#### DEPARTMENT OF TRANSPORTATION

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



August 23, 2000

#2933

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:

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, 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

o. 5951

#### 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  $\mu$ g/l) and B4 (520  $\mu$ g/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  $\mu$ g/l). MTBE was detected in the samples from Well WB5 (6,600  $\mu$ g/l) and WB6 (24  $\mu$ g/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  $\mu$ g/l) and WB6 (2.7  $\mu$ g/l). Tetrachloroethene (synonym Perchloroethene [PCE]) was detected in the water sample from Well WB6 (12  $\mu$ g/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.

Musing 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-tand at 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:

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

- 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.
- 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).

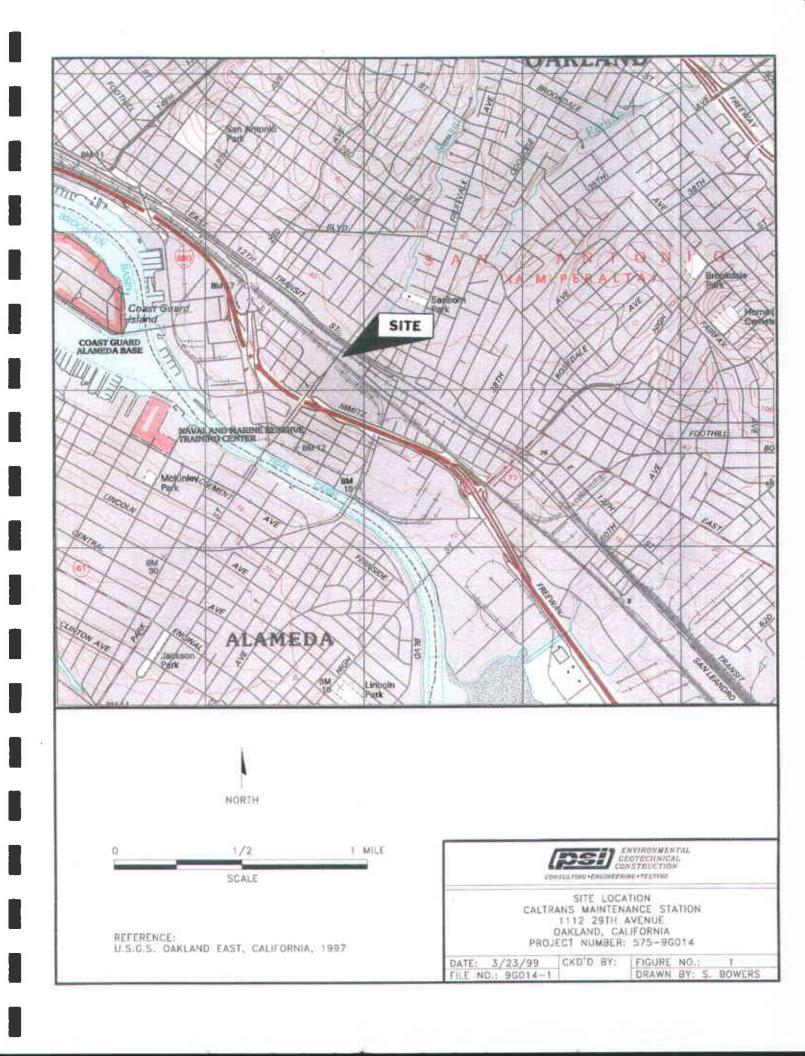
Based on the concentrations detected in the groundwater at the site, the primary contaminant of concern (COC) is MTBE. The concentrations of MTBE in each of the monitoring wells is shown in Figure 4. This figure indicates that the highest concentrations of MTBE are found in the monitoring well directly 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.

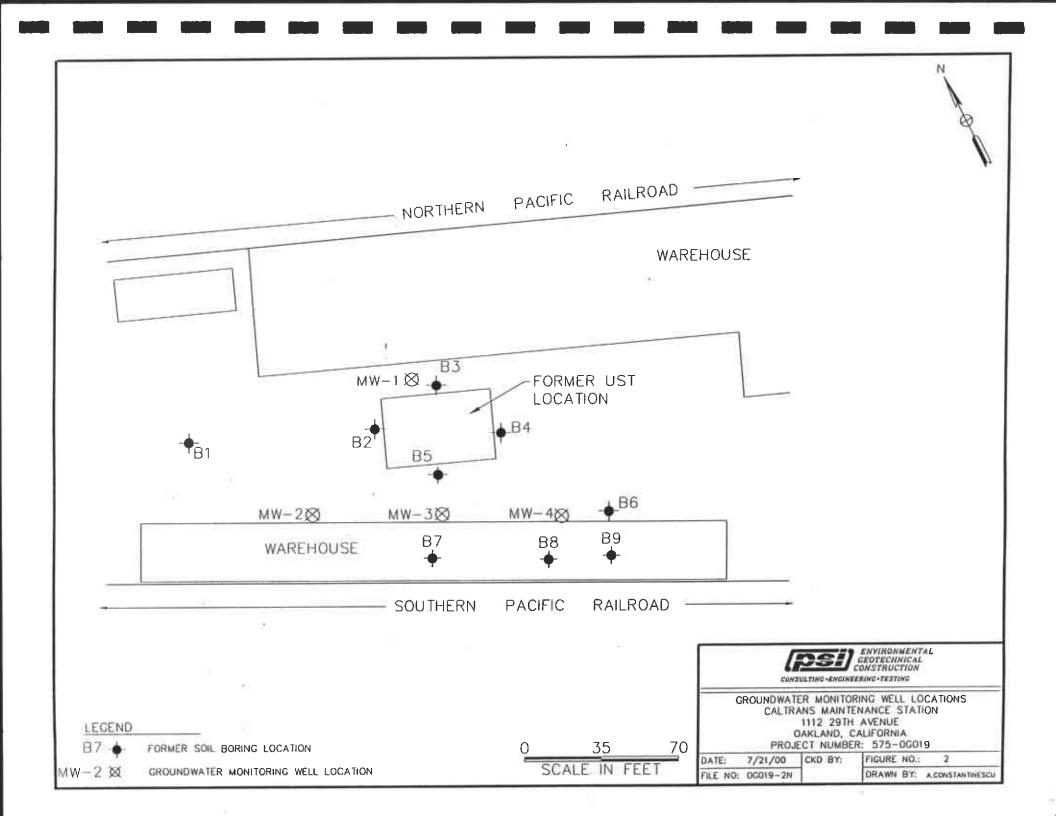
### 6.0 CONCLUSIONS AND RECOMMENDATIONS

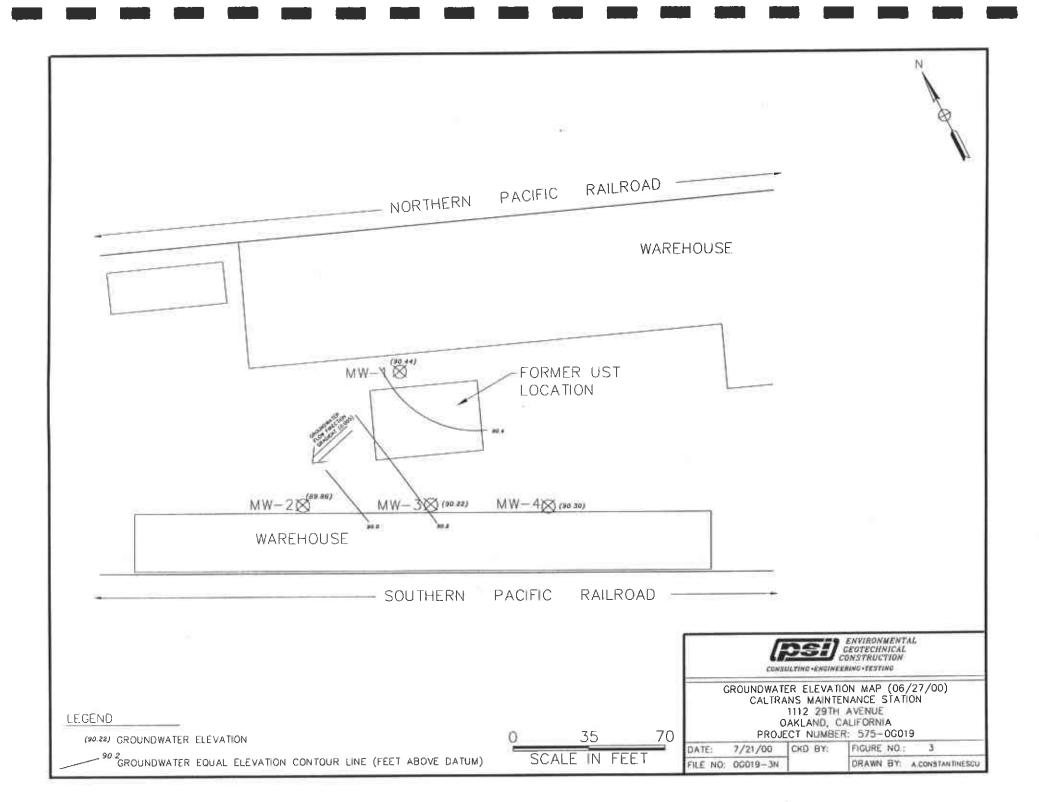
Based on the information presented in this report, the following conclusions have been reached:

- 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.







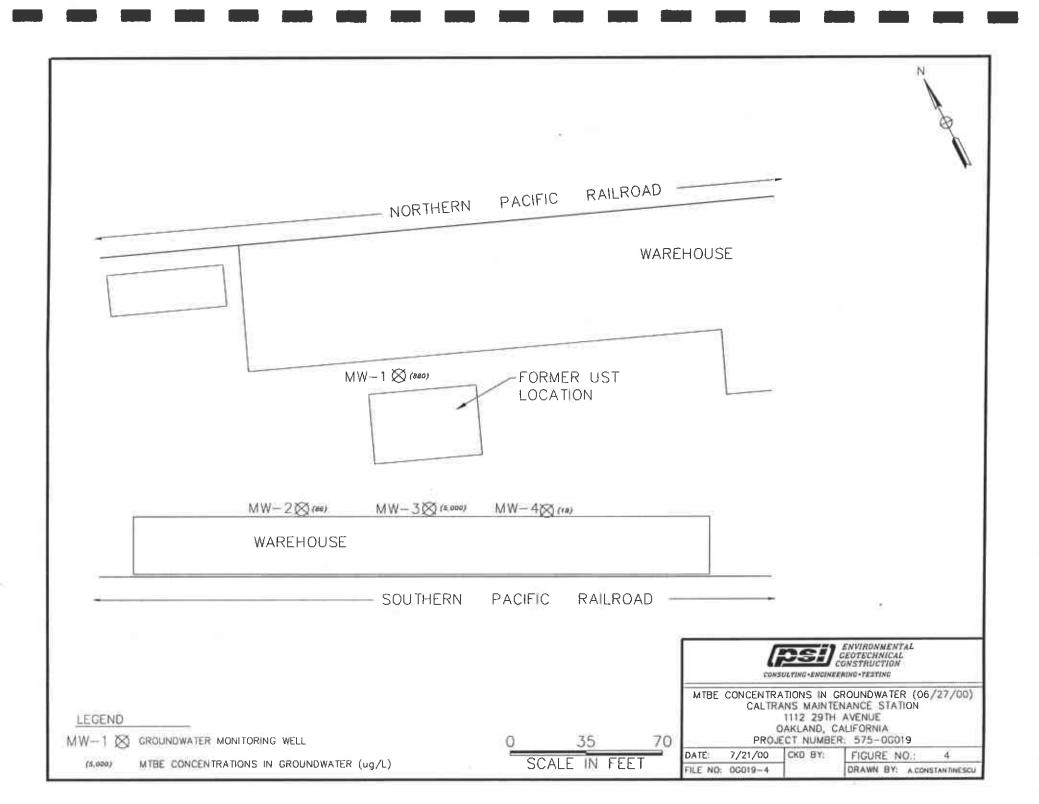


TABLE 1

## 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)	pН
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	223	ND			
B2-5	<0.5	===	ND			
B2-10	<0.5		ND			
B2-15	<0.5	22	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	Habii	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	200	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

