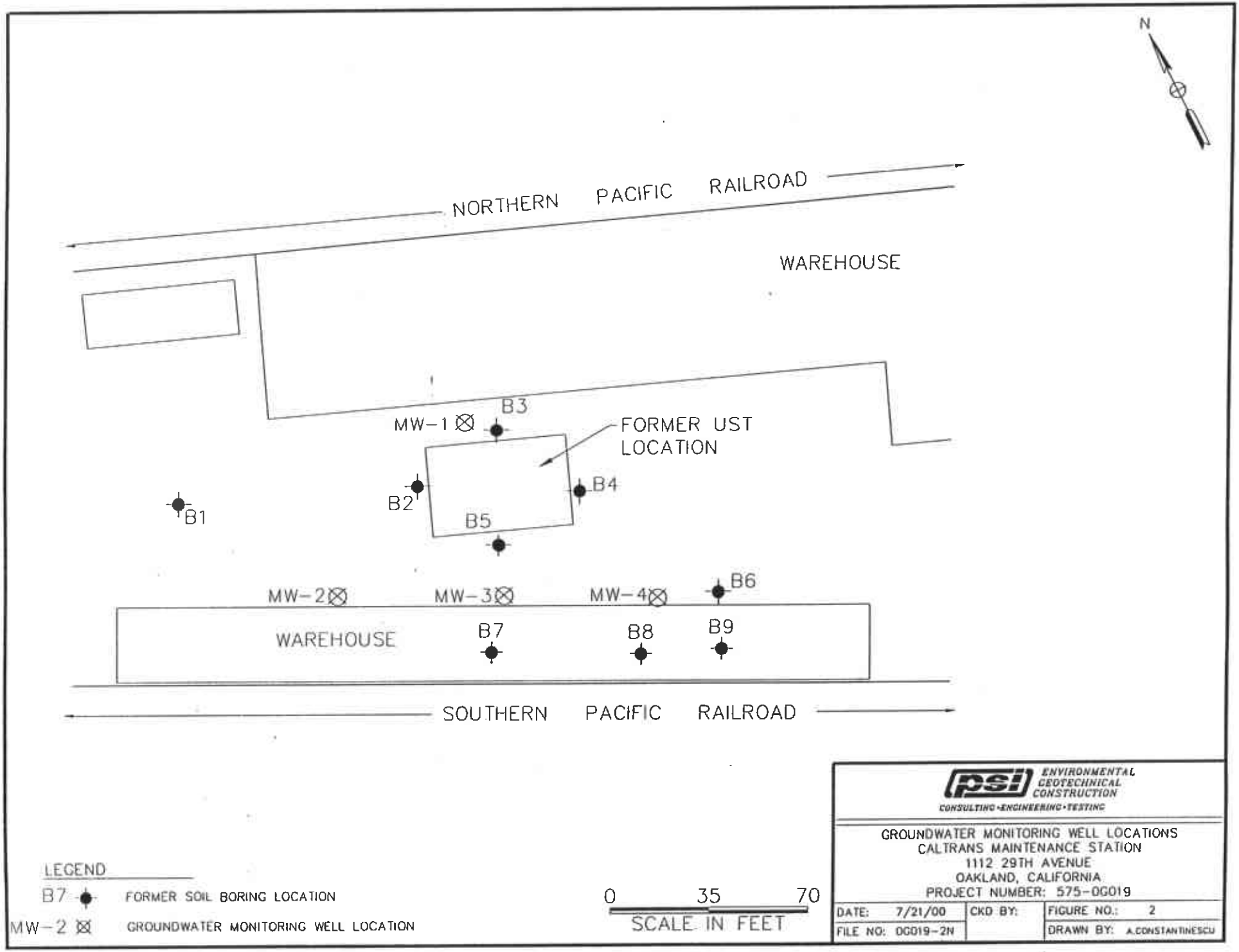


REFERENCE:
U.S.G.S. OAKLAND EAST, CALIFORNIA, 1997

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



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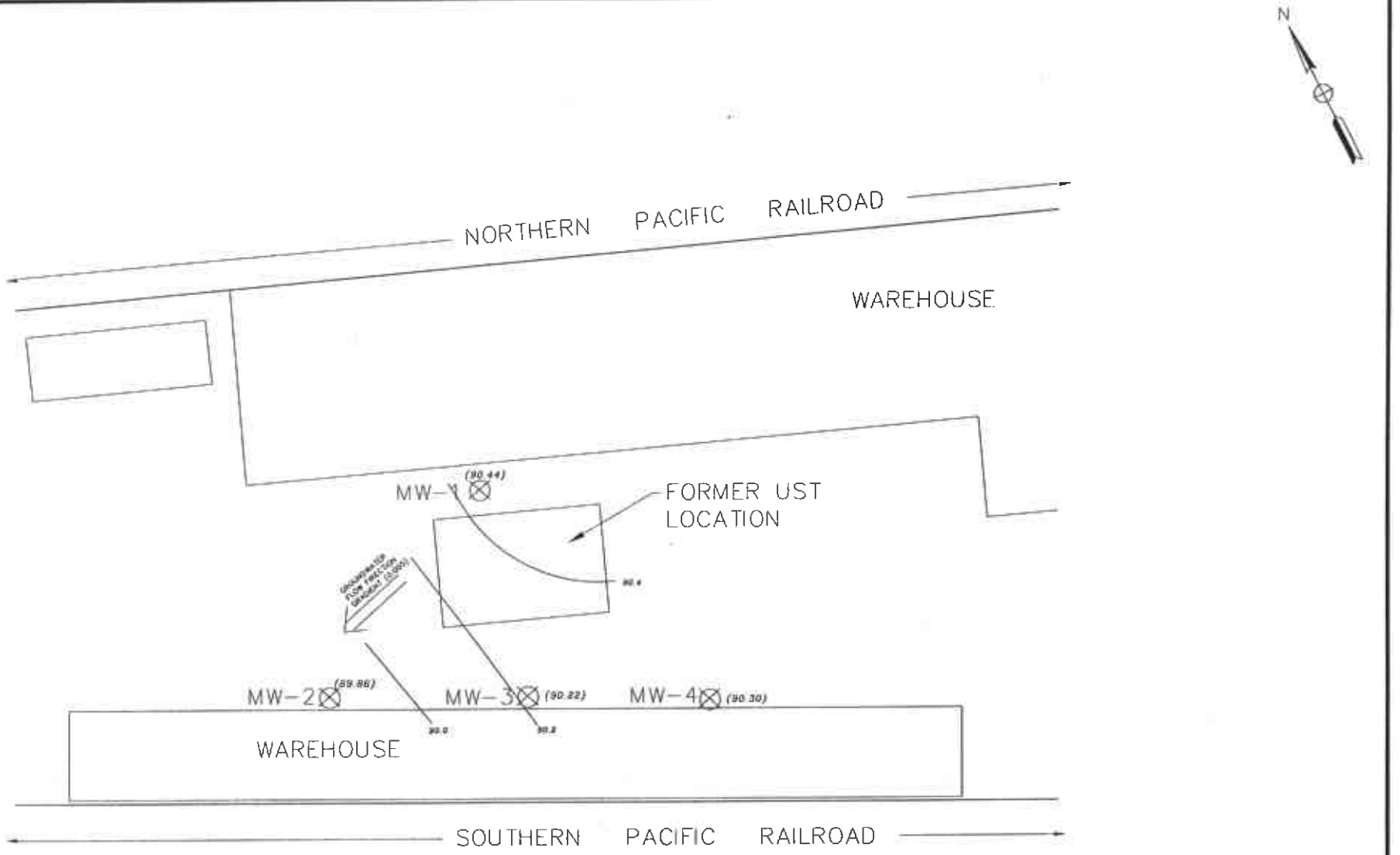
GROUNDWATER MONITORING WELL LOCATIONS
CALTRANS MAINTENANCE STATION
1112 29TH AVENUE
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-0G019

DATE: 7/21/00	CKD BY:	FIGURE NO.: 2
FILE NO: 0G019-2N		DRAWN BY: A.CONSTANTINESCU



LEGEND

(90.22) GROUNDWATER ELEVATION

90 2 GROUNDWATER EQUAL ELEVATION CONTOUR LINE (FEET ABOVE DATUM)

0 35 70

SCALE IN FEET

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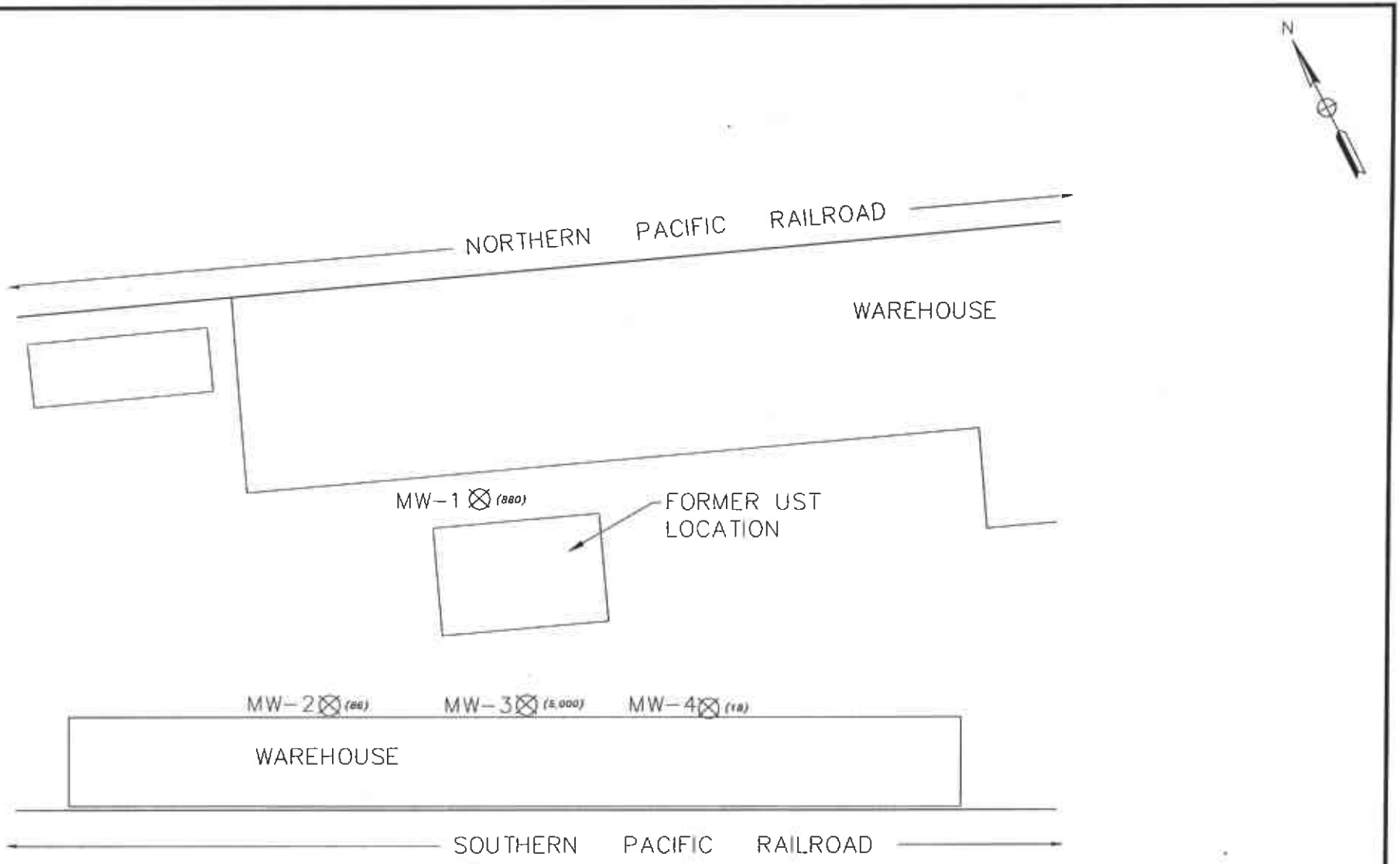
GROUNDWATER ELEVATION MAP (06/27/00)
CALTRANS MAINTENANCE STATION
1112 29TH AVENUE
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-0G019

DATE: 7/21/00	CKD BY:	FIGURE NO.: 3
FILE NO: 0G019-3N		DRAWN BY: A.CONSTANTINESCU



LEGEND

MW-1 ⊗ GROUNDWATER MONITORING WELL

(5,000) MTBE CONCENTRATIONS IN GROUNDWATER (ug/L)

0 35 70

SCALE IN FEET

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MTBE CONCENTRATIONS IN GROUNDWATER (06/27/00)
CALTRANS MAINTENANCE STATION
1112 29TH AVENUE
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-0G019

DATE: 7/21/00	CKD BY:	FIGURE NO.:	4
FILE NO: 0G019-4		DRAWN BY:	A.CONSTANTINESCU

TABLE 1

GROUNDWATER ELEVATION AND PARAMETERS
SOUTH OAKLAND MAINTENANCE STATION
OAKLAND, CALIFORNIA

Sample Location	Date	TOC Elevation (feet msl)*	Depth To Groundwater (feet fad)	Groundwater Elevation (feet msl)*	Temperature (°C)	Conductivity (mS/cm)	pH
MW-1	6/27/00	99.57	9.13	90.44	21	517	6.5
MW-2	6/27/00	98.91	9.05	89.86	19.6	593	6.54
MW-3	6/27/00	98.98	8.76	90.22	19.8	589	6.57
MW-4	6/27/00	99.04	8.74	90.3	19.8	448	6.4

Notes:

mS/cm = milliseimens per centimeter
NM = Not Measured
All measurements are recorded in feet.
* TOC Measurements are from data supplied by Meridian Surveying
Feet fad = feet above datum
Feet msl = feet above mean sea level

TABLE 2

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

Sample I.D.	TPH-G mg/kg	TPH-D mg/kg	VOCs µg/kg
B1-5	<0.5	---	ND
B1-10	<0.5	---	0.076 (MTBE)
B1-15	<0.5	---	0.055 (MTBE)
B1-20	<0.5	---	0.062 (MTBE)
B1-25	<0.5	---	ND
B2-5	<0.5	---	ND
B2-10	<0.5	---	ND
B2-15	<0.5	---	0.10 (MTBE)
B3-5	<0.5	23	ND
B3-10	<0.5	10	0.52 (MTBE)
B3-15	<0.5	<10	0.15 (MTBE)
B3-20	<0.5	<10	0.20 (MTBE)
B4-5	<0.5	---	ND
B4-10	<0.5	---	ND
B4-15	<0.5	---	ND
B4-20	<0.5	---	ND
B4-25	<0.5	---	ND

NOTES:

TPH-D = Total Petroleum Hydrocarbons as Diesel by EPA Method 8015M.