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## ALAMEDA COUNTY PUBLIC WORKS AGENCY

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

DRILLING PERM	MIT APPLICATION
FOR APPLICANT TO COMPLETE	FOR OFFICE USE PERMIT NUMBER W00 - 292
PCATION OF PROJECT 1112 29th AVENUE	PERMITNUMBER VVOU ZOZ
(CALTERNS MAINTENANCE STATION)	WELL NUMBER
[CHCIERD   HULTOLENANCE STATION]	V <sub>2</sub> N
nilfornis Coordinates Source (1. Accuracy ± ft.	PERMIT CONDITIONS  Circled Permit Requirements Apply
LIENT	A GENERAL
ame CALTRANS	(1.) A permit application should be submitted so as to arrive at the ACPWA office five days prior to
in OACLANO, CA Zip 94623	proposed starting date.  Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-
PPLICANT	-Well Completion Report.
Ime 751 Fex 510-755-1192	3. Permit is void if project not begun within 90 days of
ddress 13 20 W. WENTON AVE Phone Sio -745-111 IL	Spproval date B. WATER SUPPLY WELLS
IN HAYWARD, C4 ZIP 94545	1. Minimum surface seal thickness is two inches of
	coment grout placed by tremie.
YPE OF PROJECT	2. Minimum seal depth is SO feet for municipal and
Well Construction George Investigation	Industrial wells or 20 feet for domestic and irrigation
Cathodic Protection () General ()	wells unless a lesser depth is specially approved.
Water Supply C Contamination C	C. CROUNDWATER MONITORING WELLS .
Monitoring   Well Destruction G	INCLUDING PIEZOMETERS
ROPOSED WATER SUPPLY WELL USE	1. Minimum surface seal thickness is two inches of
New Domestic O Replacement Domestic G	coment grout placed by tremic.
Municipal O Intigation C	2. Minimum seal depth for monitoring wells is the
Industrial D Other O	maximum depth practicable or 20 feet.
	D. GEOTECHNICAL.  Backfill bore hale by tremie with cement grout or cement
RILLING METHOD:	groups and mixture. Upper two-three feet replaced in kind
Mud Rossey 🗆 Air Rollwy (T Auger 🌻	or with compacted cuttings.
Cable 0 Other 0	E. CATHODIC
RILLER'S LICENSENO. CS7 - 720964	Fill hale anode zone with concrete placed by tremie.  F. WELL DESTRUCTION
Drill Hole Diameter 1 in Maximum Caping Diameter 1 in Depth 20 ft	Send a map of work site. A separate permit is required for wells deeper than 45 feet.  G. SPECIAL CONDITIONS
Casing Diameter 1 in Depth 10 ft. Surface Seal Depth 25 ft. Number 4	
Solitate Sell Belgin	NOTE: One application must be submitted for each well or wall
EOTECHNICAL PROJECTS	destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.
Number of Borings Maximum  Hole Diameter in. Depth 1.	for geoleginical and contamination investigations.
Hale Diameterin. Deptha.	Monitoring Well#1
STIMATED STARTING DATE 6/6/00	Lower Down 6-1-00
hereby agree to comply with all requirements of this permit and clameds County Ordinance No. 73-68	APPROVED DATE OF THE DATE OF T

RIS MERRITT DATE 5 26 00

APPLICANT'S

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## ALAMEDA COUNTY PUBLIC WORKS AGENCY

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

DRILLING PERA	IIT APPLICATION
FOR APPLICANT TO COMPLETE	for office use
and the second of the second	PERMIT NUMBER W00-293
LOCATION OF PROJECT 1112 29th AVENUE	PERMIT NUMBER VAOO ZII
(CALTERNS MAINTENANCE STATION)	WELL NUMBERAPN
I Willeday Indianon des 214 min	UCI.
California Coordinates Source	PERMIT CONDITIONS Circled Permit Requirements Apply
	() anyone
CLIENT	( ) GENERAL  ( ) A permit application should be submitted so as to
AME CALTEANS	arrive at the ACPWA office five days prior to
Sdress 111 GRAND AVENUE Phone SIV 286-6117	proposed starting date
City DACLAND, CA Zip 94623	Submit to ACPWA within 60 days after campiction of
	permitted original Department of Water Resources.
PPLICANT	-Well Completion Report.
ame POT	(3) Permit is void if project not begun within 90 days of
Address 1320 W. WINTON AVE Phone 510 -785-1111	approval date
CY HAYWARD CA 210 94545	B. WATER SUPPLY WELLS
7 1131313	1. Minimum surface seal thickness is two inches of
ype of project	cement grout placed by tremic.  2. Minimum seal depth is 50 feet for municipal and
Well Construction Georgehaical Investigation	Industrial wells or 20 feet for domestic and irrigation
Cathodic Protection D General D	wells unless a lesser depth is specially approved.
Water Supply D Contamination Q	C. CROUNDWATER MONITORING WELLS
Manitoring B Well Destruction C	INCLUDING PIEZOMETERS
	1. Minimum surface seal thickness is two inches of
ROPOSED WATER SUPPLY WELL USE	coment grout placed by tremie.
New Domestic U Replacement Domestic B	2.Minimum scal depth for monitoring wells is the
Municipal O (migation O	maximum depth practicable or 20 feet.
Industrial C Other C	D. GEOTECHNICAL
	Backfill bore hole by tremie with cement grout or cement
RILLING METHOD:	groupsand mixture. Upper two-three feet replaced in kind
Mud Rotary O Air Rotary C Auger	or with compacted cultings
Cable O Other D	E. CATHODIC
MILLER'S LICENSE NO. CS7 - 720904	Fill hole anode zone with concrete placed by tremic.
HILLER'S CICENSE NO.	F. WELL DESTRUCTION
WELL PROJECTS	Send a map of work site. A separate permit is required
Drill Hole Diameterin. Maximum	for wells deeper than 45 feet.
Casing Diameter 2 in Depth ^20 ft	G. SPECIAL CONDITIONS
Surface Seal Depth ~ 5 N. Number 4	NOTE: One application must be submitted for each well or well
Total Court of DRA MATA	destruction. Multiple borings on one application are accupied e
EOTECHNICAL PROJECTS  Number of Borings  Maximum	for geotechnical and contamination investigations
Number of Barings Maximum Hole Diameter in Depth C.	Monitoring Well#2
110	manting men 2
ESTIMATED STARTING DATE 6/8/00	1 2 2
STIMATED COMPLETION DATE 68 00	D 1 M 10
	FORMATI VILLI 1100
	APPROVED MINING WOR DATES YOU
hereby agree to comply with all requirements of this permit and	ALL ROTTES
Ismeda County Ordinance No. 73-68	

RIS MERRIT DATE 5 26 00

APPLICANT'S

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P.02/03



## 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	for office use
CATION OF PROJECT 1112 29th MENUE	PERMIT NUMBER W00-294
ORKLAND . CA.	PERMIT NUMBER 1100 Z 11
(CALTRANS MAINTENANCE STATION)	WELL NUMBER
	D4 IT
ilomia Coordinates Soughe / / A. Accaracy = /n.	PERMIT CONDITIONS
y / NCCE / In.	Circled Permit Requirements Apply
	_
. , , , ,	(A) GENERAL
ENT ne CALTRANS	A permit application should be submitted so as to
tress 11 GRAND AVENUE Phone SIV 246-6117	arrive at the ACPWA office five days prior to
OACLANO CA ZIP 94623	proposed starting date.
	2.) Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-
PLICANT	Well Completion Report.
ne PSI	3 Permit is void if project not begun within 90 days of
Fux 510-785-1192	approval date
Hayward C4 Zip 94545	B. WATER SUPPLY WELLS
ARIGHEDICT 25 13313	1. Minimum surface seal thickness is two inches of
PE OF PROJECT	cement grout placed by tremis.
ell Construction Geotechnical Investigation	2. Minimum seal depth is 50 feet for municipal and
Eathodic Protection O General O	Industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved
Water Supply D Contamination Q	C. GROUNDWATER MONITORING WELLS
Manitoring Well Destruction G	INCLUDING PIEZOMETERS
	1. Minimum surface seal thickness is two inches of
oposed water supply well use	coment grout placed by fremie.
New Domestic C Replacement Domestic C	2.Minimum scal depth for monitoring wells is the
Municipal D Irrigation C	maximum depth practicable or 20 feet.
Industrial Other C	D. GEOTECHNICAL
HLLING METHOD:	Backfill bore hole by tremie with centent grout or cemt
Mud Rosary Q Air Rosary (1 Auger #	group/sand mixture. Upper two-three (cet replaced in ki
Cable C Other C	or with compacted cultings
· · · · · · · · · · · · · · · · · · ·	E. CATHODIC
ILLER'S LICENSE NO. C57 - 720904	Fill hole anode zone with concrete placed by tremte.
	F. WELL DESTRUCTION
ELL PROJECTS	Send a map of work site A suparate permit is required
Drill Hole Diameterin. Maximum	for wells deeper than 45 feet.  G. SPECIAL CONDITIONS
Casing Diameter 2 in. Depth ~20 it.	G. STECIAL COMMITTERS
Surface Seal Depth ~5 ft. Number 4	NOTE: One application must be submitted for each well or well
OTECHNICAL PROJECTS	destruction. Multiple borings on one application are acceptable
Number of Borings Maximum	for geotechnical and contamination investigations.
Hole Diameter in. Depth ft.	Monitaring Well#3
2/T W	בייושיון עווישדונישיין
TIMATED STARTING DATE 6800	7.27°
TIMATED COMPLETION DATE 6/8/00	10 1 1011
	The Haylould ( )
creby agree to comply with all requirements of this permit and	APPROVED LINEO DATE 67
lereby agree to comply with all requirements of this permit and	

CHRIS MERRIT DATE 5 ZE OC

APPLICANT'S

GNATURE\_

JUN 01 2000 09:31 FR PSI HAYWARD

5107951192 TO 5705262





## ALAMEDA COUNTY PUBLIC WORKS AGENCY

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

				DRILLING
		_	TO COMPLE	
LOCATION OF PR	OJECT_1	112 29 AKLAN	AVENUE	E
1 CALTRAN			CE STATE	(64
California Coordina	ANS	_n/cce	<i>F</i>	fracy ±_ft.
dress III G	ANO C		Zip 94 k	286-6117
PLICANT me PSI				785-1192
Address 1320 t	J. U=NT	OH AVE	Phone 500	-725-1111L
CTY HAYWA	20,04		Zip 945	45
YPE OF PROJE Well Construction Cathodic Protec Water Supply Monstoring		G G B	icatechnical Inv General Contamination Well Destructi	<u>a</u>
OPOSED WAT New Damestic Municipal Indusmal			ement Domestic	. O C
RILLING METH Mud Resery Cable	H <b>OD</b> : 0	Air Rotar Other	۵	Auger
LILLER'S LICE	NSE NO.	<u>C21</u>	- 7200	104
WELL PROJECT Drill Hole Diam Casing Diamete Surface Scal De	eter 4	in. In.	Maximum Depth <u>~2</u> Number	71
Number of Bori Hale Dismeter	ngs	(n.	Maximum Ocpit	<u> </u>
TIMATED STA	RTING DA	TE C	6 8 00	

AND THE THE PARTY OF THE PARTY
PERMIT APPLICATION
TOR APPLEY HES
FOR OFFICE USE
PERMIT NUMBER WOO - 295
WELLNUMBER
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 vaid if project not begun within 90 days of
approval date
B. WATER SUPPLY WELLS
<ol> <li>Minimum surface seal thickness is two inches of coment grout placed by tremic.</li> </ol>
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.)CROUNDWATER MONITORING WELLS
INCLUDING PIEZOMETERS
t. Minimum surface seat thickness is two inches of
coment grout placed by tremic.
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 element
grout/sand mixture. Upper two-three feet replaced in kind
or with compacted cuttings.
E. CATHODIC
Fill hole anade zone with concrete placed by transe.
F. WELL DESTRUCTION  Send a map of work site. A separate permit is required
for wells deeper than 45 (cet.
G. SPECIAL CONDITIONS
NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptual.
for geolechnical and continuination investigations.
Mailaina 11/2/1#61
Monitoring Well#4
J
1 1.10000
APPROVED Transaction DATES 1-00
APPROVED NUMBER DATIO

ameda County Ordinance No. 73-68

APPLICANT'S

I hereby agree to comply with all requirements of this permit and

ENCROACHMEN TR-0120	T PERMIT	NSPORTATION	Permit 1					
In compliance with (Ch	eck one):		0400-NSV-1221 Dist/Co/Rte/PM 04-Ala-880-28.68					
Your application of	f April 25, 2000		Date May 1		i i			
Utility Notice No.		of	Fee Paid	1	Deposit \$			
Agreement No.		of	Perform	ance Bond Amount (1)	Payment Bond Amount (2)			
R/W Contract No.		of	Bond C	ompany				
			Bond N	umber (1)	Bond Number (2)			
	) W. Winton Avenue ward, CA 94545	, 7						
Attn:	Frank Poss e: (510) 785-1111		PERMI	TTEE				
Drill and install four	r (4) temporary mon South Oakland Mai	HEREBY GRANTED to: nitoring wells for Enviro ntenance Station at 111	nmenta 2, 29 <sup>th</sup> A	I Investigation per Avenue, east of St	r Caltrans project EA ate Highway 04-Ala-			
operations, public s	afety, and traffic con	this permit, notice shall but obtained from the shall be obtained from 510-614-5951, weekday.	om Stat	te Representative	of construction details, N. Freitag, 600 4:00 PM.			
Immediately follow Notice of completion	wing completion of on attached to this	the work permitted he permit.	rein, th	e permittee shal	l fill out and mail the			
All personnel shall	wear hard hats and c	orange vests, shirts, or ja	ickets as	s appropriate.				
The following attachments	s are also included as part o	of this permit (Check applicable	?):	In addition to fee, the	permittee will be billed actual			
Yes No	General Provisions Utility Maintenance Provis Special Previsions A Cal-OSHA permit requin #	sions red prior to beginning work:		Yes No	Review Inspection Field Work  rans effort expended)			
Yes No	The information in the env	rironmental documentation has l	been revie					
This permit is to be strictly	the work is completed before y construed and no other we commenced until all other to	ore December 31, 2000 york other than specifically men necessary permits and environm	tioned is h	nereby authorized.	ned.			
		APPRO	VED:	HATA, District Dire				
		G. J. B.	VWVI ATTAGI	LINI, District Permi	t Engineer			
		Page 1 of 2		/ 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)

- 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.
- DENIAL FOR NONPAYMENT OF FEES: Failure to pay permit fees when due can result in rejection of future applications and denial of permits.
- ASSIGNMENT: No party other than the permittee or permittee's authorized agent is allowed to work under this permit.
- 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 WORE: 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."
- 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.
- 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 permitnee 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.
- 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.).
- 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.
- ACTUAL COST BILLING: When specified in the permit, the Department will bill the permittee actual costs at the currently set bourly 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.
  - 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.
- 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
  - 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).

- Handling of the samples will be recorded on a chain of custody form which shall include:
  - 1. Project name
  - 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:

- 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 ziplock 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** 

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						PROJECT NAME PROJECT NUM		ANS SOL	TH OAK		0.00100	
4						PROJECT NUM	BER: 0G019			DATE:	6/8/00	
						DRILLING COM	PANY:	V&W				
						DRILLING METH		HSA				
1						BORING DIAME	TER:	8 INCHE	S	DEPTH:		
								SROUND	WATER	LEVELS		
						DA	TE		COMM	ENTS	DEP	TH BGS
						6/8/00		INITIAL (	GROUNI	OWATER	-1	5 FEET
			_									
DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DE	SCRIPTION		PID (PPM)	uscs	1		
										4 inches Asphalt		
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				_	to coarse sand and silt, mot	tied dark brown to bi	ack, damp.					
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5—			en Ene									
	B1-5.0		MIE.	8	Clayey Sand: Poorly grade	d fine sand with clay,	brown, damp.		sc			
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	B1-15.0		11/10	4	Sandy Clay: Poorly graded with saturated voids and ch		orown, damp			Approximate firs	water by viod	contents.
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Review	ed By:						LOGGED BY:	CHRIS I	MERRIT	Т		

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Review	red By:	3				LOG	GED BY:	CHRIS	MERRIT	Τ			

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DATE: 6/	8/00	PPA	JECT NAME:	3807	were erecentien	VI : 0.5 90 VV	PERMIT NO:	
		_			TRANS SOUTH		PROJECT NO: 0G019	
WELL SITE	LOCATION	IPLAN:		SEC	TWN:	RGE:	LAT: LC	ONG:
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			TOC ABO		CASING TYPE	■ BVC □	STAINLESS TEFLON	OTHER
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-	1		N/A F	- 11				_
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В.	ACKFILL		Η,	N.	METHOD:	☐ AIR ROTA	ARY DIRECT PUSH	HAND AUG
	60 cm		2 0 cm			2 4	6" 8" 12" [	OTHERI
2	. 0 FT.	1 1	CASING		DRILLING MUD:	■ NONE  OTHER	☐ WATER ☐ BE	NTONITE
70741	CEMENT		DIAMETE	R	CENTRALIZER:		■ NO	
TOTAL B	GROUT	4	5 c	200	COMPLETION:	FLUSH M	OUNT STICKUP	☐ RISER BOX
24622,5300,00	LICA SAND	1 1	SCH. 4.0	PVC	LOCK TYPE:	DOLPHIN OTHER	MASTER KEY	NO.
TOC	OTHER				PAD:		□ 4'X4' □ OTHER	
7. 6 m	1				CUTTINGS:	■ DRUMME	D NUMBER OF DRUMS	2
5 FT.	4				00,111100.	SPREAD		
	SEAL 30 cm	_	BENTONITE MASONRY SA	ND	DEVELOPMENT	NONE	■ BAILING □ PUMPIN	IG AIRLIFT
1	. 0 FT.		OTHER		METHOD:		BLOCK OTHER	
	1	8 8			AMOUNT	5 GAL	10 GAL OTHE	ER GAL
	FILTER		•	- 1	WATER BEFORE: WATER AFTER:		TURBID OPAC	
	PACK	#≣#	WELL		EVIDENT ODOR:	= _	NO TYPE	
5.50	. 6 m		LENGT	200	DEVELOPMENT	■ DRUMME	D NUMBER OF DRUMS	_1
	TYPE	ã≡ã	2 0	FT.	WATER:	SPREAD	☐ TREATED ☐ PC	OTWOTHE
,43	JAKU .		6, 1	4	WATER LEVEL:	INITIAL 2	13 FT BTOC	BGS
+	<b>.</b>	₹.		===	DATE:	6/27	9,13	FT BELOW TOC
	OVER		_	-	DATE:			FT BELOW TOC
	DRILL		WELL SUM					
	N/A FT.		5 63 5		NOTES: (D	eaukide ALL NO	N-STANDARD METHODS & MA	IERIALS)
•	ROSS OUT IF T DRILLED)			IN.				
						A 1	75.75.15.15.74.75.25.20.00 × 1.57.00	
				PRE	PARED BY:	CHRIS 1	MELRITT	

IL B	O	RI	NC	LOG				BORING NO:	B2\N	/W2
					1			SHEET 1	OF	1
					PROJECT NAME: CAL	TRANS SOL				
					PROJECT NUMBER: 0G0			DATE:	6/8/00	
					NORTHINGS:	1.0		EASTINGS:	0/0/00	
						V&W		EASTINGS:		
					DRILLING COMPANY:					
					DRILLING METHOD:	HSA				
					BORING DIAMETER:	8 INCHE		DEPTH:	20 FEET	
						GROUND	The Aller De State		p-	
					DATE		COMM	ENTS	DEP	TH BGS
					6/8/00	INITIAL	WATER		13	FEET
SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DE	SCRIPTION	PID (PPM)	uscs	F	EMARKS	
_								4 inches asphalt.		
-				Silty Sandy Gravel: Well or	aded fine to coarse gravel with fine	0	GM			
				TO THE REAL PROPERTY OF THE PARTY OF THE PAR	ttled dark brown to black, damp.					
-							1			
_							1			
							1			
							]			
	35					L	1			
82-5.0		10.00	6	Clayey Sand: Poorty grade	d fine sand with clay, brown, damp		SC	Trace fine gravel.	H2114-15-73 (425-41))	ACT CONTRACTOR
		ш	7				1			
_   _		ш	12				1			
-		1	_				-			
-1 1			-				4			
-1 1		1	-				-			
-1 (		1	-				-			
-		1	-				+			
_		es la	9	Church Silly Soody Boody	graded fine sand with silt and clay.	+	SM			
82-10.0		FF	14	mottled brown, damp.	graded lifte sand with sin and day.	_	- SM			
-		ш	17	motised brown, damp.		_	-			
- 1		-	1			_	1			
-1 1		1				_	1			
-1		1				-10	1			
-1 1		1					7	First water.		
		1								
71 1		1								
							1			
_		1.00	8	Clay: Brown, damp.						
_			14				4			
		Ш	18				4			
-1							- /	Lost sampler, over		feet.
			-				- /	Total depth 20 fee		
		1	_	-			- /	Screened 20-5 fe	er.	
		1					- /	Sand 20-3 feet.		
			-					China 2 C front		
							//	Chips 3-2 feet		
			E				/	Chips 3-2 feet Grout/Box 2-0 fee	it.	
							/		ot.	

MONI	TORING V	WELL CONSTR	RUCTION DATA	4	WELL/BORING NO:	B2\MW2
					PERMIT NO:	
DATE:		PROJECT NAME:	CALIRANS SOUTH		PROJECT NO: 0G019	
VELL SI	TE LOCATION	PLAN:	SEC: TWN:	RGE:	LAT: LC	ONG:
			DRILLING CO: V &	W DRILLING		
			DRILL CREW:			
			WELL TYPE:	SHALLOW	SINGLE CASED	MONITORING
					TE OOUBLE CASED	
	WELL OF	151.20	☐ TEMPORARY		OTHER	OTHER
	WELL SCI	HEMATIC		INSTA	LLATION DATA	
_		TT1	DECON.		EAN HIGH PRESSUR	RE WASH
T		TOC ABOV	VE]	SOAP WA	SH OTHER	
		GROUND			STAINLESS TEFLON	
		RISER BO OR STICK		SCREWE	ID □WELDED □CO D □OTHER	DUPLED
		1: 1:000 E		YES T	NO DESCRIBE	
		<b>T</b>	WELL SCREEN:	PVC [	STAINLESS TEFLON	N □OTHER
Î	1 1111		DIAMETER:	2" [	4"	IN
		BOREHO		0.010	10.020 LJOINER	IN
	ANNULAR BACKFILL	DIAMETE			EM HOLLOW STEM RY DIRECT PUSH	
		8 11	N.	OTHER		_
	60 cm 2 . 0 FT.	2 0 cm.	BIT SIZE: DRILLING MUD:		6" <b>68</b> 8" □ 12"   □ WATER □ BE	
	1	CASING		OTHER		EN I CINITE
OTAL	CEMENT	DIAMETE	4 4	YES	MO NO	
WELL	GROUT□	2 11	N.     COMPLETION:		OUNT STICKUP	RISER BO
FROM	SILICA SAND□	SCH. 40	PVC LOCK TYPE:	DOLPHIN OTHER	MASTER KEY	NO
TOC	OTHER [		PAD:		4'X4' OTHER	
6 m			CUTTINGS:	■ DRUMME	D NUMBER OF DRUMS	(
OFT.	A			SPREAD		
	SEAL 30 cm	BENTONITE  MASONRY SAI	ND DEVELOPMENT	NONE	BAILING PUMPIN	NG MAIRLIF
	1. 0 FT.	OTHER	METHOD:	SURGE &	BLOCK OTHER	
			AMOUNT	10 MIN 5 GAL	☐ 20 MIN ☐ OTHI	
	FILTER		WATER BEFORE	= -	TURBID OPA	
	PACK	WELL	WATER AFTER: EVIDENT ODOR:		TURBIÐ TOPAI	QUE CLE
	1 7 . FT.	SCREEN LENGTH		■ DRUMME	D NUMBER OF DRUMS	1
	TYPE		DEVELOPMENT WATER:		TREATED P	
	#3 SAND	1 5	WATER LEVEL:	INITIAL ~	(3 FT ☐ BTOC	BGS
		<b>I</b>		_		
*	_ *		DATE	6/27/6	9,03	FT BELOW TOO
	OVER DRILL	WELL SUN	DATE.			FT BELOW TOO
	N/A FT.	□ YES ■	COSC III	ESCRIBE ALL NO	N-STANDARD METHODS & MA	TERIALS)
	(CROSS OUT IF		IN.			
	NOT DRILLED)					
-	•					
			PREPARED BY:	140-6 1	MERRITT	