TPH-G = Total Petroleum Hydrocarbons as Gasoline by EPA Method 8015M.

mg/kg = milligrams per kiliogram

ug/kg = micrograms per kilogram

--- = not analyzed

MTBE = Methyl Tertiary Butyl Ether

ND = Not Detected at the laboratory detection limits provided in Appendix E

VOC = Volatile Organic Compound (Compound Detected)

TABLE 3

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

Sample I.D.	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
MW-1	**0.85**	---	**880**	<50	<5	**20**	<1.0	<1.0	**19**
MW-2	<0.5	---	**86**	<50	<5	<1.0	<1.0	<1.0	<1.0
MW-3	**2.7**	<0.4	**5,000**	**1,500**	**11**	**73**	**1.7**	**1.2**	**4.6**
MW-4	<0.5	---	**18**	<50	<5	<1.0	<1.0	<1.0	<1.0

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
mg/l = milligrams per liter
ug/l = micrograms per liter

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD, CA. 94544
PHONE 510-670-5554 FAX 510-782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1112 29TH AVENUE
OAKLAND, CA.
(CALTRANS MAINTENANCE STATION)

California Coordinates Source ____ ft. Accuracy ± ____ ft.
N/CCE
E/W
N/S

CLIENT
Name CALTRANS
Address 111 GRAND AVENUE Phone 510 286-6117
City OAKLAND, CA Zip 94623

APPLICANT
Name PSI
Fax 510-785-1192
Address 1320 W. WINTON AVE Phone 510-785-1111
City HAYWARD, CA Zip 94545

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	■	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other ____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	■
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. C57 - 720904

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth ~20 ft.
Surface Seal Depth ~5 ft. Number 4

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 6/6/00
ESTIMATED COMPLETION DATE 6/8/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68

APPLICANT'S SIGNATURE CHRIS MERRITT DATE 5/26/00

FOR OFFICE USE

PERMIT NUMBER W00-292
WELL NUMBER ____
APN ____

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A) GENERAL
(1) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
(3) Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C) GROUNDWATER MONITORING WELLS - INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL.
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

Monitoring Well #1

APPROVED Franke L. Cell DATE 6-1-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD, CA. 94544
PHONE 510-670-5554 FAX 510-782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1112 29TH AVENUE
OAKLAND, CA.
(CALTRANS MAINTENANCE STATION)

California Coordinates Source ____ ft. Accuracy ± ____ ft.
E/W ____ N/CCE ____ ft.
N/S ____

CLIENT
Name CALTRANS
Address 111 GRAND AVENUE Phone 510 286-6117
City OAKLAND, CA Zip 94623

APPLICANT
Name PSI
Fax 510-785-1392
Address 1320 W. WINTON AVE Phone 510-785-1111
City HAYWARD, CA Zip 94545

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	■	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other ____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	■
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. C57 - 720904

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 2 in. Depth ~20 ft.
Surface Seal Depth ~5 ft. Number 4

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 6/8/00
ESTIMATED COMPLETION DATE 6/8/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68

APPLICANT'S SIGNATURE CHRIS MERRITT DATE 5/26/00

FOR OFFICE USE

PERMIT NUMBER W00-293
WELL NUMBER ____
APN ____

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A.) GENERAL
(1.) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
(3.) Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C.) GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are accepted only for geotechnical and contamination investigations.

Monitoring Well #2

APPROVED Frank L. Cudd DATE 6/1/00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD, CA. 94544
PHONE 510-670-5554 FAX 510-782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1112 29th AVENUE
OAKLAND, CA.
(CALTRANS MAINTENANCE STATION)

California Coordinates Source ____ ft. Accuracy ± ____ ft.
E/W ____ N/CCE ____
N/S ____

CLIENT
Name CALTRANS
Address 111 GRAND AVENUE Phone 510 286-6117
City OAKLAND, CA Zip 94623

APPLICANT
Name PSI
Fax 510-785-1192
Address 1320 W. WINTON AVE Phone 510-785-1111
City HAYWARD, CA Zip 94545

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	■	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other ____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	■
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. C57 - 720904

WELL PROJECTS
Drill Hole Diameter 4 in. Maximum
Casing Diameter 2 in. Depth ~20 ft.
Surface Seal Depth ~5 ft. Number 4

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 6/8/00
ESTIMATED COMPLETION DATE 6/8/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68

APPLICANT'S SIGNATURE CHRIS MERRITT DATE 5/26/00

FOR OFFICE USE

PERMIT NUMBER W00-294
WELL NUMBER ____
APN ____

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A.) GENERAL
(1.) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2.) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
(3.) Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved

(C.) GROUNDWATER MONITORING WELLS - INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

Monitoring Well #3

APPROVED Frank L. Coll DATE 6-1-00

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD, CA. 94544
PHONE 510-670-5554 FAX 510-782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1112 29th AVENUE
OAKLAND, CA.
(CALTRANS MAINTENANCE STATION)

California Coordinates Source ____ / ____ ft. Accuracy ± ____ ft.
N ____ / CCE ____ / ____ ft.
E ____ / ____ / ____ / ____

CLIENT
Name CALTRANS
Address 111 GRAND AVENUE Phone 510 286-6117
City OAKLAND, CA Zip 94623

APPLICANT
Name PSI
Fax 510-785-1192
Address 1320 W. WINTON AVE Phone 510-785-1111
City HAYWARD, CA Zip 94545

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection	☐	General	☐
Water Supply	☐	Contamination	☐
Monitoring	■	Well Destruction	☐

PROPOSED WATER SUPPLY WELL USE

New Domestic	☐	Replacement Domestic	☐
Municipal	☐	Irrigation	☐
Industrial	☐	Other ____	☐

DRILLING METHOD:

Mud Rotary	☐	Air Rotary	☐	Auger	■
Cable	☐	Other	☐		

DRILLER'S LICENSE NO. C57 - 720904

WELL PROJECTS
Drill Hole Diameter 4 in. Maximum
Casing Diameter 2 in. Depth ~20 ft.
Surface Seal Depth ~5 ft. Number 4

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 6/6/00
ESTIMATED COMPLETION DATE 6/8/00

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68

APPLICANT'S SIGNATURE CHRIS MERRITT DATE 5/26/00

FOR OFFICE USE

PERMIT NUMBER W00-295
WELL NUMBER ____
APN ____

PERMIT CONDITIONS
Circled Permit Requirements Apply

(A) GENERAL
(1) A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
(2) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
(3) Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

(C.) GROUNDWATER MONITORING WELLS - INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

Monitoring Well #4

APPROVED Wyman Hong DATE 6-1-00

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

ENCROACHMENT PERMIT

TR-0120

Permit No.	0400-NSV-1221
Dist/Co/Rte/PM	04-Ala-880-28.68
Date	May 1, 2000
Fee Paid	Deposit $
Performance Bond Amount (1)	Payment Bond Amount (2)
Bond Company	
Bond Number (1)	Bond Number (2)

In compliance with (*Check one*):

- ☐ Your application of April 25, 2000
- ☐ Utility Notice No. _____ of _____
- ☐ Agreement No. _____ of _____
- ☐ R/W Contract No. _____ of _____

TO: ☐ PSI
1320 W. Winton Avenue
Hayward, CA 94545

Attn: Frank Poss
☐ Phone: (510) 785-1111 ☐, **PERMITTEE**

and subject to the following, **PERMISSION IS HEREBY GRANTED** to:

Drill and install four (4) temporary monitoring wells for Environmental Investigation per Caltrans project EA 911175 on Caltrans South Oakland Maintenance Station at 1112, 29th Avenue, east of State Highway 04-Ala-880, Post Mile 28.68.

Two days before work is started under this permit, notice shall be given to, and approval of construction details, operations, public safety, and traffic control shall be obtained from State Representative N. Freitag, 600 Lewelling Blvd., San Leandro, 94579, 510-614-5951, weekdays, between 7:30 AM and 4:00 PM.

Immediately following completion of the work permitted herein, the permittee shall fill out and mail the Notice of completion attached to this permit.

All personnel shall wear hard hats and orange vests, shirts, or jackets as appropriate.

The following attachments are also included as part of this permit (*Check applicable*):

☒ Yes	☐ No	General Provisions
☐ Yes	☒ No	Utility Maintenance Provisions
☐ Yes	☒ No	Special Previsions
☐ Yes	☒ No	A Cal-OSHA permit required prior to beginning work: # _____

In addition to fee, the permittee will be billed actual costs for:

☐ Yes	☒ No	Review
☐ Yes	☒ No	Inspection
☒ Yes	---------	Field Work

(If any Caltrans effort expended)

☐ Yes ☐ No The information in the environmental documentation has been reviewed and considered prior to approval of this permit.

This permit is void unless the work is completed before December 31, 2000
This permit is to be strictly construed and no other work other than specifically mentioned is hereby authorized.
No project work shall be commenced until all other necessary permits and environmental clearances have been obtained.

APPROVED:

HARRY Y. YAHATA, District Director

BY:

G. J. BATTAGLINI, District Permit Engineer Acting

The site of the work shall be enclosed by suitable barricades, signs and lights, as approved by State's representative, to warn and protect traffic effectively.

Any damage to existing facilities, landscaping or irrigation within the State's Right of Way shall be replaced in kind by the permittee at permittee's expense.

No excavation shall be left open overnight without written permission from the Caltrans representative or unless otherwise specified herein.

Trench backfill shall conform to Section 19-3.06 of the State's Standard Specifications and the current edition of the Standard Plans. Tests for relative compaction of structure backfill material used in backfilling trenches may be made in accordance with Test Method No. California 231 (Nuclear gauge). Any base, surfacing or pavement shall be replaced in kind, or as otherwise required by State's representative.

If at the end of the day, backfilling operations have not been properly completed, steel bridging is required to make the entire highway facility available to the travelling public. All steel plates utilized in the traveled way shall comply with the "Steel Plate Bridging" provisions.

Certain details of work authorized hereby are shown on permittee's plan submitted with request for permit and as required by Caltrans Contract No. 43A0012.

The work authorized under this permit shall also be coordinated by Kathy Gill, at 286-6117.

Any collected survey data requested by Caltrans shall be furnished to Caltrans without charge.

If an accident or other incident (related to or not related to the permitted activity) occurs within, or close to the permitted activity, the permittee shall immediately stop work and remove traffic controls from the highway unless public health, welfare and safety is endangered by unfinished work. Only traffic control to protect open excavations may remain in place. After free traffic flow is restored, work in accordance with the conditions of the permit may be returned.

STATE OF CALIFORNIA, DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT GENERAL PROVISIONS
TR-0045 (REV. 8/98)

1. **AUTHORITY:** The Department's authority to issue encroachment permits is provided under. Div. 1, Chpt. 3, Art. 1, Sect. 660 to 734 of the Streets and Highways Code.

2. **REVOCATION:** Encroachment permits are revocable on five days notice unless otherwise stated on the permit and except as provided by law for public corporations, franchise holders, and utilities. These General Provisions and the Encroachment Permit Utility Provisions are subject to modification or abrogation at any time. Permittees' joint use agreements, franchise rights, reserved rights or any other agreements for operating purposes in State highway right of way are exceptions to this revocation.

3. **DENIAL FOR NONPAYMENT OF FEES:** Failure to pay permit fees when due can result in rejection of future applications and denial of permits.

4. **ASSIGNMENT:** No party other than the permittee or permittee's authorized agent is allowed to work under this permit.

5. **ACCEPTANCE OF PROVISIONS:** Permittee understands and agrees to accept these General Provisions and all attachments to this permit, for any work to be performed under this permit.

6. **BEGINNING OF WORK:** When traffic is not impacted (see Number 35), the permittee shall notify the Department's representative, two (2) days before the intent to start permitted work. Permittee shall notify the Department's Representative if the work is to be interrupted for a period of five (5) days or more, unless otherwise agreed upon. All work shall be performed on weekdays during regular work hours, excluding holidays, unless otherwise specified in this permit.