10	L B	OI	RII	NC	LOG					BORING	NO:	B3-M	IW3
_		_		_		1				SHEET	1	OF	1
						PROJECT NAME	E. CALTR	ANS SOU				OF .	_'
						PROJECT NUM		A143 300		DATE:		6/8/00	
						NORTHINGS:	DLIV, UGUIS			EASTING:		0/0/00	
						DRILLING COM	PANY.	V&W		LASTING	٥.		
						DRILLING METH		HSA					
						BORING DIAME		8 INCHE	S	DEPTH:		0 FEET	
							Part No.	GROUND		_		.01661	
						DA			СОММ			DEPT	TH BGS
						6/8/00		INITIAL V					FEET
Ī.,													
<b>DEPTH</b> (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DE	SCRIPTION		PID (PPM)	uscs		RE	EMARKS	
										4 inches as	phait.		
					Silty Sandy Gravel: Well gi			0	GM				
_				_	to coarse sand and silt, mo	ttled dark brown to b	lack, damp.						
2 —				-									
				_									
<b>3</b> —	AC-198	i) v	-						-==-				
_ —	83-5.0			7	Clayey Sand: Poorly grade	ed fine sand with clay	, brown, damp	0	sc	Trace fine g	ravel.		
			Ш	12					1				
7 —													
									1				
_				_									
				-					-				
9 —								-	1				
	93-10.0			9	Sandy Clay: Clay with poo	rly graded fine sand,	brown, damp.		CL				
11 —				12									
_				12									
<b></b>									1		_		
_									1				
13 —										First water			
<b>.</b> _													
_				_	-			-	-				
<b>5</b> —	83-15.0			10	Sandy Clay: As above , lig	tht oray			1				
	92-199			16	Danay Clay, As above , iig	in gray			1				
18 —				18					1				
7													
F				-					/	Total depth			
18				-	4			-	1	Screened 2 Sand 20-3		-	
_									/	Chips 3-2 f			
9 —				9					1/	Grout/Box 2			
20 —				15					/				
	B1-20.0		1_	25					L				
							LOGGED BY:	CHRIS	MERRITT				

DATE: 6/8/00   PROJECT NAME:   CALTRANS SOUTH OAKLAND   PROJECT NO: 06019	ONITORING V	WELL CONSTI	RUCTION DATA	(m)	WELL/BORING NO:	B3\MW3
SEC: TWN: RGE: LAT: LONG:    DRILLING CO: V & W DRILLING	www. games	nne many is a series	77) 4 ( - 1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1,-1		PERMIT NO:	
DRILLING CO: V & W DRILLING  DRILL CREW:  WELL TYPE: SHALLOW SINGLE CASED MONITOR  PERMANENT INTERMEDIATE DOUBLE CASED RECON  TEMPORARY DEEP OTHER OTH  INSTALLATION DATA  DECON. STEAM CLEAN HIGH PRESSURE WASH SOAP WASH OTHER  FINSER BOX OR STICKUP NA M. NA FT.  BOREHOLE DIAMETER BACKFILL BOTH BACKFILL BOTH BOREHOLE DIAMETER SOCIOTHER  BOREHOLE DIAMETER BOROHOLE DIAMETER			CALIRANS SOUTH			
DRILL CREW:  WELL TYPE: SHALLOW SINGLE CASED MONITOR  DEPRIMAMENT INTERMEDIATE DOUBLE CASED RECON  TEMPORARY DEEP OTHER OTHER  OTHER  TOC ABOVE GROUND IF RISER BOX OR STICKUP NA M. NA FT.  WELL SCHEMATIC  WELL SCHEMATIC  WELL SCHEMATIC  DECON. STEAM CLEAN HIGH PRESSURE WASH SOAP WASH OTHER  PVC STAINLESS TEFLON COUPLED  DIAMETER: 27 4" GF OTHER  BOREHOLE DIAMETER: 27 4" GF OTHER  BOREHOLE DIAMETER: 27 4" GF OTHER  BOREHOLE DIAMETER: 27 4" GF ST OTHER  BOTHER  SOOT 2 0 FT.  CASING DIAMETER: 27 4" GF ST OTHER  BOTHER  SOOT 2 IN. SCH. 4 0 PVD COTHER  SOOTHER  SOOTHER	LL SITE LOCATION	ON PLAN:	SEC: TWN:	RGE:	LAT: LC	ONG:
WELL TYPE: SHALLOW SINGLE CASED MONITOR PERMANENT INTERMEDIATE DOUBLE CASED RECON TEMPORARY DEEP OTHER OTHER OTHER OTHER OTHER OTHER  WELL SCHEMATIC  WELL SCHEMATIC  TOC ABOVE GROUND IF RISER BOX OR STICKUP NIA M. NIA FT.  OR STICKUP NIA M. NIA FT.  BOREHOLE DIAMETER BACKFILL BENTONITE  BOREHOLE DIAMETER BOX OTHER BENTONITE  BOREHOLE DIAMETER BOX OTHER BENTONITE  SO om 2.0 FT. CASING DIAMETER BENTONITE  BOREHOLE DIAMETER BOX OTHER BENTONITE  BOREHOLE DIAMETER BOX OTHER BENTONITE  BOREHOLE DIAMETER BOX OTHER BENTONITE  BOREHOLE DIAMETER ST.			DRILLING CO: V &	W DRILLING	E .	
WELL SCHEMATIC    TEMPORARY   DEEP			DRILL CREW:			
WELL SCHEMATIC    TEMPORARY   DEEP			WELL TYPE:	SHALLOW	SINGLE CASED	MONITORING
WELL SCHEMATIC  INSTALLATION DATA  DECON. STEAM CLEAN   HIGH PRESSURE WASH   OTHER SOAP WASH   OTHER   OTHER  CASING TYPE: STANLESS   TEFLON   COMPLETION: SCREWED   OTHER   OTHER PIT CASING; YES NO   DESCRIBE   OTHER   OTH			1			
DECON.   STEMM CLEAN   GROWASH   OTHER	WELLSC	CUEMATIC	LI TEMPORARY			LI OTHER
TOTAL BORNOLD IF RISER BOX OR STICKUP NA M. M. A FT.  BOREHOLE DIAMETER BACKFILL  BOREHOLE DIAMETER BENTONITE DIAMETER BENTONITE DATE BALLING DATE BENTONITE DATE BALLING DATE	WELL 301	OHEMATIO		INSTA	CLATION DATA	
TOC ABOVE GROUND IF RISER BOX OR STICKUP NA M.			DECON			E WASH
RISER BOX OR STICKUP NAM M. NAM FT.  RISER BOX OR SCREWED OTHER  SCREWED OTHER  PVC STAINLESS SETEFLON OF OTHER SLOT OF OTHER  PVC STAINLESS SETEFLON OF OTHER SLOT OF OTHER SLOT OF OTHER  RISER BOX OR SCREWED OTHER  PVC STAINLESS SETEFLON OF OTHER SLOT		TOC ABO		_		
OR STICKUP N/A M. N/A FT  OR STICKUP PIT CASING SCREWED   OTHER PYES NO   DESCRIBE  PVC   STAINLESS   TEFLON   COMPLET  OR OTHER  PAGE   OTHER  PVC   STAINLESS   TEFLON   COMPLET  OTHER  PAGE   OTHER   MUIL  OTHER   OTHER   MUIL  OTHER   OTHER   OTHER  OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER   OTHER    OTHER    OTHER   OTHER    OTHER						
WELL SCREEN: PVC STAINLESS TEFLON OF DIAMETER: 2 4 6 OTHER SLOT: 0.010 0.020 OTHER III  BOREHOLE DIAMETER BACKFILL 80 cm 2		1 1 1	KUP	SCREWE	D OTHER	
WELL SCREEN: DIAMETER: DIA		3 1 1 3		L YES	NO DESCRIBE	
BOREHOLE DIAMETER BACKFILL BOOM 2			WELL SCREEN:	PVC [	STAINLESS TEFLO	V □ OTHER
DRILLING SOLID STEM HOLLOW STEM METHOD:  DIAMETER  BACKFILL  BALLING  BALLIN  BALLING  BAL	7 ====	TT     TT	DIAMETER: SLOT:	0.010	]4" ∐6" ∐OTHER ∎0.020 ∏OTHER	IN
BACKFILL  8 IN.  80 cm 2 O FT.  CASING DIAMETER  5 cm. 2 IN.  COMPLETION: BENTONITE BENTONITE BENTONITE GROUT TOC  TOC  TOC  TOC  TOC  TOC  TOC  T			DLE			
BIT SIZE: 2" 4" 6" 8" 12" OTHER  2 0 FT.  CASING DIAMETER SENTONITE: GROUT: SILICA SAND: NATIVE SOIL: OTHER: DOLPHIN MASTER KEY NO.  OTHER: OTHER: OTHER: DOLPHIN MASTER KEY NO.  OTHER: OTHER: OTHER: DOLPHIN MASTER KEY NO.  OTHER: OTHER: DOLPHIN MASTER KE		DIAMETE				
DRILLING MUD: NONE WATER BENTONITE OTAL BENTONITE GROUT GROU	00	100 100 100 100 100 100 100 100 100 100			- Cer - 01 C401	Clorusp
OTAL BENTONITE   GROUT   SILICA SAND   SCH. 4 0 PV   COMPLETION:   FLUSH MOUNT   STICKUP   RIS   COMPLETION:   SILICA SAND   OTHER   O	1 1 1 1 1	Fig. 101	DRILLING MUD:	NONE	WATER □BI	ENTONITE
DOTAL  BENTONITE   GROUT   STICKUP   RIS  COMPLETION:   FLUSH MOUNT   STICKUP   RIS  COMPLETION:   DOLPHIN   MASTER KEY NO.    OTHER   OTHER    OFT   OTHER   OTHER    DEVELOPMENT   NONE   BAILING   PUMPING   AMOUNT   STICKUP   RIS  CUTTINGS:   DRUMMED   NUMBER OF DRUMS    SPREAD   OTHER    DEVELOPMENT   NONE   BAILING   PUMPING   AMOUNT   STICKUP   RIS  CUTTINGS:   DRUMMED   NUMBER OF DRUMS    SPREAD   OTHER    MASONRY SAND   OTHER    MATER BEFORE:   SULTY   STURBID   OPAQUE    WATER AFTER:   SILTY   TURBID   OPAQUE    WATER AFTER:   SPREAD   TREATED   POTW    WATER LEVEL:   INITIAL   (2.5 FT   BTOC   BGS    DATE:   GESCRIBE ALL NON-STANDARD METHODS & MATERIALS)		E00080760	37	=	- NO	
SCH. 4 0 PVC  SCH. 4 0 PVC  OTHER  OTHER  OTHER  CUTTINGS: DRUMMED NUMBER OF DRUMS SPREAD OTHER  CUTTINGS: DRUMMED NUMBER OF DRUMS SPREAD OTHER  DEVELOPMENT NONE BAILING PUMPING AMOUNT SURGE & BLOCK OTHER  TIME: 10 MIN 20 MIN OTHER  AMOUNT 5 GAL TURBID OPAQUE EVIDENT ODOR: SILTY TURBID OPAQUE EVIDENT ODOR: SPREAD TREATED POTW  WATER AFTER: SILTY TURBID OPAQUE EVIDENT ODOR: SPREAD TREATED POTW  WATER LEVEL: INITIAL (2.5 FT BELO  DATE: FT BELO  NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	tion to the same of the same o	1.77		L TES	■ NO	
TOC OTHER OT	35000					
CUTTINGS: DRUMMED NUMBER OF DRUMS  SPREAD OTHER  BENTONITE  MASONRY SAND OTHER  DEVELOPMENT NONE BAILING PUMPING A  METHOD: SURGE & BLOCK OTHER  TIME: 10 MIN 20 MIN OTHER  AMOUNT 5 GAL 10 GAL OTHER  WATER BEFORE: SILTY TURBID OPAQUE  WATER AFTER: SILTY TURBID OPAQUE  EVIDENT ODOR: YES NO TYPE  WATER LEVEL: INITIAL (2.5 FT BETOC BGS  DATE: 6 27 00 & 76 FT BELO  NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	1200000			□ OTHER		
SEAL 30 cm 1. 0 FT.  DEVELOPMENT NONE BAILING PUMPING AMETHOD: SURGE & BLOCK OTHER TIME: 10 MIN 20 MIN OTHER  AMOUNT 5 GAL 10 GAL OTHER WATER BEFORE: SILTY TURBID OPAQUE EVIDENT ODOR: YES NO TYPE  WATER AFTER: SILTY TURBID OPAQUE EVIDENT ODOR: YES NO TYPE  BEVELOPMENT DRUMMED NUMBER OF DRUMS VATER SPREAD TREATED POTW  WATER LEVEL: INITIAL 2.5 FT BROC BGS  DATE: 6 27 00 8.76 FT BELO  DATE: FT BELO  NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	TOC OTHER		PAD	2'X2'	4'X4' OTHER	
SEAL 30 cm 1. 0 FT.    MASONRY SAND   DEVELOPMENT   NONE   BAILING   PUMPING   A METHOD: SURGE & BLOCK   OTHER			CUTTINGS			
30 cm 1. 0 FT.    MASONRY SAND   DEVELOPMENT   NONE   BAILING   PUMPING   A METHOD: SURGE & BLOCK   OTHER		DRENTONITE		SPREAD	OTHER	
TIME: 10 MIN 20 MIN OTHER  AMOUNT 5 GAL 10 GAL OTHER  WATER BEFORE: SILTY TURBID OPAQUE  WATER AFTER: SILTY TURBID OPAQUE  EVIDENT ODOR: YES NO TYPE  WATER AFTER: SPREAD TREATED POTW  WATER LEVEL: INITIAL (2.5 FT BELO  DATE: 627 00 8.76 FT BELO  NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	30 cm	☐ MASONRY SA	AND DEVELOPMENT	NONE	BAILING PUMPI	NG AIR LIF
AMOUNT   5 GAL   10 GAL   OTHER   WATER BEFORE:   SILTY   TURBID   OPAQUE   WATER AFTER:   SILTY   TURBID   OPAQUE   WATER AFTER:   SILTY   TURBID   OPAQUE   EVIDENT ODOR:   YES   NO TYPE  DEVELOPMENT   DRUMMED   NUMBER OF DRUMS   WATER:   SPREAD   TREATED   POTW   WATER LEVEL:   INITIAL   12.5 FT   BTOC   BGS  DATE:   6 27 00   4.76 FT BELO  NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	1. 0 FT.	LOTHER		_		<del></del>
FILTER PACK  WELL SCREEN LENGTH  TYPE #3 SAND  WELL SCREEN LENGTH  WATER AFTER: SILTY TURBID EVIDENT ODOR: YES NO TYPE  DRUMMED NUMBER OF DRUMS WATER: SPREAD TREATED POTW  WATER LEVEL: INITIAL (2.5 FT BELO  DATE: 6 27 00 4.76 FT BELO  NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	1		AMOUNT	5 GAL	■ 10 GAL ☐ OTH	IERG
PACK  17 FT TYPE #3 SAND  OVER DRILL  WELL SUMP OVER DRILL  NA FT.  WELL SUMP OVES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	FILTER	1 🗎 🗼		_	_	
DEVELOPMENT DRUMMED NUMBER OF DRUMS WATER: SPREAD TREATED POTW WATER: SPREAD TREATED POTW DATE: 62760 876 FT BELO DATE: 62760 8.76 FT BELO NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	W. BERGE 1965	100 - 100 -	EVIDENT ODOR			
WELL SUMP  WELL SUMP  WELL SUMP  WELL SUMP  WELL SUMP  NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	1 7 . FT.			DRUMME	D NUMBER OF DRUMS	s 1
OVER DRILL  WELL SUMP OVES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	U		The second secon	: SPREAD	☐ TREATED ☐ P	TO WTO
OVER DRILL WELL SUMP NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	#3 SAND	XX - 400 (0.00 - 0.00 -	55MHH	: INITIAL "	- (2.5 FT □ BTOC	BGS
OVER DRILL WELL SUMP OVES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	ļ —	` <b> </b>	DATE	6/27/	00 4.76	ET BELOW TO
DRILL  WELL SUMP  □ YES ■ NO  NOTES: (DESCRIBE ALL NON-STANDARD METHODS & MATERIALS)	T OVER 1				7	FT BELOW TO
N/A FT.	C20, 947/00.		MP			-
	N/A FT.	//////	NOTES: (	DESCRIBE ALL NO	ON-STANDARD METHODS & M.	ATERIALS)
	(CROSS OUT IF	F //////	IN.			
NOT DRILLED)	MOI DEFLED					
		5 (1777)				