7. **STANDARDS OF CONSTRUCTION:** All work performed within highway right of way shall conform to recognized construction standards and current Department Standard Specifications, Department Standard Plans High and Low Risk Facility Specifications, and Utility Special Provisions. Where reference is made to "Contractor and Engineer," these are amended to be read as "Permittee and Department representative."

8. **PLAN CHANGES:** Changes to plans, specifications, and permit provisions are not allowed without prior approval from the State representative.

9. **INSPECTION AND APPROVAL:** All work is subject to monitoring and inspection. Upon completion of work, permittee shall request a final inspection for acceptance and approval by the Department. The local agency permittee shall not give final construction approval to its contractor until final acceptance and approval by the Department is obtained.

10. **PERMIT AT WORKSITE:** Permittee shall keep the permit package or a copy thereof, at the work site and show it upon request to any Department representative or law enforcement officer. If the permit package is not kept and made available at the work site, the work shall be suspended.

11. **CONFLICTING ENCROACHMENTS:** Permittee shall yield start of work to ongoing, prior authorized, work adjacent to or within the limits of the project site. When existing encroachments conflict with new work, the permittee shall bear all cost for rearrangements, (e.g., relocation, alteration, removal, etc.).

12. **PERMITS FROM OTHER AGENCIES:** This permit is invalidated if the permittee has not obtained all permits necessary and required by law, from the Public Utilities Commission of the State of California (PUC), California Occupational Safety and Health Administration (Cal-OSHA), or any other public agency having jurisdiction.

13. **PEDESTRIAN AND BICYCLIST SAFETY:** A safe minimum passageway of 1.21 meter (4') shall be maintained through the work area at existing pedestrian or bicycle facilities . At no time shall pedestrians be diverted onto a portion of the street used for vehicular traffic. At locations where safe alternate passageways cannot be provided, appropriate signs and barricades shall be installed at the limits of construction and in advance of the limits of construction at the nearest crosswalk or intersection to detour pedestrians to facilities across the street.

14. **PUBLIC TRAFFIC CONTROL:** As required by law, the permittee shall provide traffic control protection warning signs, lights, safety devices, etc., and take all other measures necessary for traveling public's safety. Day and night time lane closures shall comply with the Manuals of Traffic Controls, Standard Plans, and Standard Specifications for traffic control systems. These General Provisions are not intended to impose upon the permittee, by third parties, any duty or standard of care, greater than or different from, as required by law.

15. **MINIMUM INTERFERENCE WITH TRAFFIC:** Permittee shall plan and conduct work so as to create the least possible inconvenience to the traveling public; traffic shall not be unreasonably delayed. On conventional highways, permittee shall place properly attired flagger(s) to stop or warn the traveling public in compliance with the Manual of Traffic Controls and Instructions to Flaggers Pamphlet.

16. **STORAGE OF EQUIPMENT AND MATERIALS:** Equipment and material storage in State right of way shall comply with Standard Specifications, Standard Plans, and Special Provisions. Whenever the permittee places an obstacle within 3.63 m (12') feet of the traveled way, the permittee shall place temporary railing (Type K).

17. **CARE OF DRAINAGE:** Permittee shall provide alternate drainage for any work interfering with an existing drainage facility in compliance with the Standard Specifications, Standard Plans and/or as directed by the Department's representative.

18. **RESTORATION AND REPAIRS IN RIGHT OF WAY:** Permittee is responsible for restoration and repair of State highway right of way resulting from permitted work (State Streets and Highways Code, Sections 670 et. seq.).

19. **RIGHT OF WAY CLEAN UP:** Upon completion of work, permittee shall remove and dispose of all scraps, brush, timber, materials, etc. off the right of way. The aesthetics of the highway shall be as it was before work started.

20. **COST OF WORK:** Unless stated in the permit, or a separate written agreement, the permittee shall bear all costs incurred for work within the State right of way and waives all claims for indemnification or contribution from the State.

21. **ACTUAL COST BILLING:** When specified in the permit, the Department will bill the permittee actual costs at the currently set hourly rate for encroachment permits.

22 **AS-BUILT PLANS:** When required, permittee shall submit one (1) set of as-built plans in compliance with Department's requirements. Plans shall be submitted within thirty (30) days after completion and approval of work.

As-Built plans or accompanying correspondence shall not include disclaimer statements of any kind. Such statements shall constitute non-compliance with these provisions. Failure to provide complete and signed As-Built plans shall be cause for bond or deposit retention by the Department.

23. **PERMITS FOR RECORD PURPOSES ONLY:** When work in the right of way is within an area under a Joint Use Agreement (JUA) or a Consent to Common Use Agreement (CCUA), a fee exempt permit is issued to the permittee for the purpose of providing a notice and record of work. The Permittee's prior rights shall be preserved without the intention of creating new or different rights or obligations. "Notice and Record Purposes Only" shall be stamped across the face of the permit.

24. **BONDING:** The permittee shall file bond(s), in advance, in the amount set by the Department. Failure to maintain bond(s) in full force and effect will result in the Department stopping of all work and revoking permit(s). Bonds are not required of public corporations or privately owned utilities, unless permittee failed to comply with the provision and conditions under a prior permit. The surety company is responsible for any latent defects as provided in California Code of Civil Procedures, Section 337.15. Local agency permittee shall comply with requirements established as follows: In recognition that project construction work done on State property will not be directly funded and paid by State, for the purpose of protecting stop notice claimants and the interests of State relative to successful project completion, the local agency permittee agrees to require the construction contractor furnish both a payment and performance bond in the local agency's name with both bonds complying with the requirements set forth in Section 3-1.02 of State's current Standard Specifications before performing any project construction work. The local agency permittee shall defend, indemnify, and hold harmless the State, its officers and employees from all project construction related claims by contractors and all stop notice or mechanic's lien claimants. The local agency also agrees to remedy, in a timely manner and to State's satisfaction, any latent defects occurring as a result of the project construction work.

25. **FUTURE MOVING OF INSTALLATIONS:** Permittee understands and agrees to rearrange a permitted installation upon request by the Department, for State construction, reconstruction, or maintenance

APPENDIX B

PSI FIELD PROCEDURES

APPENDIX B
FIELD PROCEDURES

I. FIELD DOCUMENTATION OF SAMPLING PROCEDURES

The following outline describes the procedures adhered by PSI for proper sampling documentation.

1. Sampling procedures will be documented in field notes that contain:

    1. Sample collection procedures
    2. Date and time of collection
    3. Date of shipping
    4. Sample collection location
    5. Sample identification number(s)
    6. Intended analysis
    7. Quality control samples
    8. Sample preservation
    9. Name of sampler
    10. Any pertinent observations

2. Samples will be labeled with the following information:

    1. Sample designation number
    2. Date and time sample was collected
    3. Sampler's name
    4. Sample preservatives (if required)

3. The following is the sample designation system for the site:

    For Borings the samples will be labeled MW-(Boring/Monitoring Well Number)-(Depth) (i.e. sample collected from boring 4 at 5 meters (feet) would be B4-5).

4. Handling of the samples will be recorded on a chain of custody form which shall include:

    1. Project name
    2. Site location
    3. Signature of Collector
    4. Date and time of collection
    5. Sample identification number
    6. Number of containers in sample set
    7. Description of sample and container
    8. Name and signature of persons, and the companies or agencies they represent, who are involved in the chain of possession
    9. Inclusive dates and times of possession
    10. Analyses to be completed

II. ADVANCING OF SOIL BORINGS AND COLLECTION OF SOIL SAMPLES

The following procedures were used for advancing soil borings and collecting soil samples at the site:

1. Prior to the commencement of soil boring activities at the site, soil-boring locations were marked with white paint. Underground Service Alert (USA) was contacted to identify underground utilities in the vicinity of the soil borings.

2. Soil boring and sampling activities were conducted by V&W Drilling of Rio Vista, California. The soil borings were advanced using hollow stem auger.

3. Soil samples were collected using a .45 meter (1.5-foot long), 0.02 meter (1-inch) inside diameter macro-core stainless steel sampler. Soil samplers were washed between sampling intervals with Alconox soap followed by two deionized water rinses. The sampler was lined with stainless steel sleeves. When the boring was advanced to the desired sampling depth the threaded pin was removed allowing the drive tip to retract as the sampler was advanced 45 meter (1.5-foot long) into native soil using a percussion hammer.

4. After the sampler was retrieved the sleeves were extracted from the sampler without disturbing the sample. The sample was collected for analyses from the lowest tube in the sampler. The ends of the sample were covered with Teflon™ sheets and capped with polyethylene end caps. The sample was labeled and placed in a zip-lock bag in a chilled cooler prior to delivery to the laboratory for analyses.

5. Soil samples were assigned identification numbers such as MW1-5, where MW1 indicates the boring designation and -5 indicates that the sample was collected at 5 feet bgs. The samples were labeled with the project name, date and time of sample collection, sampling depth, and client name.

6. Chain-of-custody procedures using chain-of-custody records were implemented during handling and transportation of the samples to the laboratory for analyses.

7. Boring logs were prepared for the soil borings under the supervision of a California-Registered Geologist. Soil from each sample was described in accordance with Unified Soil Classification System by a PSI geologist and recorded on a field boring log. The data recorded on the logs were based on examination of soil samples retrieved in the tubes, and drilling conditions observed in the field. Boring logs include information regarding the location of each boring, geologic descriptions of materials encountered, occurrence of groundwater (if applicable) and organic vapor analyzer (OVA) measurements in the soil samples collected.

8. Cuttings derived from drilling with the hollow-stem auger were placed in DOT approved 55-gallon drums.

APPENDIX C

BORING LOGS

SOIL BORING LOG

BORING NO:	B1\MW1
SHEET	1 OF 2

PROJECT NAME:	CALTRANS SOUTH OAKLAND		
PROJECT NUMBER:	0G019	DATE:	6/8/00
DRILLING COMPANY:	V&W		
DRILLING METHOD:	HSA		
BORING DIAMETER:	8 INCHES	DEPTH:	

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
6/8/00	INITIAL GROUNDWATER	~15 FEET

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
								4 inches Asphalt
1					Silty Sandy Gravel: Well graded fine to coarse gravel with fine	0	GM	Slight diesel odor, no OVM response
					to coarse sand and silt, mottled dark brown to black, damp.			
2								
3								
4								
5	B1-5.0			6	Clayey Sand: Poorly graded fine sand with clay, brown, damp.		SC	
				8				
6				16				
7								
8								
9								
10	B1-10.0			6	Clayey Sand: As above	0		
				14				
11				17				
12								
13								
14								
15	B1-15.0			4	Sandy Clay: Poorly graded fine sand with clay, brown, damp			Approximate first water by viod contents.
				4	with saturated voids and channels.			
16				8				
17								
18								
19								
20	B1-20.0			8	Gravelly Sandy Clay: Clay with well graded fine to coarse		GC	

Reviewed By:

LOGGED BY: CHRIS MERRITT

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SOIL BORING LOG

BORING NO:	B1\MW1
SHEET	2 OF 2

PROJECT NAME:	CALTRANS SOUTH OAKLAND		
PROJECT NUMBER:	0G019	DATE:	6/8/00
DRILLING COMPANY:	V&W		
DRILLING METHOD:	HSA		
BORING DIAMETER:	8 INCHES	DEPTH:	25 FEET

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
6/8/00	INITIAL GROUNDWATER	~15 FEET

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
1				11	gravel and poorly graded fine sand, light tan, damp.		GC	
				18				
2								
3								
4								
25	B1-25.0			8	Sandy Clay: Clay with poorly graded fine sand, brown, damp.		CL	
6				15				
				25				
7								Total depth 25 feet + sample.
8								Screen 25-5 feet.
								Sand 25-3 feet.
9								Chips 3-2 feet
								Grout\Box 2-0 feet
30								
1								
2								
3								
4								
35								
6								
7								
8								
9								
40								

Reviewed By:

LOGGED BY: CHRIS MERRITT

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MONITORING WELL CONSTRUCTION DATA

WELL/BORING NO:	B1\MW1
PERMIT NO:	
DATE: 6/8/00	PROJECT NAME: CALTRANS SOUTH OAKLAND
PROJECT NO:	0G019

WELL SITE LOCATION PLAN:

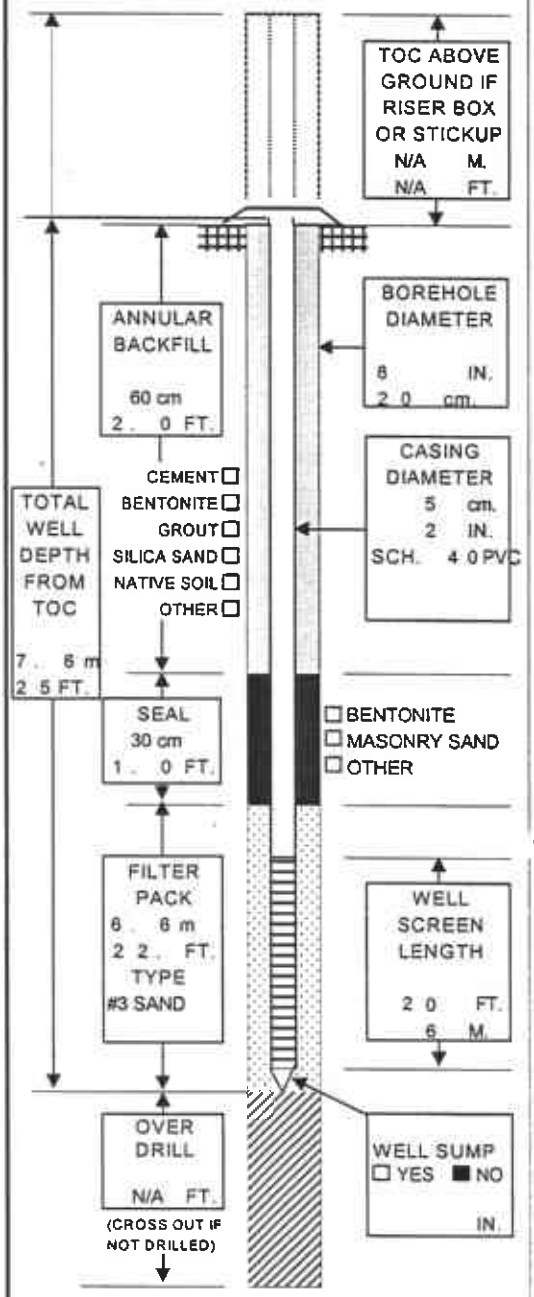
SEC: TWN: RGE: LAT: LONG:

DRILLING CO: V & W DRILLING

DRILL CREW:

WELL TYPE: ■ SHALLOW ☐ SINGLE CASED ■ MONITORING
☐ PERMANENT ☐ INTERMEDIATE ☐ DOUBLE CASED ☐ RECOVERY
☐ TEMPORARY ☐ DEEP ☐ OTHER ☐ OTHER

WELL SCHEMATIC



INSTALLATION DATA

DECON. ■ STEAM CLEAN ☐ HIGH PRESSURE WASH ☐ SOAP WASH ☐ OTHER

CASING TYPE: ■ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
JOINTS: ■ THREADED ☐ WELDED ☐ COUPLED ☐ SCREWED ☐ OTHER
PIT CASING: ☐ YES ■ NO ☐ DESCRIBE

WELL SCREEN: ■ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
DIAMETER: ■ 2" ☐ 4" ☐ 6" ☐ OTHER ____ IN
SLOT: ☐ 0.010 ■ 0.020 ☐ OTHER ____ IN

DRILLING METHOD: ☐ SOLID STEM ■ HOLLOW STEM ☐ MUD ROTARY ☐ AIR ROTARY ☐ DIRECT PUSH ☐ HAND AUGER ☐ OTHER
BIT SIZE: ☐ 2" ☐ 4" ☐ 6" ■ 8" ☐ 12" ☐ OTHER ____ IN
DRILLING MUD: ■ NONE ☐ WATER ☐ BENTONITE ☐ OTHER
CENTRALIZER: ☐ YES ■ NO

COMPLETION: ■ FLUSH MOUNT ☐ STICKUP ☐ RISER BOX
LOCK TYPE: ■ DOLPHIN ☐ MASTER KEY NO. ____ ☐ OTHER
PAD: ☐ 2'X2' ☐ 4'X4' ☐ OTHER

CUTTINGS: ■ DRUMMED NUMBER OF DRUMS 2 ☐ SPREAD ☐ OTHER

DEVELOPMENT METHOD: ☐ NONE ■ BAILING ☐ PUMPING ☐ AIR LIFT ■ SURGE & BLOCK ☐ OTHER
TIME: ■ 10 MIN ☐ 20 MIN ☐ OTHER ____ MIN
AMOUNT: ☐ 5 GAL ■ 10 GAL ☐ OTHER ____ GAL
WATER BEFORE: ☐ SILTY ■ TURBID ☐ OPAQUE ☐ CLEAR
WATER AFTER: ☐ SILTY ☐ TURBID ■ OPAQUE ☐ CLEAR
EVIDENT ODOR: ☐ YES ■ NO TYPE

DEVELOPMENT WATER: ■ DRUMMED NUMBER OF DRUMS 1 ☐ SPREAD ☐ TREATED ☐ POTW ☐ OTHER

WATER LEVEL: INITIAL ~13 FT ☐ BTOC ■ BGS
DATE: 6/27 9.13 FT BELOW TOC
DATE: ____ ____ FT BELOW TOC

NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)

PREPARED BY: CHRIS MERRITT

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SOIL BORING LOG

BORING NO:	B2\MW2
SHEET 1	OF 1

PROJECT NAME:	CALTRANS SOUTH OAKLAND		
PROJECT NUMBER:	0G019	DATE:	6/8/00
NORTHINGS:		EASTINGS:	
DRILLING COMPANY:	V&W		
DRILLING METHOD:	HSA		
BORING DIAMETER:	8 INCHES	DEPTH:	20 FEET

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
6/8/00	INITIAL WATER	13 FEET

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
								4 inches asphalt.
					Silty Sandy Gravel: Well graded fine to coarse gravel with fine	0	GM	
2					to coarse sand and silt, mottled dark brown to black, damp.			
4								
	B2-5.0			6	Clayey Sand: Poorly graded fine sand with clay, brown, damp.		SC	Trace fine gravel.
				7				
				12				
9								
	B2-10.0			9	Clayey Silty Sand: Poorly graded fine sand with silt and clay,		SM	
11				14	mottled brown, damp.			
				17				
13								First water.
15				8	Clay: Brown, damp.			
				14				
				18				
17								Lost sampler, overdrilled to 20 feet.
18								Total depth 20 feet.
								Screened 20-5 feet.
								Sand 20-3 feet.
								Chips 3-2 feet
20								Grout\Box 2-0 feet.

LOGGED BY: CHRIS MERRITT

MONITORING WELL CONSTRUCTION DATA

WELL/BORING NO: B2\MW2
PERMIT NO:
DATE: 6/8/00 | PROJECT NAME: CALTRANS SOUTH OAKLAND | PROJECT NO: 0G019

WELL SITE LOCATION PLAN:

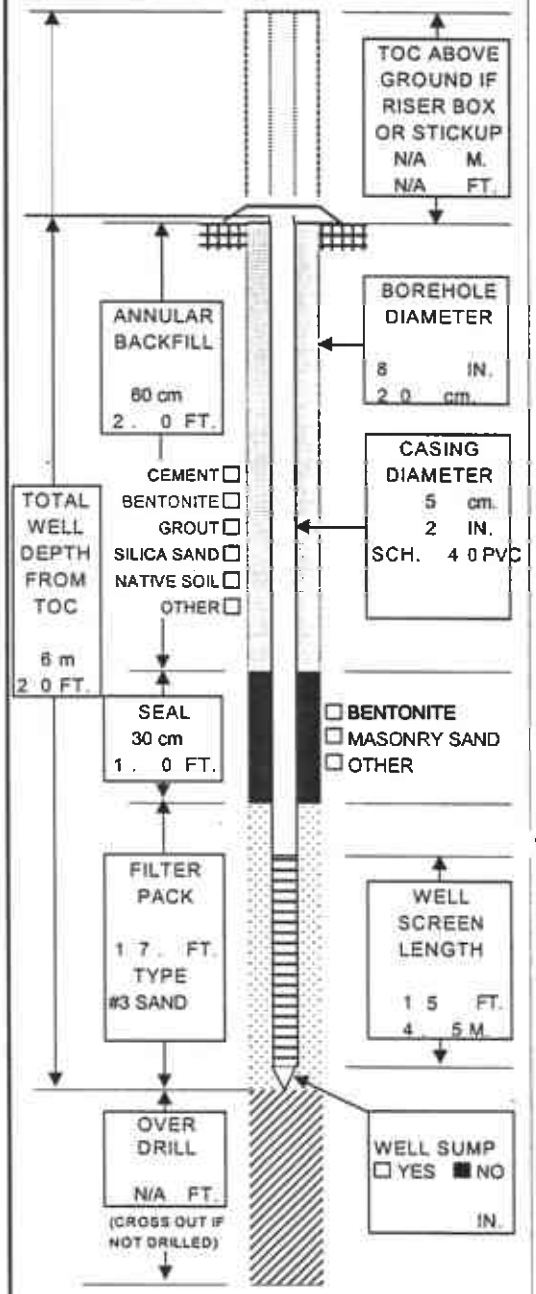
SEC: TWN: RGE: LAT: LONG:

DRILLING CO: V & W DRILLING

DRILL CREW:

WELL TYPE: ■ SHALLOW ☐ SINGLE CASED ■ MONITORING
☐ PERMANENT ☐ INTERMEDIATE ☐ DOUBLE CASED ☐ RECOVERY
☐ TEMPORARY ☐ DEEP ☐ OTHER ☐ OTHER

WELL SCHEMATIC



INSTALLATION DATA

DECON. ■ STEAM CLEAN ☐ HIGH PRESSURE WASH ☐ SOAP WASH ☐ OTHER

CASING TYPE: ■ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
JOINTS: ■ THREADED ☐ WELDED ☐ COUPLED ☐ SCREWED ☐ OTHER
PIT CASING: ☐ YES ■ NO ☐ DESCRIBE

WELL SCREEN: ■ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
DIAMETER: ■ 2" ☐ 4" ☐ 6" ☐ OTHER ____ IN
SLOT: ☐ 0.010 ■ 0.020 ☐ OTHER ____ IN

DRILLING METHOD: ☐ SOLID STEM ■ HOLLOW STEM ☐ MUD ROTARY ☐ AIR ROTARY ☐ DIRECT PUSH ☐ HAND AUGER ☐ OTHER
BIT SIZE: ☐ 2" ☐ 4" ☐ 6" ■ 8" ☐ 12" ☐ OTHER ____ IN
DRILLING MUD: ☐ NONE ☐ WATER ☐ BENTONITE ☐ OTHER
CENTRALIZER: ☐ YES ■ NO

COMPLETION: ■ FLUSH MOUNT ☐ STICKUP ☐ RISER BOX
LOCK TYPE: ■ DOLPHIN ☐ MASTER KEY NO. ____ ☐ OTHER
PAD: ☐ 2'X2' ☐ 4'X4' ☐ OTHER

CUTTINGS: ■ DRUMMED NUMBER OF DRUMS 1 ☐ SPREAD ☐ OTHER

DEVELOPMENT METHOD: ☐ NONE ■ BAILING ☐ PUMPING ☐ AIR LIFT ■ SURGE & BLOCK ☐ OTHER
TIME: ■ 10 MIN ☐ 20 MIN ☐ OTHER ____ MIN
AMOUNT ☐ 5 GAL ■ 10 GAL ☐ OTHER ____ GAL
WATER BEFORE: ☐ SILTY ■ TURBID ☐ OPAQUE ☐ CLEAR
WATER AFTER: ☐ SILTY ☐ TURBID ■ OPAQUE ☐ CLEAR
EVIDENT ODOR: ☐ YES ■ NO TYPE

DEVELOPMENT WATER: ■ DRUMMED NUMBER OF DRUMS 1 ☐ SPREAD ☐ TREATED ☐ POTW ☐ OTHER

WATER LEVEL: INITIAL ~13 FT ☐ BTOC ■ BGS
DATE: 6/27/00 9.03 FT BELOW TOC
DATE: ____ ____ FT BELOW TOC

NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)

PREPARED BY: CHRIS MERRITT

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SOIL BORING LOG

BORING NO:	B3-MW3
SHEET 1	OF 1

PROJECT NAME:	CALTRANS SOUTH OAKLAND		
PROJECT NUMBER:	0G019	DATE:	6/8/00
NORTHINGS:		EASTINGS:	
DRILLING COMPANY:	V&W		
DRILLING METHOD:	HSA		
BORING DIAMETER:	8 INCHES	DEPTH:	20 FEET

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
6/8/00	INITIAL WATER	13 FEET

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
								4 inches asphalt.
					Silty Sandy Gravel: Well graded fine to coarse gravel with fine	0	GM	
2					to coarse sand and silt, mottled dark brown to black, damp.			
5	B3-5.0			6	Clayey Sand: Poorly graded fine sand with clay, brown, damp.	0	SC	Trace fine gravel.
				7				
7				12				
9								
10	B3-10.0			9	Sandy Clay: Clay with poorly graded fine sand, brown, damp.		CL	
11				12				
				12				
13								First water
15	B3-15.0			10	Sandy Clay: As above , light gray			
16				16				
				18				
18								Total depth 20 feet + sample.
								Screened 20-5 feet.
								Sand 20-3 feet.
								Chips 3-2 feet.
				9				Grout\Box 2-0 feet.
20				15				
	B3-20.0			25				

LOGGED BY: CHRIS MERRITT

MONITORING WELL CONSTRUCTION DATA

WELL/BORING NO:	B3\MW3
PERMIT NO:	
DATE: 6/8/00	PROJECT NAME: CALTRANS SOUTH OAKLAND
PROJECT NO:	0G019

WELL SITE LOCATION PLAN:

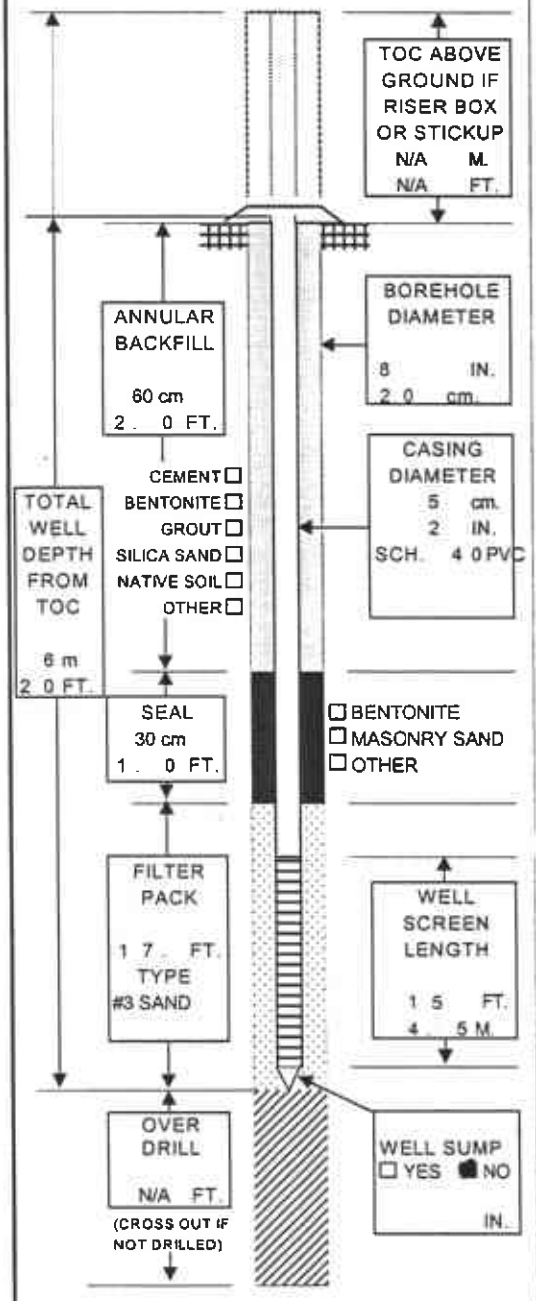
SEC: TWN: RGE: LAT: LONG:

DRILLING CO: V & W DRILLING

DRILL CREW:

WELL TYPE: ■ SHALLOW ☐ SINGLE CASED ■ MONITORING
☐ PERMANENT ☐ INTERMEDIATE ☐ DOUBLE CASED ☐ RECOVERY
☐ TEMPORARY ☐ DEEP ☐ OTHER ☐ OTHER

WELL SCHEMATIC



INSTALLATION DATA

DECON: ■ STEAM CLEAN ☐ HIGH PRESSURE WASH ☐ SOAP WASH ☐ OTHER

CASING TYPE: ■ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
JOINTS: ■ THREADED ☐ WELDED ☐ COUPLED ☐ SCREWED ☐ OTHER
PIT CASING: ☐ YES ■ NO ☐ DESCRIBE

WELL SCREEN: ■ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
DIAMETER: ■ 2" ☐ 4" ☐ 6" ☐ OTHER ____ IN
SLOT: ☐ 0.010 ■ 0.020 ☐ OTHER ____ IN

DRILLING METHOD: ☐ SOLID STEM ■ HOLLOW STEM ☐ MUD ROTARY ☐ AIR ROTARY ☐ DIRECT PUSH ☐ HAND AUGER ☐ OTHER
BIT SIZE: ☐ 2" ☐ 4" ☐ 6" ■ 8" ☐ 12" ☐ OTHER ____ IN
DRILLING MUD: ☐ NONE ☐ WATER ☐ BENTONITE ☐ OTHER
CENTRALIZER: ☐ YES ■ NO

COMPLETION: ■ FLUSH MOUNT ☐ STICKUP ☐ RISER BOX
LOCK TYPE: ■ DOLPHIN ☐ MASTER KEY NO. ____ ☐ OTHER
PAD: ☐ 2'X2' ☐ 4'X4' ☐ OTHER

CUTTINGS: ■ DRUMMED NUMBER OF DRUMS 1
☐ SPREAD ☐ OTHER

DEVELOPMENT METHOD: ☐ NONE ■ BAILING ☐ PUMPING ☐ AIR LIFT ■ SURGE & BLOCK ☐ OTHER
TIME: ■ 10 MIN ☐ 20 MIN ☐ OTHER ____ MIN
AMOUNT: ☐ 5 GAL ■ 10 GAL ☐ OTHER ____ GAL
WATER BEFORE: ☐ SILTY ■ TURBID ☐ OPAQUE ☐ CLEAR
WATER AFTER: ☐ SILTY ☐ TURBID ■ OPAQUE ☐ CLEAR
EVIDENT ODOR: ☐ YES ■ NO TYPE

DEVELOPMENT WATER: ■ DRUMMED NUMBER OF DRUMS 1
☐ SPREAD ☐ TREATED ☐ POTW ☐ OTHER

WATER LEVEL: INITIAL ~12.5 FT ☐ BTOC ■ BGS
DATE: 6/27/00 8.76 FT BELOW TOC
DATE: ____ ____ FT BELOW TOC

NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)

PREPARED BY: CHRIS MERRITT

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SOIL BORING LOG

BORING NO:	B4\MW4
SHEET	1 OF 2

PROJECT NAME:	CALTRANS SOUTH OAKLAND		
PROJECT NUMBER:	0G019	DATE:	6/8/00
DRILLING COMPANY:	V&W		
DRILLING METHOD:	HSA		
BORING DIAMETER:	8 INCHES	DEPTH:	25 FEET

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
6/8/00	INITIAL WATER	12.5 FEET

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
								4 inches Asphalt
1					Silty Sandy Gravel: Well graded fine to coarse gravel with fine	0	GM	
					to coarse sand and silt, mottled dark brown to black, damp.			
2								
3								
4								
5	B4-5.0			6	Clayey Sand: Poorly graded fine sand with clay, brown, damp.	0	SC	
				8				
6				16				
7								
8								
9								
10	B4-10.0			6	Clayey Sand: As above	0		
				14				
11				17				
12								
13								First water.
14								
15	B4-15.0			10	Sandy Gravel: Well graded fine to coarse gravel with poorly		GW	2-3 inch zone
				12	graded medium sand, brown, wet.			
16				15	Sand: Porly graded medium sand, brown, wet.		SP	
17								
18								
19								
20	B4-20.0			9	Clay: Light tan, wet.		CL	

Reviewed By:

LOGGED BY: CHRIS MERRITT

SOIL BORING LOG

BORING NO:	B4\MW4
SHEET	2 OF 2

PROJECT NAME:	CALTRANS SOUTH OAKLAND		
PROJECT NUMBER:	0G019	DATE:	6/8/00
DRILLING COMPANY:	V&W		
DRILLING METHOD:	HSA		
BORING DIAMETER:	8 INCHES	DEPTH:	25 FEET

GROUNDWATER LEVELS

DATE	COMMENTS	DEPTH BGS
6/8/00	INITIAL WATER	12.5 FEET

DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTION	PID (PPM)	USCS	REMARKS
1				6	Clay: Light tan, wet.		CL	
				10				
2								
3								
4								
5	B4-25.0			8	Sandy Clay: Clay with poorly graded fine sand, brown, damp.		CL	
6				12				
				21				
7								Total depth 25 feet + sample.
8								Screen 25-5 feet.
								Sand 25-3 feet.
9								Chips 3-2 feet
								Grout\Box 2-0 feet
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								

Reviewed By:

LOGGED BY: CHRIS MERRITT

MONITORING WELL CONSTRUCTION DATA

WELL/BORING NO: B4\MW4
PERMIT NO:
PROJECT NO: 0G019

DATE: 6/8/00 | PROJECT NAME: CALTRANS SOUTH OAKLAND

WELL SITE LOCATION PLAN:

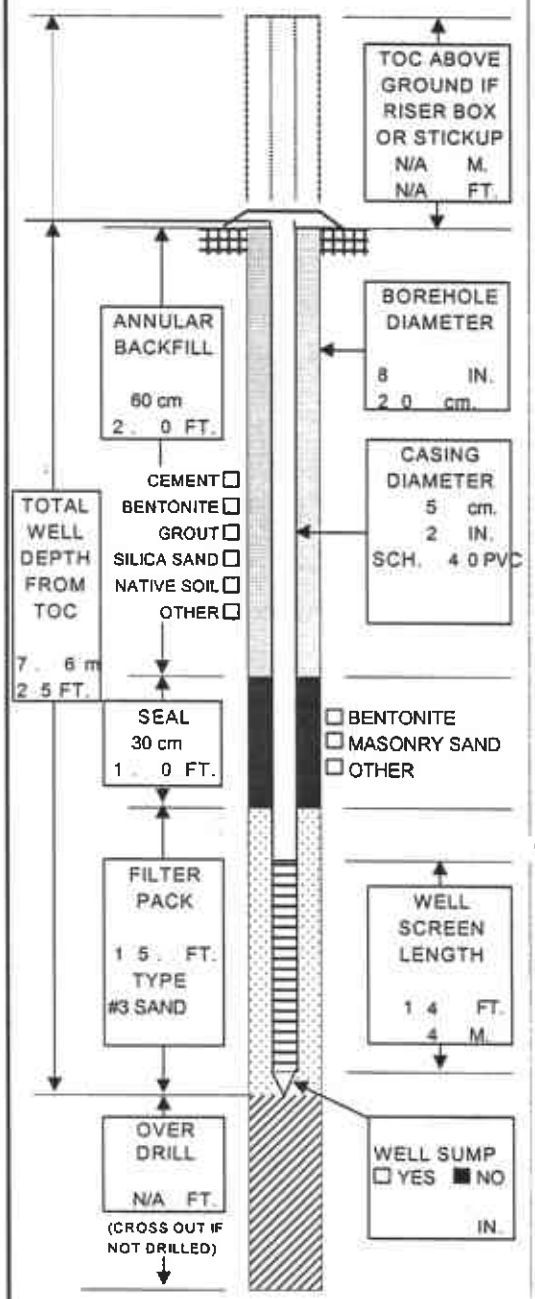
SEC: TWN: RGE: LAT: LONG:

DRILLING CO: V & W DRILLING

DRILL CREW:

WELL TYPE: ■ SHALLOW ☐ SINGLE CASED ■ MONITORING
☐ PERMANENT ☐ INTERMEDIATE ☐ DOUBLE CASED ☐ RECOVERY
☐ TEMPORARY ☐ DEEP ☐ OTHER ☐ OTHER

WELL SCHEMATIC



INSTALLATION DATA

DECON. ■ STEAM CLEAN ☐ HIGH PRESSURE WASH ☐ SOAP WASH ☐ OTHER

CASING TYPE: ■ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
JOINTS: ■ THREADED ☐ WELDED ☐ COUPLED ☐ SCREWED ☐ OTHER
PIT CASING: ☐ YES ■ NO ☐ DESCRIBE

WELL SCREEN: ■ PVC ☐ STAINLESS ☐ TEFLON ☐ OTHER
DIAMETER: ■ 2" ☐ 4" ☐ 6" ☐ OTHER ____ IN
SLOT: ☐ 0.010 ■ 0.020 ☐ OTHER ____ IN

DRILLING METHOD: ☐ SOLID STEM ■ HOLLOW STEM ☐ MUD ROTARY ☐ AIR ROTARY ☐ DIRECT PUSH ☐ HAND AUGER ☐ OTHER
BIT SIZE: ☐ 2" ☐ 4" ☐ 6" ■ 8" ☐ 12" ☐ OTHER ____ IN
DRILLING MUD: ☐ NONE ☐ WATER ☐ BENTONITE ☐ OTHER
CENTRALIZER: ☐ YES ■ NO

COMPLETION: ■ FLUSH MOUNT ☐ STICKUP ☐ RISER BOX
LOCK TYPE: ■ DOLPHIN ☐ MASTER KEY NO. ____ ☐ OTHER
PAD: ☐ 2'X2' ☐ 4'X4' ☐ OTHER

CUTTINGS: ■ DRUMMED NUMBER OF DRUMS 2
☐ SPREAD ☐ OTHER

DEVELOPMENT METHOD: ☐ NONE ■ BAILING ☐ PUMPING ☐ AIR LIFT ■ SURGE & BLOCK ☐ OTHER
TIME: ■ 10 MIN ☐ 20 MIN ☐ OTHER ____ MIN
AMOUNT: ☐ 5 GAL ■ 10 GAL ☐ OTHER ____ GAL
WATER BEFORE: ☐ SILTY ■ TURBID ☐ OPAQUE ☐ CLEAR
WATER AFTER: ☐ SILTY ☐ TURBID ■ OPAQUE ☐ CLEAR
EVIDENT ODOR: ☐ YES ■ NO TYPE

DEVELOPMENT WATER: ■ DRUMMED NUMBER OF DRUMS 1
☐ SPREAD ☐ TREATED ☐ POTW ☐ OTHER

WATER LEVEL: INITIAL ~13 FT ☐ BTOC ■ BGS
DATE: 6/27/00 8.74 FT BELOW TOC
DATE: ____ ____ FT BELOW TOC

NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)

PREPARED BY: CHRIS MERRITT

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APPENDIX D

PURGE LOGS

FLUID MEASUREMENT FIELD DATA

SHEET: 1 OF 1

DATE: 6/27/00 | PROJECT NAME: CALTRANS S. OAKLAND | PROJECT NO:

WATER LEVEL MEASUREMENT INSTRUMENT: SOLINST | SERIAL NO: 12080

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				9.13	25.16			1204
MW-2				9.05	19.45			1211
MW-3				8.76	20.10			1213
MW-4				8.74	24.37			1216

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

PREPARED BY:

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WELL PURGING AND SAMPLING DATA

WELL NO: MW-1

DATE: 6/27/00 | PROJECT NAME: CALTRANS S. OAKLAND | PROJECT NO: 0G019

WEATHER CONDITIONS: SUNNY, WARM

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

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

WELL DEPTH (TOC) 25.16 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 9.13 FT.