OI	L B	OI	RII	VC	LOG					BORING NO:	B4\M	W4
										SHEET 1	OF	2
						PROJECT NAME:	CALTR	ANS SOL	TH OAK	LAND		
						PROJECT NUMBER				DATE:	6/8/00	
						DRILLING COMPA	NY:	V&W				
						DRILLING METHO		HSA				
						BORING DIAMETE		8 INCHE	S	DEPTH:	25 FEET	
						DOTTING DIVING 12		GROUND			201661	
						DATE		JACOND	COMM		DEDI	TU DOG
						6/8/00		INITIAL \		ENIS		HBGS
						6/8/00		INTIAL	VAIER		12	5 FEET
DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DE	SCRIPTION		PID (PPM)	USCS	R	EMARKS	
=									119001 5	4 inches Asphalt		
_					Silty Sandy Gravel: Well of			0	GM			
_					to coarse sand and silt, mo	ottled dark brown to black	k, damp.					
—1												
-1				_				-				
_				_				-	11			
-1				_					1 1			
—				_				_				
-	B4-5.0	0		6	Clayey Sand: Poorly grad	ad fine soud with clay b		0	sc			
—	D4-0.0		and the	8	Clayey Sallu. Poorly grad	ed line sand with clay, b	rown, damp.		30			
		11		16				_	1			
-			-									
-		0.0										
_									1			
_												
_												
	B4-10.0			6	Clayey Sand: As above			0				
				14					11 1			
_				17								
_												
_				$\vdash$				-		40.0		
_								_		First water.		
-				$\vdash$				-				
-				$\vdash$				-	-			
_				_					1			
_	84-15.0		120 000	10	Sandy Gravei: Well grade	d fine to coarse gravel v	with pondy		GW	2-3 inch zone		
_			100	12		ium sand, brown, wet.	party					
				_	Sand: Porty graded medic				SP			
—						, -			1			
_												
		1										
_			-									
	84-20.0	_		9	Clay: Light tan, wet.				CL			
/inw	ed By:					1.0	GGED BY:	CHBIS	MERRIT	т		
144	ос су.						3320 31.	OTHERS !				

OI	LВ	OF	RII	NC	LOG				Î	BORING	NO:	B4\N	IW4
100										SHEET	2	OF	2
					PROJEC	T NAM	E: CALT	RANS SOL	JTH OAK	LAND			
					PROJEC					DATE:	<u>%</u>	6/8/00	
					DRILLIN	G СОМ	PANY:	V&W					
					DRILLIN	G MET	HOD:	HSA					
					BORING	DIAME	TER:	8 INCHE	S	DEPTH:	2	5 FEET	
						1500		GROUND					4
ļ						DA	TE	CONT. 20.02011.	COMM	ENTS	_		TH BGS
20						6/8/00		INITIAL	WATER		-	12	.5 FEET
DEPTH (FEET)	SAMPLE NO.	RECOVERY (IN)	SAMPLE INTERVAL	BLOW COUNT	DESCRIPTI	ION		PID (PPM)	uscs		RE	MARKS	
	_		Ť	6	Clay: Light tan, wet.			1	CL				
1_				10					7.7				
2				_									
ļ —				_				_	1				
3		Н							1				
4—													
-				_									
5	84-25.0			8	Sandy Clay: Clay with poorly graded to	fine cand	hown damp		CL				
	De-Calo		-	12	Sally Say. Say wat postly grasse i	11110 00110	, brown, damp.						
6 —				21					1				
7—													
F -				_					1	Total depti		+ sample.	
8				-					1	Screen 25- Sand 25-3			
									1	Chips 3-2			
9 —				$\vdash$					1	Grout\Box			
10-													
_													
11-		1 1		⊢					-				
									1				
12				$\vdash$									
13 —									1				
14				<u>_</u>				_	-				
e —				$\vdash$				-	1				
15				Н				-1	1	-			
16									]				
									1				
17 —									4				
_									1				
18 —									1	7.5			
									1				
19—									1				
20 —									1				
			_										
eview	ed By:				300		LOGGED BY	CHRIS	MERRIT	Т			

MON	ITORING V	NELL CO	NSTRU	CTION DATA	A	WELL/BORING NO:	B4\MW4
	0/0/02		V. 0.1 C.			PERMIT NO:	
14-110000	6/8/00	PROJECT	- 0	ALTRANS SOUTH		PROJECT NO: 0G019	
WELL S	ITE LOCATION	PLAN:	SE	EC: TWN:	RGE:	LAT: LC	NG:
			DI	RILLING CO: V&	W DRILLING		
			DF	RILL CREW:			
				ELL TYPE:		☐ SINGLE CASED ■	
			ا ا	JPERMANENT  ☐ TEMPORARY		ATE DOUBLE CASED I	□ RECOVERY □ OTHER
	WELL SCI	HEMATIC		LITEMPORART		ALLATION DATA	OTHER
-			<b>*</b>	DECON.	SOAP WA	LEAN □ HIGH PRESSUR ASH □ OTHER	E WASH
			OC ABOVE		T TWO	STAINLESS TEFLON	
			RISER BOX			STAINLESS TEFLON	
			N/A M.	PIT CASING:	SCREWE	D □OTHER NO □DESCRIBE	
			N/A FT.	50			
4	* ±		*	WELL SCREEN: DIAMETER:	PVC 2" F	]STAINLESS ☐ TEFLON ]4" ☐ 6" ☐ OTHER	I OTHER
	3550			SLOT:	0.010	0.020 OTHER	IN
	ANNULAR	100	BOREHOLE DIAMETER	DRILLING	SOUD ST	EM HOLLOW STEM	☐ MUD ROTA
	BACKFILL	4	IN.	METHOD:	☐ AIR ROTA	ARY DIRECT PUSH	☐ HAND AUGE
	60 cm	2	0 cm.	BIT SIZE:		" 6" 8° 12° [	
, ,	2. 0 FT.		CASING	DRILLING MUD:	□ NONE □ OTHER	☐ WATER ☐ BE	NTONITE
ं	CEMENT		DIAMETER	CENTRALIZER:		M NO	
WELL	BENTONITE GROUT	4	5 cm. 2 IN.	COMPLETION:	FLUSH M	OUNT STICKUP	☐ RISER BOX
FROM	SILICA SAND	s	CH. 4 0 PV	LOCK TYPE:		MASTER KEY	
TOC	OTHER			PAD:	OTHER	□ 4'X4' □ OTHER	
7. 6 п				CUTTINGS:	- DRUMME	D NUMBER OF DRUMS	2
5 FT.	<b>*</b>			oo mada.		OTHER	
	SEAL 30 cm	MAS	TONITE ONRY SAND	DEVELOPMENT	NONE	BAILING PUMPIN	IG □ AIR LIFT
	1 0 FT.	□отн	ER	METHOD: TIME:	SURGE 8	BLOCK DOTHER_	
	-			AMOUNT	5 GAL	10 GAL OTHE	ER GAL
	FILTER			WATER BEFORE: WATER AFTER:	=	TURBID OPAC	
	PACK		WELL	EVIDENT ODOR:		NO TYPE	
	1 5 . FT.		SCREEN LENGTH	DEVELOPMENT	■ DRUMME	D NUMBER OF DRUMS	1
	TYPE #3 SAND	<b>8</b> ≣8		WATER:	SPREAD	☐ TREATED ☐ PO	OTHER
	NO SAVAD		1.4 FT. 4 M.	WATER LEVEL:	INITIAL ~	13_ғт	BGS
<b>↓</b>	1	₹ -		DATE:	6/27/0	8.74	FT BELOW TOO
	OVER			DATE:			FT BELOW TOC
	DRILL	//////	ELL SUMP				
	N/A FT.		YES NO	NOTES: (D	ESCRIBE ALL NO	N-STANDARD METHODS & MA	IERIALS)
	(CROSS OUT IF NOT DRILLED)		IN.	I,			
-							
_							
			P	REPARED BY:	THRIS (	MERRITT	