LENGTH OF WATER 16.03 FT. | CALCULATED ONE WELL VOLUME[1]: ~2.72 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 622155

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)
1240	INITIAL	21.3	517	7.26			CL	
1244	3.0	20.3	528	6.54			CO	
1251	6.0	20.8	542	6.32			CO	
1301	9.0	21.0	522	6.50			CO	

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

NOTES:

SAMPLE TIME: ID# MW-1

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 PIPE

WELL PURGING AND SAMPLING DATA

WELL NO: MW-2

DATE: 6/27/00 | PROJECT NAME: CALTRANS S. OAKLAND | PROJECT NO: 06019

WEATHER CONDITIONS: SUNNY, WARM

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

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

WELL DEPTH (TOC) 19.45 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 9.05 FT.

LENGTH OF WATER 10.4' FT. | CALCULATED ONE WELL VOLUME[1]: ~1.8 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 622155

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)
1313	INITIAL	20.6	599	7.39			CL	
1316	2.0	19.8	591	6.60			CO	
1319	4.0	19.5	591	6.56			CO	
1324	4.4	19.6	593	6.54			CO	

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

NOTES:

SAMPLE TIME: _____ ID# MW-2

DUPLICATE ☐ TIME: _____ ID#: _____

EQUIP. BLANK: ☐ TIME: _____ ID#: _____

PREPARED BY: CHRIS MERRITT

[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 PIPE

WELL PURGING AND SAMPLING DATA

WELL NO: MW-3

DATE: 6/27/00 | PROJECT NAME: CALTRANS S. OAKLAND | PROJECT NO:

WEATHER CONDITIONS: SUNNY, WARM

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

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

WELL DEPTH (TOC) 20.10 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 8.76 FT.

LENGTH OF WATER 11.34 FT. | CALCULATED ONE WELL VOLUME[1]: ~2.0 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 622155

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)
1344	INITIAL	21.3	553	7.09			CL	
1349	2.0	20.7	571	6.52			CO	
1356	5.5	20.5	594	6.52			CO	
1357	6.0	19.8	589	6.57			CO	

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

NOTES:

SAMPLE TIME: ID# MW-3

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: CHRIS MERRITT

[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 PIPE

WELL PURGING AND SAMPLING DATA

WELL NO: MW-4

DATE: 6/27/00 | PROJECT NAME: CALTRANS S. OAKLAND | PROJECT NO:

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) 8.74 FT.

LENGTH OF WATER 15.63 FT. | CALCULATED ONE WELL VOLUME[1]: ~2.5 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 622155

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)
1413	INITIAL	21.2	450	6.90			CL	
1417	2.5	20.2	454	6.47			CO	
1422	5.0	19.8	451	6.42			CO	
1426	7.5	19.8	448	6.40			CO	

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

NOTES:

SAMPLE TIME: ID# MW-4

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: CHRIS MERRITT

[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 PIPE

APPENDIX E

SURVEY DATA

ENGINEERING ASSOCIATES
PROFESSIONAL ENGINEERING SERVICES

June 23, 2000

Professional Service Industries
1320 West Winton Avenue
Hayward, California; 94545

Attention: **Ms. Adriana Constantines**

Re: **Monitoring Well Elevations - 1112 29th Avenue, Oakland**
Our Project Number: **00-1027**

Dear **Ms. Constantines**:

Pursuant to your request, this office has conducted a survey to determine the elevations of four monitoring wells at the referenced site. The following represents a summary of my findings in this matter.

BACKGROUND:

The site is located in Alameda County and is easily accessed. There are four newly established wells as per the information supplied by the client. The vertical control is based upon an assumed elevation, the value of 100.00 feet being taken upon a small square cut into corner of the concrete pad.

PROCESS:

Upon arrival, each well was located, opened and identified as per the map supplied by the client. Measurements were then made with standard rod and level techniques. After the measurements were completed, the wells were re-sealed and the lids were painted for easier re-location. The following exhibit represents my findings in this matter.

Respectfully submitted,

GILBERT E. HAYES, PLS

GH:cb

LICENSED LAND SURVEYOR
GILBERT E. HAYES
09/30/03
No. 4700
STATE OF CALIFORNIA

EXHIBIT A

MONITORING WELLS - CASING ELEVATIONS

1112 29TH AVENUE; OAKLAND, CA.

WELL ID.	MEASURED ELEV.
MW1	99.57'
MW2	98.91'
MW3	98.98'
MW4	99.04'
TBM	100.00'

Note: All elevations were measured on top of the 2" diameter well casing.

June 23, 2000

GILBERT E. HAYES, PLS

APPENDIX F

LABORATORY RESULTS AND CHAIN-OF-CUSTODY RECORDS

Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

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

Date Sampled: 06/08/00
Date Received: 06/12/00
Job Number: 16588

Project: Caltrans S. Oakland

CASE NARRATIVE

The following information applies to samples which were received on 06/12/00 :

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 # 2419

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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Modified 8015 - Total Extractable Petroleum Hydrocarbons as Diesel

Client:	PSI	Date Sampled:	06/08/00
Project:	Caltrans S. Oakland	Date Received:	06/12/00
Job No.:	16588	Date Extracted:	06/12/00
Matrix:	Soil	Date Analyzed:	06/12/00
Analyst:	JL	Batch Number:	8015DS1945

	Detection Limit	Diesel	Surrogate (OTP)
Sample ID	mg/kg	mg/kg	Limit: 50 - 150%
Method Blank	10	ND	129 %
B3-5.0	10	23	130 %
B3-10.0	10	10	97 %
B3-15.0	10	ND	127 %
B3-20.0	10	ND	128 %

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QC Sample Report - EPA 8015M Diesel

Matrix: Soil
Batch #: 8015DS1945

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/Kg	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Diesel	100	**95**	70 - 130	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: B3-10.0

Analyte	Spike Sample Recovery mg/Kg	Spike Duplicate Recovery mg/Kg	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Diesel	97	96	**1%**	29%	**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:	06/08/00
Project:	Caltrans S. Oakland	Date Received:	06/12/00
Job No.:	16588	Date Analyzed:	06/13/00
Matrix:	Soil	Batch Number:	8015GS2627
Analyst:	CP		

	Detection Limit	**Petroleum Hydrocarbons as Gasoline**
Sample ID	mg/kg	mg/kg
Method Blank	0.50	ND
B1-5.0	0.50	ND
B1-10.0	0.50	ND
B1-15.0	0.50	ND
B1-20.0	0.50	ND
B1-25.0	0.50	ND
B4-5.0	0.50	ND
B4-10.0	0.50	ND
B4-15.0	0.50	ND
B4-20.0	0.50	ND
B4-25.0	0.50	ND
B3-5.0	0.50	ND
B3-10.0	0.50	ND
B3-15.0	0.50	ND
B3-20.0	0.50	ND
B2-5.0	0.50	ND
B2-10.0	0.50	ND
B2-15.0	0.50	ND

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QC Sample Report - EPA 8015M Gasoline

Matrix: Soil
Batch #: 8015GS2627

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/Kg	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Gasoline	10.0	**103**	70 - 130	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: B1-5.0

Analyte	Spike Sample Recovery mg/Kg	Spike Duplicate Recovery mg/Kg	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Gasoline	9.38	9.69	**3%**	30%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/08/00
Project:	Caltrans S. Oakland	Date Received:	06/12/00
Job No.:	16588	Date Analyzed:	06/14-15/00
Matrix:	Soil	Batch Number:	M28260S561
Analyst:	JCT		

	Sample ID:	Blank	B1-5.0	B1-10.0	B1-15.0	B1-20.0	B1-25.0
Compounds	DL	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Acetone	0.05	ND	ND	ND	ND	ND	ND
tert-Amyl Methyl Ether (TAME	0.005	ND	ND	ND	ND	ND	ND
Benzene	0.001	ND	ND	ND	ND	ND	ND
Bromobenzene	0.005	ND	ND	ND	ND	ND	ND
Bromochloromethane	0.005	ND	ND	ND	ND	ND	ND
Bromodichloromethane	0.001	ND	ND	ND	ND	ND	ND
Bromoform	0.005	ND	ND	ND	ND	ND	ND
Bromomethane	0.01	ND	ND	ND	ND	ND	ND
tert-Butanol (TBA)	0.05	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	0.01	ND	ND	ND	ND	ND	ND
n-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
Carbon disulfide	0.01	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	0.001	ND	ND	ND	ND	ND	ND
Chlorobenzene	0.001	ND	ND	ND	ND	ND	ND
Chloroethane	0.005	ND	ND	ND	ND	ND	ND
Chloroform	0.002	ND	ND	ND	ND	ND	ND
Chloromethane	0.001	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	0.002	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	0.002	ND	ND	ND	ND	ND	ND
Dibromochloromethane	0.002	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	0.002	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.01	ND	ND	ND	ND	ND	ND
Dibromomethane	0.001	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.001	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.005	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.005	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.002	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.002	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND

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EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/08/00
Project:	Caltrans S. Oakland	Date Received:	06/12/00
Job No.:	16588	Date Analyzed:	06/14-15/00
Matrix:	Soil	Batch Number:	M28260S561
Analyst:	JCT		

	Sample ID:	Blank	B1-5.0	B1-10.0	B1-15.0	B1-20.0	B1-25.0
Compounds	**DL**	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
cis-1,3-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	0.005	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.001	ND	ND	ND	ND	ND	ND
Ethyl tert-Butyl Ether (EtBE)	0.005	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	0.001	ND	ND	ND	ND	ND	ND
2-Hexanone	0.01	ND	ND	ND	ND	ND	ND
Isopropylbenzene	0.001	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	0.002	ND	ND	ND	ND	ND	ND
Methylene chloride	0.02	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	0.01	ND	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether (MtBE)	0.005	ND	ND	**0.076**	**0.055**	**0.062**	ND
Napthalene	0.002	ND	ND	ND	ND	ND	ND
n-Propylbenzene	0.001	ND	ND	ND	ND	ND	ND
Styrene	0.001	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.002	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.001	ND	ND	ND	ND	ND	ND
Toluene	0.001	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.003	ND	ND	ND	ND	ND	ND
Trichloroethene	0.001	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0.003	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.001	ND	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	0.005	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.001	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.001	ND	ND	ND	ND	ND	ND
Vinyl chloride	0.002	ND	ND	ND	ND	ND	ND
Xylenes (total)	0.003	ND	ND	ND	ND	ND	ND

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	Blank	B1-5.0	B1-10.0	B1-15.0	B1-20.0	B1-25.0
Dibromofluoromethane	113	117	116	116	120	119
Toluene-d8	98	98	97	97	97	97
Bromofluorobenzene	110	111	112	112	114	113

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EPA 8260 - Volatile Organics with Oxygenates

Client: PSI
Project: Caltrans S. Oakland
Job No.: 16588
Matrix: Soil
Analyst: JCT

Date Sampled: 06/08/00
Date Received: 06/12/00
Date Analyzed: 06/14-15/00
Batch Number: M28260S561

	Sample ID:	B4-5.0	B4-10.0	B4-15.0	B4-20.0	B4-25.0	B3-5.0
Compounds	**DL**	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Acetone	0.05	ND	ND	ND	ND	ND	ND
tert-Amyl Methyl Ether (TAME	0.005	ND	ND	ND	ND	ND	ND
Benzene	0.001	ND	ND	ND	ND	ND	ND
Bromobenzene	0.005	ND	ND	ND	ND	ND	ND
Bromochloromethane	0.005	ND	ND	ND	ND	ND	ND
Bromodichloromethane	0.001	ND	ND	ND	ND	ND	ND
Bromoform	0.005	ND	ND	ND	ND	ND	ND
Bromomethane	0.01	ND	ND	ND	ND	ND	ND
tert-Butanol (TBA)	0.05	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	0.01	ND	ND	ND	ND	ND	ND
n-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
Carbon disulfide	0.01	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	0.001	ND	ND	ND	ND	ND	ND
Chlorobenzene	0.001	ND	ND	ND	ND	ND	ND
Chloroethane	0.005	ND	ND	ND	ND	ND	ND
Chloroform	0.002	ND	ND	ND	ND	ND	ND
Chloromethane	0.001	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	0.002	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	0.002	ND	ND	ND	ND	ND	ND
Dibromochloromethane	0.002	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	0.002	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.01	ND	ND	ND	ND	ND	ND
Dibromomethane	0.001	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.001	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.005	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.005	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.002	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.002	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/08/00
Project:	Caltrans S. Oakland	Date Received:	06/12/00
Job No.:	16588	Date Analyzed:	06/14-15/00
Matrix:	Soil	Batch Number:	M28260S561
Analyst:	JCT		