## APPENDIX D

**PURGE LOGS** 

## FLUID MEASUREMENT FIELD DATA

							SHEET: \	OF \	
DATE: (a(2)	100	PROJECT NAME:	CALTRANS	S. DAKLAC	10	PROJECT NO:			
MATERIEVEL N		STRUMENT: 40		<i>J.</i> <b>911</b> • 1.		SERIAL NO:	12080		
	CTION INSTRUME					SERIAL NO:			_j
QUIP, DECON:	# ALCONOX		/DEION 1 RINSE	☐ ISOPROPANOL	☐ ANALYTE	FREE FINAL RINSE	TAP WATER F	INAL RINSE	
		LIQUINOX WASH			OTHER SOLVENT	DIST/DEION	I FINAL RINSE	AIR DRY	
☐ TAP WA		TOP OF	DEPTH TO	DEPTH TO	WELL	PRODUCT	WATER	ACTUAL	25.16 4.13 16.03
WELL NUMBER	GROUND SURFACE	CASING	PRODUCT	WATER	DEPTH	THICKNESS	TABLE	TIME	16.63
NUMBER	ELEVATION	ELEVATION	BELOW TOC	BELOW TOC	BELOW TOC		ELEVATION		
				9.13	25.16			1208	~16' 2.72
mw-1			<del></del>	9.05	19.46			1211	11.34 20
mw-2								1213	11.34 20 23
mw-3				4.76	20,10	<u> </u>	<u> </u>		15.63 2.5
MW-4				9.74	24.37			1216	- 1,2,62 XW
				,					_
									-
									-
			,						16 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
									7 113
						<u> </u>		-	1673
									4
		<u> </u>							
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						<u> </u>			1
							ļ		-
									_

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Rev. 12/95

<del></del>								0: MW	- [
DATE: 6	127/00	PROJECT	NAME: (	ALTRAN	15 5.0.	AKL ANO	PROJEC	TNO:	36019
			INNY, L						
WELL DIA	METER (IN	l.)	<u> </u>	<b>3</b> 2	□ 4	□ 6	OTHER		
SAMPLE	ΓΥΡΕ:	GROUN	DWATER	□wast	EWATER	SURF	ACE WATE	R 🗌 01	HER
WELL DEI	тн (тос)	2 8	5,16	FT.	DEPTH	TO WATER	BEFORE F	PURGING (	TOC) 9,13 FT.
LENGTH (	OF WATER	160	23	FT.	CALCUL	ATED ONE	WELL VO	LUME <sup>1</sup> :	~2,72 GAL.
PURGING	DEVICE:				DEDIC	ATED [	] DISPOSA	BLE DE	CONTAMINATED
SAMPLIN	G DEVICE:				DEDIC	ATED	] DISPOSA	BLE <b>T</b> DE	ECONTAMINATED
1	ECON. CONOX WA QUINOX WA	\SH	_	VASH ION 1 RINSE ION 2 RINSE				DIST/DEIO	FREE FINAL RINSE N FINAL RINSE AIR DRY
CONTAIN	ER PRESE	RVATION	: 🌠 LAB	PRESERVE	D   FIELD	PRESERV	ED		
WATER A	NALYZER	MODEL &	SERIAL NO	): MYRC	N L 6	522 155			
ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP □ °F ■ °C	SPECIFIC CONDUCT.	ρΗ	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	(EVIDEN	REMARKS FODOR, COLOR, PID)
1240	INITIAL	21.3	5(7	7.26			CL		
1244	3,0	20.3	528	6.54			CO		
1251	6.0	20.8	542	6.32			00		
1301	9.0	21.0	522	6.50			00		·
	,		<u> </u>						
···									
		<u></u>						<u></u>	
DEPTH T	O WATER	AFTER PL	JRGING (TO	DC)	FT.	SAMPLE F	ILTERED	YES [	NO SIZE
NOTES:					SAMPLE 1	IME:		1D#	mw-1
					DUPLICAT		TIME:	ID#:	
			2		EQUIP. BL	ANK:	TIME:	ID#:	
					PREPARE	D BY:			

<sup>1</sup>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 N	10: MW-2
DATE: 6	27/00	PROJECT	NAME: (1	ALTRAN	is 5, c	AKLANI	PROJEC	CTNO: 06019
	R CONDITION		FUNDS					
WELL DIA	METER (IN	1.)	1	2	□ 4	□ 6	OTHER	
SAMPLE	TYPE:	GROUN	DWATER	☐ was	TEWATER	SURF	ACE WATE	R OTHER
WELL DE	PTH (TOC)	10	1.45	FT	. DEPTH	TO WATER	BEFORE I	PURGING (TOC) 4.05 FT
LENGTH	OF WATER	. /	0.41	FT	CALCU	LATED ON	E WELL VO	LUME1: ~/, 8 GAI
PURGING	DEVICE:				DEDIC	CATED [	] DISPOSA	BLE DECONTAMINATED
SAMPLIN	G DEVICE:				DEDIC	CATED [	] DISPOSA	BLE DECONTAMINATED
1 =	ECON. CONOX WA QUINOX WA	ASH		VASH ION 1 RINS ION 2 RINS		ISOPROPA OTHER SO TAP WATE	LVENT 🗌	ANALYTE FREE FINAL RINSE DIST/DEION FINAL RINSE NSE
						PRESERV	ED	
WATER A	NALYZER	MODEL &	SERIAL NO	): MYRE	N L 62	22165		
ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP	SPECIFIC CONDUCT.	рН	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
1 <b>3</b> 13	INITIAL	20.6	599	7.39			CL	
1316	2.0	19.8	591	6.60			Co	
1319	4.0	1915	591	6.56			Co	
1324	4.4	19.6	593	6.54			Co	
ļ				_				
						ļ		
<u> </u>				<del></del>				
		<u>L</u>	<u> </u>					
	O WATER A	AFTER PU	IRGING (TO	)C)	FT.	<u>.</u>	ILTERED	YES NO SIZE
NOTES:					SAMPLE 1			10# MW-2
					DUPLICAT		TIME:	ID#:
					EQUIP. BL		TIME:	ID#:
					PREPARE	D BY:	1 HRIS	MERRITT

<sup>&</sup>lt;sup>1</sup> 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 N	0: MW-	3
DATE	1/00	PROJECT	NAME: (	ALTRAI	NS 5, C	DAKLAN	PROJEC	CT NO:	
WEATHER	R CONDITIO			, WAR					
WELL DIA	METER (IN	l.)	<u> </u>	2	□ 4	☐ 6	OTHER		
SAMPLE 1	TYPE:	GROUN	OWATER	☐ WAST	EWATER	SURF	ACE WATE	R □ОТН	ER
WELL DE	тн (тос)		3010	FŢ	. DEPTH	TO WATER	BEFORE	PURGING (TO	OC) 8,76 FT.
LENGTH (	OF WATER	//	34	FT	CALCUL	ATED ONE	WELL VO	LUME¹: へ	2,0 GAL.
PURGING	DEVICE:				☐ DEDIC	ATED [	] DISPOSA	BLE DEC	ONTAMINATED
SAMPLIN	G DEVICE:				DEDIC	ATED [	] DISPOSA	BLE 🖥 DEC	ONTAMINATED
=	ECON. CONOX WA QUINOX WA	vsh [		VASH ION 1 RINS ION 2 RINS			=	DIST/DEION	REE FINAL RINSE FINAL RINSE IR DRY
CONTAIN	ER PRESE	RVATION:	LAB	PRESERVE	D FIELD	PRESERV	ED		
WATER A	NALYZER	MODEL &	SERIAL NO	): MYR	on L 6	22155			
ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP □ °F # °C	SPECIFIC CONDUCT.	ρΗ	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	1	EMARKS DOOR, COLOR, PID)
1344	INITIAL	21.3	563	7.09			e c		
1349	2.0	20.7	571	652			Co		
1356	5.5	20.5	594	6.52			00		
1357	6.0	19.8	589	6.57			00		
									** • •
									····
				-			,	<u> </u>	
		<u> </u>							
						0.115: = -			NO 0175
	O WATER A	AFTER PU	JRGING (TO	JC)		<u>.1</u>	ILIERED	YES 🗆	
NOTES:					SAMPLE 1		TIME		MW-3
				٠	DUPLICAT		TIME: TIME:	ID#:	<u></u>
					EQUIP. BU		-,-	ID#:	
					PREPARE	:n R. / /	MRIS 1	MERRIT	

<sup>1</sup> 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

	<del></del>						WELL N	0: MW-4
DATE: 6	27/00	PROJECT	NAME: 🐧	<i>tctrans</i>	5. 0A	KLAND	PROJEC	OT NO:
WEATHER	CONDITION		いころこく				-	
WELL DIA	METER (IN	1.)	<u> </u>	2	<b>4</b>	<b>6</b>	OTHER	
SAMPLE	YPE:	GROUN	DWATER	WAST	TEWATER	SURI	FACE WATE	R OTHER
WELL DE	тн (тос)	a	4.37	FT	. DEPTH	TO WATER	R BEFORE F	PURGING (TOC) & 74 FT.
LENGTH (	OF WATER	15	5.63	FT	CALCU	ATED ON	E WELL VO	LUME¹: ~2.5 GAL.
PURGING	DEVICE:				DEDIC	ATED [	DISPOSA	BLE DECONTAMINATED
SAMPLING	3 DEVICE:		•		DEDIC	ATED [	DISPOSA	BLE DECONTAMINATED
=	ECON. CONOX WA QUINOX WA	ASH		VASH ION 1 RINS ION 2 RINS	_			ANALYTE FREE FINAL RINSE  DIST/DEION FINAL RINSE  NSE
CONTAIN	ER PRESE	RVATION:	LAB	PRESERVE	D FIELD	PRESERV	ED.	
WATER A	NALYZER	MODEL &	SERIAL NO	: MYRI	ON L 62	z 155		
ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP	SPECIFIC CONDUCT.	рН	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			00	
1422	5.0	19.8	451	6.42			00	
(426	7.5	19.8	448	6.40			00	
	-							
							ļ	
					<u> </u>			
<del> </del>	O WATER A	AFTER PU	RGING (TO	)C)		L	FILTERED	YES NO SIZE
NOTES:					SAMPLE 1		_	1D# MW-4
					DUPLICAT		TIME:	ID#:
				_	EQUIP. BI		TIME:	ID#:
					PREPARE	D BY:	CHRIS,	MERRITT

<sup>1</sup>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

## <u>APPENDIX E</u>

SURVEY DATA



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 resealed and the lids were painted for easier re-location. The following exhibit represents my findings in this matter.

Respectfully submitted,

GILBERT E. HAYES, PL

GH:cb

09/30/03

## **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.

09/30/03

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: Date Received: 06/08/00 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.

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.



#### 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 %
	Telefity is Kiritana a replace a an orbrewego espiso. T	erlynttigtet lân kriet sje sjêlekê se wyw ei ful kwirt in trovi. Y	
		ta tu kwataza wa 1844 ya Mali wa 1877	enes, recentrares entre total de se la como
. Parte interest .			
			grapings and a marine of the first of the s



## QC Sample Report - EPA 8015M Diesel

Matrix: Soil

Batch #: 8015DS1945

#### **Batch Accuracy Results**

Analyte  Diesel	Spike ( mg/Kg	95	70 - 130	Pass
	ce Concentration Kg	Recovery LCS	cceptance Limits 6 Recovery	Pass/Fail

Апа	lytical	Notes	<b>S</b> :		
	•				
				٠.	
				 ٠.	

#### **Batch Precision Results**

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

Analytical Notes:		-
	-	
l		



#### Modified 8015 - Total Volatile Hydrocarbons as Gasoline

CP

Analyst:

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

Detection Petroleum Hydrocarbons as Limit Gasoline Sample ID mg/kg mg/kg 0.50 Method Blank 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 84-5.0 0.50 ND B4-10.0 0.50 ND B4-15.0 0.50 ND ND B4-20.0 0.50 B4-25.0 0.50 ND ND B3-5.0 0.50 B3-10.0 0.50 ND B3-15.0 0.50 ND ND B3-20.0 0.50 ND B2-5.0 0.50 0.50 B2-10.0 ND ND B2-15.0 0.50

## QC Sample Report - EPA 8015M Gasoline

Matrix: Soil

Batch #: 8015GS2627

#### **Batch Accuracy Results**

e Concentra gg ecovery LC ecovery	Analyte  Gasoline	Spike (mg/Kg	₩ % 103	8	Sse <sub>d</sub>
		Spike Concentration mg/Kg	Recovery LCS	Acceptance Limits % Recovery	Pass/Fail

Analy		 	
			٠.
	·		

#### **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



Client:

PSI

Project:

Caltrans S. Oakland

Job No.: Matrix:

Analyst:

16588

Soil

JCT

Date Sampled: 06/08/00

Date Received:

Date Analyzed:

06/12/00 06/14-15/00

Batch Number:

M28260S561

	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 (TAN		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-chloropropa	ne 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

(800) 798-9336

### EPA 8260 - Volatile Organics with Oxygenates

Client:

PSI .

Project:

Caltrans S. Oakland

Job No.:

16588

Matrix:

Analyst:

Soil

JCT

Date Sampled:

Date Received:

06/08/00 06/12/00

Date Analyzed:

06/14-15/00

Batch Number:

M28260S561

•	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	NĎ	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	МD	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 (Mt	BE) 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



Client:

PSI

Project:

Caltrans S. Oakland

Job No.: Matrix: 16588 Soil

Analyst:

Soil JCT Date Received: Date Analyzed: Batch Number:

Date Sampled:

06/08/00 06/12/00

06/14-15/00

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 (TAN		ND	ND	ND	ND	ND	ND
Benzene	0.001	ND .	ND	ND	ND	ND	ND
Bromobenzene	0.005	ND	ND	ND	ND	ND	MD
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-chloropropa	ne 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



Client:

PSI

Project:

Caltrans S. Oakland

Job No.:

16588 Soil

Matrix: Analyst:

JCT

Date Sampled:

Date Received:

Date Analyzed:

06/08/00 06/12/00

Batch Number:

06/14-15/00 M28260S561

- 5	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
Isapropyibenzene	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 (MtB	E) 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



Client:

PSI

Project: Caltrans S, Oakland

Job No.: 16588 Soil Matrix: JCT Analyst:

06/08/00 Date Sampled:

Date Received: 06/12/00

Date Analyzed: 06/14-15/00 Batch Number: M28260S561

	ample 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 (TAMI		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	МD	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-chloropropan	e 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



Client:

PSI

Project:

Caltrans S. Oakland

Job No.:

16588

Matrix:

Soil

Analyst:

JCT

Date Sampled: Date Received: 06/08/00

Date Analyzed:

06/12/00 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
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 (MtB	E) 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
Trichloroffuoromethane	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

Limits: 80 - 130 Surrogates (% recovery)

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

## QC Sample Report - EPA Method 8260

Matrix: Soil

Batch #: M28260S541

#### **Batch Accuracy Results**

Sample ID: Laboratory C	ontroi Sampi	<u>e</u>		
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

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## Centrum Analytical Laboratories, Inc.

Centrum Job # 16588

Page 1 of 2

290 TENNESSEE STREET REDLANDS, CA 92373

(909) 798-9336 • (800) 798-9336

FAX (909) 793-1559 lab@centrum-labs.com **Chain of Custody Record** 

									PI	eas	e Circ	le A	naly	/ses	Req	ues	ted		
Project Man	ANK POSS		Phone:	TRAN	15 S. BAKLAND FOX: 11 SID 785-11 ZO W. WINTON AND AYWARD, CA 94545	92 E	sel, Fuel Screen, Carbon Chain	Gas only	BTEX/MtBE Only	), 413.2	44/04/25-14/45		JC, 625	8080; Pesticides, PCBs, Pest/PCB	Title 22 (CAM) PCBA PB	- Elvier	Concession of		Turn-Around Time  24 Hr. RUSH* 48 Hr. RUSH* Normal TAT *Requires PRIOR approval, additional charges apply
Centrum ID	Sample ID (As it should appear on vepors)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	8015M: Dies	8015M: Gas	8021B: BTE	418.1 (TRPH),	GCMS: (8260th 8021B,	GCMS: MtB	GCMS: 8270C,	8080; Pestic	Metals: Tith	T SUL Ha		t and a second	Requested due date:
1	B1-5.0	6/4/00	0825	505L		1955		X			X								
2	B1-10,0	١	0833	-		1		X			X								
3	131-15.0		0845					X			X						T		
4	131-20.0		0850					X			X								
5	B1-25.0		0859					X			Х	<u> </u>							
و	81-5.0		1040					X			X								
7	B4-10.0		1050					X			Х								
9	B4-15.0		1055					X			X						$\perp$		
9	B4-20.0		1102					X			X								
10	134-25,0		1105	+		4		X			$\forall$								
1) Relinquis	hed by: (Sampler's Signature)		Date:	Time:	3) Relinquished by:		Date	): 	Time	P:	To be	comp	leted	by La	borate	ry p	erso	nnel:	Sample Disposal
2) Received	OMERRITT by:		Date:	Time:	4) Received by:		Date	);	Time	);	Sampl	es ch	illed	A)	es 🗆	No [	∃ Fro	m Field	Client will pick up
					5) Relinguished by:		Date	9;	Time	);	Custo	-			•				Return to client
	of samples and the signature of				, ,						All sa								☑ Lab disposal
	authorization to perform the and and Conditions set forth on the b			e under	6) Received for Laboratory by:		Date	7	Time		□ Cot	rier	<b>₫</b> Du	PS/Fe	d Ey	⊃ Ha	nd c	arried	
Laboratory	Notes:				The state of the s	<del>)                                    </del>			1 * *	1									Sample Locator No.
																			F-4

## Centrum Analytical Laboratories, Inc.

Centrum Job # 16588
Page Z of Z

290 TENNESSEE STREET REDLANDS, CA 92373

www.centrum-labs.com

(909) 798-9336 • (800) 798-9336

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

## **Chain of Custody Record**

									P	leas	e Circ	cle A	\nal	yses	Re	que	este	ď		
Project Man	ANK POSS		Phone: SIU  Address: (Report and B	ALTR	ANS S. OAKLANC 192 510 785-11 20 W. WINTON AU WWARD, CA 94545	11 11 15	Diesel, Fuel Screen, Carbon Chain	Gasonly	BTEXMIBE Only	эн), 413.2	Spend Boyle God (S)	MtBE Conf. Only	8270C, 625	8080: Pesticides, PCBs, Pest/PCB			TSS, Conductivity	t, Hex Cr		Turn-Around Time  24 Hr. RUSH* 48 Hr. RUSH* Normal TAT *Requires PRIOR approval, additional charges apply  Requested due date:
Centrum ID	Sample ID (As it should appear on report)	Date sample		Sample matrix	Site location	Containers: # and type	8015M: Di	8015M: G	8021B: B	418.1 (TRPH),	y SMJS		GCMS: 82	8080: Pes		훓	pH, TDS,	Flashpoint,		Remarks/Special Instructions
11	B3-5.0	all	a 1240	SOIL		1555	Х	X			>	<b>(</b>								
12	B3-10.0	1	1255	1		ĺ	X	X			)				寸		Ī			
13	13-15,0		130)				X	X			)	1								
14	B3-20.0		1305				Х	X			У									
15	BZ-5.0		1443					X			)									
lle	BZ-10,0		145					X			)									
17	B2-15,0		1500					X				1								
						•		<u> </u>		_	_	$\bot$			_				$\perp$	
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2) Received	by:		Date:	Time:	4) Received by:		Date	a:	Time	<b>:</b>	Samp Custo			1				rom	Field	☐ Client will pick up
The delivery	of samples and the signature of	n this ch	ain of custos		5) Relinquished by:		Date	ė:	Time	e:	All sa				•			s 🗆 I	No	Mat Lab disposal
	authorization to perform the and nd Conditions set forth on the b			under	6) Received for Laboratory by:			): 2	Time		□ Co	urier	(ACU	PS/F8	d E)	DH	land	carr	ied	
Laboratory N	lotes:				yer soughtez		180		<u> </u>	1										Sample Locator No.



# 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.

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.



## Modified 8015 - Total Extractable Petroleum Hydrocarbons as Diesel

Client: PSI
Project: Caltrans Calistoga
Job No.: 16684
Matrix: Water
Analyst: JL

Date Sampled: 06/27/00
Date Received: 06/28/00
Date Extracted: 06/29/00
Date Analyzed: 06/29/00
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 %
er eller britisk blackfish		des components and community of the first of	
		。 第1225章 (李邦/祖) (2007年2月	
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t v v v v v v v v v v v v v v v v v v v		and the second s	
			PROJEKERIO IN NOTALI SERIES T

## QC Sample Report - EPA 8015M Diesel

Matrix: Water

Batch #: 8015DW1965

#### **Batch Accuracy Results**

Analytic	al Notes:	
		2.4
	•	

#### **Batch Precision Results**

MS/MSD Sample ID: Laboratory Control Sample

Analyte  Diesel	0.70	Spike Reco	Relat Differ	25%	Pass/Fail
	Spike Sample Recovery mg/L	Spike Duplicate Recovery mg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	/Fail

Analytical	Notes:	 

MS: Matrix Spike Sample MSD: Matrix Spike Duplicate



### Modified 8015 - Total Volatile Hydrocarbons as Gasoline

Client: PSI

Caltrans Calistoga

Job No.: 16684 Matrix: Water

Project:

Matrix: Water Analyst: CP Date Sampled:

06/27/00

Date Received: Date Analyzed: 06/28/00 07/07/00

Batch Number: 8015GW2655

	Detection	Petroleum Hydrocarbons as
	Limit	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

## QC Sample Report - EPA 8015M Gasoline

Matrix: Water

Batch #: 8015GW2655

#### **Batch Accuracy Results**

Analytical Notes:		."
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#### **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:		
ļ			
1			

MS: Matrix Spike Sample MSD: Matrix Spike Duplicate



Client:

PSI

Project:

Caltrans Calistoga

Job No.:

16684

Matrix: Analyst: Water JMR Date Sampled:

: 06/27/00

Date Received: 06/28/00

Date Analyzed: (

07/02-04/00

Batch Number:

MS48260W2159

	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 (TAM	E) 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	ariv (16) Sanging
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-chloropropan	e 10	ND	ND	ND	NO	
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	Alah INDIA SAMAT KARI KARI	
Dichlorodifluoromethane	0.5	ND	ND	ND	ND	
1,1-Dichloroethane	0.5	ND	ND	ND	da Norsi berada e	
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 ND	
1,2-Dichloropropane	0.5	ND	ND	ND	ND	
1,3-Dichloropropane	0.5	ND	ND	ND	······································	
2,2-Dichloropropane	0.5	ND	ND	ND	ND	
1,1-Dichloropropene	0.5	ND	ND	ND	ND	



Client:

PSI

Project;