	Sample ID:	B4-5.0	B4-10.0	B4-15.0	B4-20.0	B4-25.0	B3-5.0
Compounds	**DL**	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
cis-1,3-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	0.005	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.001	ND	ND	ND	ND	ND	ND
Ethyl tert-Butyl Ether (EtBE)	0.005	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	0.001	ND	ND	ND	ND	ND	ND
2-Hexanone	0.01	ND	ND	ND	ND	ND	ND
Isopropylbenzene	0.001	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	0.002	ND	ND	ND	ND	ND	ND
Methylene chloride	0.02	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	0.01	ND	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether (MtBE)	0.005	ND	ND	ND	ND	ND	ND
Napthalene	0.002	ND	ND	ND	ND	ND	ND
n-Propylbenzene	0.001	ND	ND	ND	ND	ND	ND
Styrene	0.001	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.002	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.001	ND	ND	ND	ND	ND	ND
Toluene	0.001	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.003	ND	ND	ND	ND	ND	ND
Trichloroethene	0.001	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0.003	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.001	ND	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	0.005	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.001	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.001	ND	ND	ND	ND	ND	ND
Vinyl chloride	0.002	ND	ND	ND	ND	ND	ND
Xylenes (total)	0.003	ND	ND	ND	ND	ND	ND

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	B4-5.0	B4-10.0	B4-15.0	B4-20.0	B4-25.0	B3-5.0
Dibromofluoromethane	118	120	118	118	120	119
Toluene-d8	94	97	96	95	95	94
Bromofluorobenzene	109	113	112	112	113	113

EPA 8260 - Volatile Organics with Oxygenates

Client: PSI
Project: Caltrans S, Oakland
Job No.: 16588
Matrix: Soil
Analyst: JCT

Date Sampled: 06/08/00
Date Received: 06/12/00
Date Analyzed: 06/14-15/00
Batch Number: M28260S561

	Sample ID:	B3-10.0	B3-15.0	B3-20.0	B2-5.0	B2-10.0	B2-15.0
Compounds	**DL**	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Acetone	0.05	ND	ND	ND	ND	ND	ND
tert-Amyl Methyl Ether (TAME	0.005	ND	ND	ND	ND	ND	ND
Benzene	0.001	ND	ND	ND	ND	ND	ND
Bromobenzene	0.005	ND	ND	ND	ND	ND	ND
Bromochloromethane	0.005	ND	ND	ND	ND	ND	ND
Bromodichloromethane	0.001	ND	ND	ND	ND	ND	ND
Bromoform	0.005	ND	ND	ND	ND	ND	ND
Bromomethane	0.01	ND	ND	ND	ND	ND	ND
tert-Butanol (TBA)	0.05	ND	ND	ND	ND	ND	ND
2-Butanone (MEK)	0.01	ND	ND	ND	ND	ND	ND
n-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	0.002	ND	ND	ND	ND	ND	ND
Carbon disulfide	0.01	ND	ND	ND	ND	ND	ND
Carbon tetrachloride	0.001	ND	ND	ND	ND	ND	ND
Chlorobenzene	0.001	ND	ND	ND	ND	ND	ND
Chloroethane	0.005	ND	ND	ND	ND	ND	ND
Chloroform	0.002	ND	ND	ND	ND	ND	ND
Chloromethane	0.001	ND	ND	ND	ND	ND	ND
2-Chlorotoluene	0.002	ND	ND	ND	ND	ND	ND
4-Chlorotoluene	0.002	ND	ND	ND	ND	ND	ND
Dibromochloromethane	0.002	ND	ND	ND	ND	ND	ND
1,2-Dibromoethane	0.002	ND	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	0.01	ND	ND	ND	ND	ND	ND
Dibromomethane	0.001	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.001	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.005	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.005	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.002	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.002	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	0.001	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND

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EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/08/00
Project:	Caltrans S. Oakland	Date Received:	06/12/00
Job No.:	16588	Date Analyzed:	06/14-15/00
Matrix:	Soil	Batch Number:	M28260S561
Analyst:	JCT		

	Sample ID:	B3-10.0	B3-15.0	B3-20.0	B2-5.0	B2-10.0	B2-15.0
Compounds	DL	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
cis-1,3-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.001	ND	ND	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	0.005	ND	ND	ND	ND	ND	ND
Ethylbenzene	0.001	ND	ND	ND	ND	ND	ND
Ethyl tert-Butyl Ether (EtBE)	0.005	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	0.001	ND	ND	ND	ND	ND	ND
2-Hexanone	0.01	ND	ND	ND	ND	ND	ND
Isopropylbenzene	0.001	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	0.002	ND	ND	ND	ND	ND	ND
Methylene chloride	0.02	ND	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	0.01	ND	ND	ND	ND	ND	ND
Methyl tert-Butyl Ether (MtBE)	0.005	**0.52**	**0.15**	**0.20**	ND	ND	**0.010**
Napthalene	0.002	ND	ND	ND	ND	ND	ND
n-Propylbenzene	0.001	ND	ND	ND	ND	ND	ND
Styrene	0.001	ND	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.002	ND	ND	ND	ND	ND	ND
Tetrachloroethene	0.001	ND	ND	ND	ND	ND	ND
Toluene	0.001	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.002	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.001	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.003	ND	ND	ND	ND	ND	ND
Trichloroethene	0.001	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0.003	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.001	ND	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	0.005	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.001	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.001	ND	ND	ND	ND	ND	ND
Vinyl chloride	0.002	ND	ND	ND	ND	ND	ND
Xylenes (total)	0.003	ND	ND	ND	ND	ND	ND

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	B3-10.0	B3-15.0	B3-20.0	B2-5.0	B2-10.0	B2-15.0
Dibromofluoromethane	113	112	117	123	128	127
Toluene-d8	93	109	95	97	96	95
Bromofluorobenzene	110	99	108	112	113	114

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QC Sample Report - EPA Method 8260

Matrix: Soil

Batch #: M28260S541

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/Kg	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
1,1-Dichloroethene	0.020	**118**	59 - 172	**Pass**
Benzene	0.020	**69**	66 - 142	**Pass**
Trichloroethene	0.020	**94**	71 - 137	**Pass**
Toluene	0.020	**87**	59 - 139	**Pass**
Chlorobenzene	0.020	**97**	60 - 133	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: B1-5.0

Analyte	Spike Sample Recovery mg/Kg	Spike Duplicate Recovery mg/Kg	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
1,1-Dichloroethene	0.0233	0.0228	**2%**	22%	**Pass**
Benzene	0.0137	0.0143	**4%**	21%	**Pass**
Trichloroethene	0.0182	0.0185	**2%**	24%	**Pass**
Toluene	0.0167	0.0171	**2%**	21%	**Pass**
Chlorobenzene	0.0200	0.0200	**0%**	21%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample

MSD: Matrix Spike Duplicate

Centrum Analytical Laboratories, Inc.

290 TENNESSEE STREET
REDLANDS, CA 92373
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FAX (909) 793-1559
lab@centrum-labs.com

Chain of Custody Record

Centrum Job # 16588

Page 1 of 2

Project No:	Project Name:
06019	CALTRANS S. OAKLAND
Project Manager:	**Phone:** / **Fax:**
FRANK POSS	510 785-1111 / 510 785-1192
Client Name: (Report and Billing)	**Address:** (Report and Billing)
PSI	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	w/OXYGENATES	GCMS: 8260B, 8021B, 624, 524.2	GCMS: MtBE Conf. Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB		Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr			Remarks/Special Instructions
1	B1-5.0	6/8/00	0825	SOIL		1555		X				X										
2	B1-10.0		0833					X				X										
3	B1-15.0		0845					X				X										
4	B1-20.0		0850					X				X										
5	B1-25.0		0859					X				X										
6	B4-5.0		1040					X				X										
7	B4-10.0		1050					X				X										
8	B4-15.0		1055					X				X										
9	B4-20.0		1102					X				X										
10	B4-25.0		1105					X				X										

Turn-Around Time

- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ● Normal TAT

*Requires PRIOR approval, additional charges apply

Requested due date: _____

1) Relinquished by: (Sampler's Signature)	Date:	Time:	3) Relinquished by:	Date:	Time:
CHRIS MERRITT	6/9/00	1700			
2) Received by:	Date:	Time:	4) Received by:	Date:	Time:
			5) Relinquished by:	Date:	Time:
			6) Received for Laboratory by:	Date: 6/12	Time: 11:00

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

To be completed by Laboratory personnel:

Samples chilled? ☒ Yes ☐ No ☐ From Field

Custody seals? ☐ Yes ☒ No

All sample containers Intact? ☒ Yes ☐ No

☐ Courier ☒ UPS/Fed Ex ☐ Hand carried

Sample Disposal

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

Laboratory Notes:

Sample Locator No.

F-4

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

Centrum Analytical Laboratories, Inc.

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Chain of Custody Record

Centrum Job # 16588

Page 2 of 2

Project No:	Project Name:
06019	CALTRANS S. OAKLAND
Project Manager:	**Phone:** / **Fax:**
FRANK POSS	510 785-1192 / 510 785-1111
Client Name: (Report and Billing)	**Address:** (Report and Billing)
PSI	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	VOA'S & BNA'S	GCMS: 8260B, 8021B, 624, 524.2	GCMS: MtBE Conf. Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB		Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr			Remarks/Special Instructions
11	B3-5.0	6/8/00	1240	SOIL		1555	X	X				X										
12	B3-10.0		1255				X	X				X										
13	B3-15.0		1301				X	X				X										
14	B3-20.0		1305				X	X				X										
15	B2-5.0		1443					X				X										
16	B2-10.0		1447					X				X										
17	B2-15.0		1500					X				X										

Turn-Around Time

- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ■ Normal TAT

*Requires PRIOR approval, additional charges apply

Requested due date: _____

1) Relinquished by: (Sampler's Signature)	Date:	Time:	3) Relinquished by:	Date:	Time:
CHRIS MERRITT	6/9/00	1700			
2) Received by:	Date:	Time:	4) Received by:	Date:	Time:
			5) Relinquished by:	Date:	Time:
The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.			6) Received for Laboratory by:	Date:	Time:
			[signature]	6/12	11:00

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:

Sample Locator No.

F-4

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

Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

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

Date Sampled: 06/27/00
Date Received: 06/28/00
Job Number: 16684

Project: Caltrans Calistoga

CASE NARRATIVE

The following information applies to samples which were received on 06/28/00 :

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 # 2419

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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Modified 8015 - Total Extractable Petroleum Hydrocarbons as Diesel

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16684	Date Extracted:	06/29/00
Matrix:	Water	Date Analyzed:	06/29/00
Analyst:	JL	Batch Number:	8015DW1965

	Detection Limit	Diesel	Surrogate (OTP)
Sample ID	mg/L	mg/L	Limit: 50 - 150%
Method Blank	0.40	ND	95 %
MW-3	0.40	ND	110 %

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QC Sample Report - EPA 8015M Diesel

Matrix: Water
Batch #: 8015DW1965

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Diesel	0.8	**88**	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	0.70	0.61	**14%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

Modified 8015 - Total Volatile Hydrocarbons as Gasoline

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16684	Date Analyzed:	07/07/00
Matrix:	Water	Batch Number:	8015GW2655
Analyst:	CP		

	Detection Limit	Petroleum Hydrocarbons as Gasoline
Sample ID	mg/L	mg/L
Method Blank	0.50	ND
MW-1	0.50	**0.85**
MW-2	0.50	ND
MW-3	0.50	**2.7**
MW-4	0.50	ND

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QC Sample Report - EPA 8015M Gasoline

Matrix: Water
Batch #: 8015GW2655

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Gasoline	10.0	**96**	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
Gasoline	9.58	9.39	**2%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16684	Date Analyzed:	07/02-04/00
Matrix:	Water	Batch Number:	MS48260W2159
Analyst:	JMR		

	Sample ID:	Blank	MW-2	MW-3	MW-4
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	**11**	ND
Benzene	0.5	ND	ND	**73**	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	**1,500**	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	**5.6**
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

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16684	Date Analyzed:	07/02-04/00
Matrix:	Water	Batch Number:	MS48260W2159
Analyst:	JMR		

	Sample ID:	Blank	MW-2	MW-3	MW-4
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	**1.2**	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	20	ND	ND	ND	ND
4-Methyl-2-pentanone	5.0	ND	ND	ND	ND
Methyl-tert-butyl ether (MtBE)	1.0	ND	**86**	**5,000**	ND
Napthalene	0.5	ND	ND	**1.0**	ND
n-Propylbenzene	0.5	ND	ND	**1.0**	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	**1.7**	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	**0.5**	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	**4.6**	ND

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	Blank	MW-2	MW-3	MW-4
Dibromofluoromethane	105	105	112	103
Toluene-d8	100	99	101	102
Bromofluorobenzene	104	106	106	101

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16684	Date Analyzed:	07/02-04/00
Matrix:	Water	Batch Number:	MS48260W2159
Analyst:	JMR		