Caltrans Calistoga

Job No.: Matrix:

16684

Analyst:

Water **JMR** 

Date Sampled:

06/27/00 06/28/00

Date Received: Date Analyzed:

07/02-04/00

Batch Number:

MS48260W2159

4.1	Sample ID:	Blank	MW-2	MW-3	MW-4	
Compounds	DL	μ <b>g</b> /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	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 (MtBI	Ξ) 1.0	ND	86	5,000	DN	실로 발함 (IT NO. 10 - 15
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



Client:

PS1

Project:

Job No.: Matrix:

Water

Analyst:

Caltrans Calistoga

16684

JMR

Date Sampled: Date Received:

06/27/00 06/28/00

Date Analyzed:

07/02-04/00

Batch Number:

MS48260W2159

	Sample ID:	MW-1	
Compounds	DL	μg/L	
Acetone	250	ND	
tert-Amyl Methyl Ether (TAM	≣) 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	W
Chloromethane	2.5	ND ,	
2-Chlorotoluene	2.5	ND	, sil , il il il il
4-Chiorotoluene	2;5	· ND	
Dibromochloromethane	2.5	ND	
1,2-Dibromoethane	2.5	ND	
1,2-Dibromo-3-chloropropan-	and the second of the second of the second	ND	
Dibromomethane	2.5	ND	
1,2-Dichlorobenzene	2.5		
1,3-Dichlorobenzene	2.5	ND	
1,4-Dichlorobenzene	2.5	ND A STATE OF THE	
Dichlorodifluoromethane	2.5	ND	
1,1-Dichloroethane	2.5	ND	
1,2-Dichloroethane	2.5	ND	
1,1-Dichloroethene	2.5		
cis-1,2-Dichloroethene	2.5	ND	
trans-1,2-Dichloroethene	2.5	THE NO. 12 CONTRACT OF THE SECOND SECTION OF THE SECOND SE	٠.,
1.2-Dichloropropane	2.5	ND	
1,3-Dichloropropane	2.5	ND ND	
2,2-Dichloropropane	2.5	ND	
1,1-Dichloropropene	2.5		



Client:

PSI

Project:

Caltrans Calistoga

Job No.:

16684

Matrix: Analyst: Water

JMR

Date Sampled:

06/27/00

Date Received:

06/28/00 07/02-04/00

Date Analyzed:

Batch Number: MS48260W2159

	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-Isopropyitoluene	2.5	ND	
Methylene chloride	100	ND	불통하다하다 내는 일반 사람들 불통을 많은 원교는 안보
4-Methyl-2-pentanone	25	; ND	
Methyl-tert-butyl ether (MtB	E) 5.0	088	
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	불마용속 말라 그렇게 그리는 그른 그릇을 하루르고 했다면 되었
Trichlorotrifluoroethane	25	ND	
1,2,4-Trimethylbenzene	2.5	24	흙물리막말이 하는 그들이 하는 (그렇게 되었으면) 이번
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	<u> </u>	105 (105 (105 (105 (105 (105 (105 (105 (



## 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

MS: Matrix Spike Sample MSD: Matrix Spike Duplicate Analytical Notes:

# Centrum Analytical Laboratories, Inc.

Centrum Job # 10085

290 TENNESSEE STREET

REDLANDS, CA 92373 www.centrum-labs.com

(909) 798-9336 • (800) 798-9336

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

## **Chain of Custody Record**

							_		Ple	ase	Circ	ie A	<u>naiy</u>	/505	Rec	que	ste	ď		
Project Mo: Project Man Client Name (Raport and Billin	tnk 1055		Project Na OH Phone: F 10 Address: (Report and Bit	CTR1 785	ANS CALISTOG Fax: TIII 510785-1 320 W.WINTON AYWALO, CA 945	A 192 AVE 45	Diesel, Fuel Screen, Carbon Chain	Gas only	ВТЕХ/МІВЕ ОПІХ	PH), 413.2	(1) OX YOUNGEN AFFEX GCMS: (8260B) 8021B, 624, 524.2	MtBE Conf. Only	8270C, 625	Pesticides, PCBs, Pest/PCB		itle 22	88.	I, Hex Cr		Turn-Around Time  24 Hr. RUSH* 48 Hr. RUSH* P Normal TAT  *Requires PRIOR approval, additional charges apply  Requested due date:
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: Di		8021B: B	418.1 (TRPH),	GCMS:	GCMS: M	GCMS: 8;	8080: Pes		22	PH, TDS,	Flashpoint,		Remarks/Special Instructions
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2) Received	by:		Date:	Time:	4) Received by:		Date		Time:		Sampl				_			rom	Field	Cilent will pick up
	of samples and the signature o				5) Relinquished by:		Date	:	Time:		Custo All sai	nple	conta	iners	intaci	7 🌋	îyes			☐ Return to client
	authorization to perform the ana nd Conditions set forth on the b			e under	6) Received for Laboratory by:		Date 2	3	time: 3:10		CO.	ırier	ķiu	S/Fe	d Ex	ΉΩ	and ·	carri	ed	
Laboratory I	Votes:				- Amesa majustis		· · · ·	<u>~ </u>												Sample Locator No.
																				VOA



## 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.

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.



## Modified 8015 - Total Extractable Petroleum Hydrocarbons as Diesel

Client:

PSI

Project:

Caltrans Calistoga

Job No.: Matrix: 16685 Water JL

Analyst:

Date Sampled: 06/27/00

Date Received: 06/28/00

Date Extracted: 06/29/00

Date Analyzed: 06/29/00

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 %
			terificación de la companya de la c La companya de la co
and the second			

## QC Sample Report - EPA 8015M Diesel

Matrix: Water

Batch #: 8015DW1965

#### **Batch Accuracy Results**

Reco	Accepta % Reco	Pass/Fai
	% Recovery LCS	covery LC stance Lim covery

Analyt	ical Not	tes:	-	
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	-			
				•
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#### **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

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

Analytical Notes:	



## Modified 8015 - Total Volatile Hydrocarbons as Gasoline

PSI Client:

Project: Caltrans Calistoga

Job No.:

16685 Matrix: Water Analyst: CP

Date Sampled:

06/27/00

Date Received:

06/28/00 07/07/00

Date Analyzed: Batch Number:

8015GW2655

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



## QC Sample Report - EPA 8015M Gasoline

Matrix: Water

Batch #: 8015GW2655

#### **Batch Accuracy Results**

Analytical Note	es:	
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#### **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

MS:	Matrix	Spike	Sampl	e
MSC	): Matri	x Spik	e Dupl	icate

Analytical Notes:	
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Client:

PSI

Project:

Caltrans Calistoga

Job No.:

16685

Matrix: Analyst: Water

**JMR** 

Date Sampled:

06/27/00 06/28/00

Date Received: Date Analyzed:

07/02-03/00

Batch Number:

M\$48260W2159

	Sample ID:	Blank	DUFFYS	STADELHO	FER	
Compounds	DL	μg/L	μg/L	μg/L		
Acetone	50	. ND	NĎ	ND		
tert-Amyl Methyl Ether (TAMI	≣) 5.0	ND	ND	ND	in in September 1994 (1994) Distriction of the Comment of the Comm	
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		٠,
tert-Butylbenzene	0.5	ND	ND	ND		
Carbon disulfide	10	ND	ND	ND	a 4. Bunta (1879) a 14.	
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-chloropropan	e 10	ND	ND	ND		
Dibromomethane	0.5	ND	ND	ND		
1,2-Dichlorobenzene	0.5	ND	ND	ND		A. T.
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		inati Indonatas no initial and
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		4
1,1-Dichloropropene	0.5	ND	ND	ND		



Client:

PSI

Project:

Caltrans Calistoga

Job No.:

Matrix: Analyst: 16685

Water JMR

Date Sampled:

06/27/00

Date Received: Date Analyzed: 06/28/00 07/02-03/00

Batch Number:

MS48260W2159

	0 1 15		0.15510	OT4 DEL : 15	CED			<del>.</del>
	Sample ID:	Blank	DUFFYS	STADELHO	PER			
Compounds	DL	μg/L	μ <b>g/L</b>	μg/L				
cis-1,3-Dichloropropene	0.5	ND	ND	ND	k. 500/4124-5000000/400 - 10/400		punguannika int	
trans-1,3-Dichloropropene	0.5	ND	ND.	ND				
Diisopropyl Ether (DIPE)	5.0	ND	ND	ND	naalaa ahaa ahaan sa	saturus di kuman m		
Ethylbenzene	0.5	ND	NĐ	ND			1, 1	
Ethyl tert-Butyl Ether (EtBE)		ND	ND -	ND				
Hexachlorobutadiene	0.5	ND	ND	ND				- 1 1
2-Hexanone	10	. ND	ND	ND		-		
Isopropylbenzene	0.5	ND	ND	ND			inga e	
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 (MtBl	≣) 1.0	ND	ND	ND				o al-e e Kakir Takiran
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				1000
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	A ha Abdir			
1,1,2-Trichloroethane	0.5	ND	ND	ND		e General Control		
Trichloroethene	0.5	ND	ND	ND				
1,2,3-Trichloropropane	0.5	ND	ND	ND				
Trichlorofluoromethane	0.5	ND	ND	ND	. Turi ari			1.0
Trichlorotrifluoroethane	5.0	ND	ND	ND	The state of the second	westelde 101 -		
1,2,4-Trimethylbenzene	0.5	ND	ND .	ND				H. 24
1,3,5-Trimethylbenzene	0.5	ND	ND	ND	na nakatii	4) 4)) - G4434111 811)	nvis in in vi	
Vinyl chloride	0.5	ND	ND	ND	ing the factor	way na mada a sa		
Xylenes (total)	1.5	ND	ND	ND	100	na et Maria et s		
∖Alienes (foral)	1,7	NU	NU					

Surrogates (% recovery) Limits: 80 - 130

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



## 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:		
		-
	•	-
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#### **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

MS: Matrix Spike Sample MSD: Matrix Spike Duplicate Analytical Notes:

## Centrum Analytical Laboratories, Inc.

Centrum Job # 16684
Page 1 of 1

290 TENNESSEE STREET

(909) 798-9336 • (800) 798-9336

REDLANDS, CA 92373 www.centrum-labs.com

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

## **Chain of Custody Record**

			*						Plea:	se Circ	cle A	nal	yses	Rec	que:	ste	i t		
Project No:  Project Mar  Client Name (Report and Billing	<u> </u>		Phone:  5 (0  Address: (Report and Bit	1785 14078 1785 140	2ANS SOUTH OAK FAX: -1111 BIO 785- 520 W. WINTON HYWARD CA, 945	1192 AVE 545	esel Fuel Screen, Carbon Chain	as only	RPH), 413.2	COMST 8260 80218 624 624 2	MtBE Conf. Only	8270C, 625	Pesticides, PCBs, Pest/PCB		77 91	Ś	it, Hex Cr		Turn-Around Time  24 Hr. RUSH* 48 Hr. RUSH* Normal TAT  *Requires PRIOR approval, additional charges apply  Requested due date:
Centrum ID	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	8015M: DI	8015M: Gas	418.1 (TRPH),	GCMS/	GCMS: M		8080: Pes	,	<u> </u>	pH, TDS,	Flashpoint,		Remarks/Special Instructions
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3	Mw-3		1400			HUGA	X			7	+				1	$\top$		1	
4	MW-4	<b>V</b>	1430	+		HUUA		4	-	2	1					1			
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									-		_		$\Box$		+	1			
CITED	hed by: (Sampler's Signature)		Date: 6/27/0	Time:	3) Relinquished by:		Date:		me:	To be	-		· .						Sample Disposal
2) Received	by:		Date:	Time:	4) Received by: 5) Relinquished by:		Date:		me:	Samp Custo			-			C) Fr	om Fl	eld	☐ Client will pick up ☐ Return to client
constitutes	y of samples and the signature of authorization to perform the an and Conditions set forth on the t	alyses spec	cified above	-	6) Received for Laboratory by:		Date:		me:	All sa □ Coi			-	_	•				ÆCLab disposal
Laboratory	Notes:										,,	•					·		Sample Locator No. E-3 4 VOA

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