Sample ID:		MW-1
Compounds	**DL**	µg/L
Acetone	250	ND
tert-Amyl Methyl Ether (TAME)	25	ND
Benzene	2.5	**20**
Bromobenzene	5.0	ND
Bromochloromethane	5.0	ND
Bromodichloromethane	2.5	ND
Bromoform	2.5	ND
Bromomethane	2.5	ND
tert-Butanol (TBA)	250	ND
2-Butanone (MEK)	50	ND
n-Butylbenzene	2.5	ND
sec-Butylbenzene	2.5	ND
tert-Butylbenzene	2.5	ND
Carbon disulfide	50	ND
Carbon tetrachloride	2.5	ND
Chlorobenzene	2.5	ND
Chloroethane	2.5	ND
Chloroform	2.5	ND
Chloromethane	2.5	ND
2-Chlorotoluene	2.5	ND
4-Chlorotoluene	2.5	ND
Dibromochloromethane	2.5	ND
1,2-Dibromoethane	2.5	ND
1,2-Dibromo-3-chloropropane	50	ND
Dibromomethane	2.5	ND
1,2-Dichlorobenzene	2.5	ND
1,3-Dichlorobenzene	2.5	ND
1,4-Dichlorobenzene	2.5	ND
Dichlorodifluoromethane	2.5	ND
1,1-Dichloroethane	2.5	ND
1,2-Dichloroethane	2.5	ND
1,1-Dichloroethene	2.5	ND
cis-1,2-Dichloroethene	2.5	ND
trans-1,2-Dichloroethene	2.5	ND
1,2-Dichloropropane	2.5	ND
1,3-Dichloropropane	2.5	ND
2,2-Dichloropropane	2.5	ND
1,1-Dichloropropene	2.5	ND

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16684	Date Analyzed:	07/02-04/00
Matrix:	Water	Batch Number:	MS48260W2159
Analyst:	JMR		

Sample ID:		MW-1
Compounds	**DL**	µg/L
cis-1,3-Dichloropropene	2.5	ND
trans-1,3-Dichloropropene	2.5	ND
Diisopropyl Ether (DIPE)	25	ND
Ethylbenzene	2.5	ND
Ethyl tert-Butyl Ether (EtBE)	25	ND
Hexachlorobutadiene	2.5	ND
2-Hexanone	50	ND
Isopropylbenzene	2.5	**2.8**
p-Isopropyltoluene	2.5	ND
Methylene chloride	100	ND
4-Methyl-2-pentanone	25	ND
Methyl-tert-butyl ether (MtBE)	5.0	**880**
Napthalene	2.5	**9.4**
n-Propylbenzene	2.5	ND
Styrene	2.5	ND
1,1,1,2-Tetrachloroethane	2.5	ND
1,1,2,2-Tetrachloroethane	5.0	ND
Tetrachloroethene	2.5	ND
Toluene	2.5	ND
1,2,3-Trichlorobenzene	2.5	ND
1,2,4-Trichlorobenzene	2.5	ND
1,1,1-Trichloroethane	2.5	ND
1,1,2-Trichloroethane	2.5	ND
Trichloroethene	2.5	ND
1,2,3-Trichloropropane	2.5	ND
Trichlorofluoromethane	2.5	ND
Trichlorotrifluoroethane	25	ND
1,2,4-Trimethylbenzene	2.5	**24**
1,3,5-Trimethylbenzene	2.5	**5.6**
Vinyl chloride	2.5	ND
Xylenes (total)	7.5	**19**

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	MW-1
Dibromofluoromethane	108
Toluene-d8	104
Bromofluorobenzene	105

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QC Sample Report - EPA Method 8260

Matrix: Water
Batch #: MS48260W2159

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration µg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
1,1-Dichloroethene	20	**104**	59 - 172	**Pass**
Benzene	20	**105**	66 - 142	**Pass**
Trichloroethene	20	**104**	71 - 137	**Pass**
Toluene	20	**102**	59 - 139	**Pass**
Chlorobenzene	20	**104**	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	20.8	22.4	**8%**	22%	**Pass**
Benzene	21.0	22.9	**9%**	21%	**Pass**
Trichloroethene	20.9	21.9	**5%**	24%	**Pass**
Toluene	20.5	22.2	**8%**	21%	**Pass**
Chlorobenzene	20.7	22.1	**6%**	21%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

Centrum Analytical Laboratories, Inc.

290 TENNESSEE STREET
REDLANDS, CA 92373
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FAX (909) 793-1559
lab@centrum-labs.com

Centrum Job # 166085

Chain of Custody Record

Page 1 of 1

Project No:	Project Name:
96077	CALTRANS CALISTOGA
Project Manager:	**Phone:** / **Fax:**
FRANK POSS	510 785-7111 / 510 785-1192
Client Name: (Report and Billing)	**Address:** (Report and Billing)
PSI	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	Oxygenates	GCMS: 8260B, 8021B, 624, 524.2	GCMS: MtBE Conf. Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB		Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr			Remarks/Special Instructions
1	DUFFYS	6/27/00	0930	H_2O		4 VOA 1 L	X	X				X										
2	STADELHOFER	6/27/00	1000	H_2O		4 VOA 1 L	X	X				X										

Turn-Around Time

- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ☛ Normal TAT

*Requires PRIOR approval, additional charges apply

Requested due date: _____

1) Relinquished by: (Sampler's Signature)	Date:	Time:	3) Relinquished by:	Date:	Time:
CHRIS MERRITT	6/27/00	1700			
2) Received by:	Date:	Time:	4) Received by:	Date:	Time:
			5) Relinquished by:	Date:	Time:
			6) Received for Laboratory by:	Date:	Time:
				6/28	3:10P

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:

Sample Locator No.
E-3
VOA

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

Centrum Analytical Laboratories, Inc.

CERTIFIED HAZARDOUS WASTE TESTING LABORATORY • CHEMICAL AND BIOLOGICAL ANALYSES

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

Date Sampled: 06/27/00
Date Received: 06/28/00
Job Number: 16685

Project: Caltrans Calistoga

CASE NARRATIVE

The following information applies to samples which were received on 06/28/00 :

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 # 2419

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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Modified 8015 - Total Extractable Petroleum Hydrocarbons as Diesel

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16685	Date Extracted:	06/29/00
Matrix:	Water	Date Analyzed:	06/29/00
Analyst:	JL	Batch Number:	8015DW1965

	Detection Limit	Diesel	Surrogate (OTP)
Sample ID	mg/L	mg/L	Limit: 50 - 150%
Method Blank	0.40	ND	95 %
DUFFYS	0.40	ND	113 %
STADELHOFER	0.40	ND	120 %

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QC Sample Report - EPA 8015M Diesel

Matrix: Water
Batch #: 8015DW1965

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Diesel	0.8	88	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	0.70	0.61	14%	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:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16685	Date Analyzed:	07/07/00
Matrix:	Water	Batch Number:	8015GW2655
Analyst:	CP		

	Detection Limit	Petroleum Hydrocarbons as Gasoline
Sample ID	mg/L	mg/L
Method Blank	0.5	ND
DUFFYS	0.5	ND
STADELHOFER	0.5	ND

Centrum
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QC Sample Report - EPA 8015M Gasoline

Matrix: Water
Batch #: 8015GW2655

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Gasoline	10.0	**96**	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
Gasoline	9.58	9.39	**2%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

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EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16685	Date Analyzed:	07/02-03/00
Matrix:	Water	Batch Number:	MS48260W2159
Analyst:	JMR		

	Sample ID:	Blank	DUFFYS	STADELHOFER
Compounds	**DL**	µg/L	µg/L	µg/L
Acetone	50	ND	ND	ND
tert-Amyl Methyl Ether (TAME)	5.0	ND	ND	ND
Benzene	0.5	ND	ND	ND
Bromobenzene	1.0	ND	ND	ND
Bromochloromethane	1.0	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND
Bromoform	0.5	ND	ND	ND
Bromomethane	0.5	ND	ND	ND
tert-Butanol (TBA)	50	ND	ND	ND
2-Butanone (MEK)	10	ND	ND	ND
n-Butylbenzene	0.5	ND	ND	ND
sec-Butylbenzene	0.5	ND	ND	ND
tert-Butylbenzene	0.5	ND	ND	ND
Carbon disulfide	10	ND	ND	ND
Carbon tetrachloride	0.5	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND
Chloroethane	0.5	ND	ND	ND
Chloroform	0.5	ND	ND	ND
Chloromethane	0.5	ND	ND	0.8
2-Chlorotoluene	0.5	ND	ND	ND
4-Chlorotoluene	0.5	ND	ND	ND
Dibromochloromethane	0.5	ND	ND	ND
1,2-Dibromoethane	0.5	ND	ND	ND
1,2-Dibromo-3-chloropropane	10	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND	ND
Dichlorodifluoromethane	0.5	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND
1,2-Dichloroethane	0.5	ND	ND	ND
1,1-Dichloroethene	0.5	ND	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND	ND
1,2-Dichloropropane	0.5	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND

Centrum
(800) 798-9336

EPA 8260 - Volatile Organics with Oxygenates

Client:	PSI	Date Sampled:	06/27/00
Project:	Caltrans Calistoga	Date Received:	06/28/00
Job No.:	16685	Date Analyzed:	07/02-03/00
Matrix:	Water	Batch Number:	MS48260W2159
Analyst:	JMR		

	Sample ID:	Blank	DUFFYS	STADELHOFER
Compounds	**DL**	µg/L	µg/L	µg/L
cis-1,3-Dichloropropene	0.5	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND
Diisopropyl Ether (DIPE)	5.0	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Ethyl tert-Butyl Ether (EtBE)	5.0	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND
2-Hexanone	10	ND	ND	ND
Isopropylbenzene	0.5	ND	ND	ND
p-Isopropyltoluene	0.5	ND	ND	ND
Methylene chloride	20	ND	ND	ND
4-Methyl-2-pentanone	5.0	ND	ND	ND
Methyl-tert-butyl ether (MtBE)	1.0	ND	ND	ND
Napthalene	0.5	ND	ND	ND
n-Propylbenzene	0.5	ND	ND	ND
Styrene	0.5	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND	ND
1,1,2,2-Tetrachloroethane	1.0	ND	ND	ND
Tetrachloroethene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
1,2,3-Trichlorobenzene	0.5	ND	ND	ND
1,2,4-Trichlorobenzene	0.5	ND	ND	ND
1,1,1-Trichloroethane	0.5	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND
Trichloroethene	0.5	ND	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND	ND
Trichlorofluoromethane	0.5	ND	ND	ND
Trichlorotrifluoroethane	5.0	ND	ND	ND
1,2,4-Trimethylbenzene	0.5	ND	ND	ND
1,3,5-Trimethylbenzene	0.5	ND	ND	ND
Vinyl chloride	0.5	ND	ND	ND
Xylenes (total)	1.5	ND	ND	ND

Surrogates (% recovery) Limits: 80 - 130

Sample ID:	Blank	DUFFYS	STADELHOFER
Dibromofluoromethane	105	104	107
Toluene-d8	100	100	101
Bromofluorobenzene	104	101	102

Centrum
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QC Sample Report - EPA Method 8260

Matrix: Water
Batch #: MS48260W2159

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration µg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
1,1-Dichloroethene	20	**104**	59 - 172	**Pass**
Benzene	20	**105**	66 - 142	**Pass**
Trichloroethene	20	**104**	71 - 137	**Pass**
Toluene	20	**102**	59 - 139	**Pass**
Chlorobenzene	20	**104**	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	20.8	22.4	**8%**	22%	**Pass**
Benzene	21.0	22.9	**9%**	21%	**Pass**
Trichloroethene	20.9	21.9	**5%**	24%	**Pass**
Toluene	20.5	22.2	**8%**	21%	**Pass**
Chlorobenzene	20.7	22.1	**6%**	21%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

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FAX (909) 793-1559
lab@centrum-labs.com

Centrum Job # 166684

Chain of Custody Record

Project No:	Project Name:
OG019	CALTRANS SOUTH OAKLAND
Project Manager:	**Phone:** / **Fax:**
FRANK POSS	510 785-1111 / 510 785-1192
Client Name: (Report and Billing)	**Address:** (Report and Billing)
PSI	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	w/ oxygenates	GCMS: 8260B, 8021B, 624, 524.2	GCMS: MtBE Conf. Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB	Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr	Remarks/Special Instructions
1	MW-1	6/27/00	1305	H_2O		4 VOA		X				X							
2	MW-2		1325			4 VOA		X				X							
3	MW-3		1400			4 VOA	X	X				X							
4	MW-4		1430			4 VOA		X				X							

Turn-Around Time

- ☐ 24 Hr. RUSH*
- ☐ 48 Hr. RUSH*
- ■ Normal TAT

*Requires PRIOR approval, additional charges apply

Requested due date: _____

1) Relinquished by: (Sampler's Signature)	Date:	Time:	3) Relinquished by:	Date:	Time:
CHRIS MERRITT	6/27/00	1700			
2) Received by:	Date:	Time:	4) Received by:	Date:	Time:
			5) Relinquished by:	Date:	Time:
The delivery of samples and the signature on this chain of custody form constitutes authorization to perform the analyses specified above under the Terms and Conditions set forth on the back hereof.			6) Received for Laboratory by:	Date: 6/28	Time:

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:

Sample Locator No.
E-34
VOA

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

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Writer's direct fax: (510) 785-1192

NOTES:

Barney,

Sorry about the mix up. Let me know if you need anything else.