PSI Information To Build On
Engineering • Consulting • Testing

RO 16

May 3, 2002

Mr. Barney M. Chan
Alameda County Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

MAY 07 2002

RE: 1st Quarter, 2002 Monitoring Report
USPS GMF/VMF
1675 7th Street
Oakland, California
PSI Project No.: 575-2G007

Dear Mr. Chan:

Professional Service Industries, Inc. (PSI), is pleased to enclose a copy of the report for the above-referenced project for your files. If you have any questions regarding this report or any aspect of the project, please do not hesitate to call.

Respectfully submitted,
PROFESSIONAL SERVICE INDUSTRIES, INC.

Brand Burfield
Project Geologist

cc: Mr. Rolando Queyquep - USPS

FIRST QUARTER 2002 GROUNDWATER MONITORING REPORT

USPS GMF/VMF
1675 7TH STREET
OAKLAND, CALIFORNIA

Prepared for

United States Postal Service
1675 7TH STREET
Oakland, California

Professional Service Industries
4703 Tidewater Avenue, Suite B
Oakland, California 94601

April 26, 2002
575-2G007

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STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

Information provided in Professional Services Industries, Inc., (PSI) report number 575-2G007 is intended exclusively for the United States Postal Service (USPS) for the evaluation of groundwater contamination as it pertains to the subject site. PSI is responsible for the facts and accuracy of the data presented herein. The professional services provided have been performed in accordance with practices generally accepted by other geologists, hydrologists, hydrogeologists, engineers, and environmental scientists practicing in this field. No other warranty, either expressed or implied, is made. As with all subsurface investigations, there is no guarantee that the work conducted will identify any and all sources or locations of contamination.

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

Frank R. Poss, R.E.A.
Senior Hydrogeologist

Brand Burfield, RG 6986
Senior Geologist

1.0 INTRODUCTION

This report summarizes the results of the First Quarter 2002 groundwater monitoring activities conducted on March 11, 2002 at the USPS Vehicle Maintenance Facility (VMF) in Oakland, California (site; Figure 1). The work presented herein was conducted in accordance with Contract Number 052571-01-J-0014 and Project Authorization Number 2-1F-055509-E-554.

2.0 GROUNDWATER MONITORING ACTIVITIES

2.1 GROUNDWATER ELEVATION AND HYDRAULIC GRADIENT

On March 11, 2002, static groundwater elevations were measured in monitoring wells MW-1 through MW-3. Due to free floating product in MW-4, depth to groundwater was not measured in MW-4. The groundwater depths were measured in accordance with the field procedures outlined in Section 2.2, using a groundwater interface probe.

A summary of the depth-to-groundwater data collected during this monitoring event is presented in Table 1. Out field measurements indicate that the groundwater beneath the site flows to the southwest under a hydraulic gradient of 0.01.

2.2 GROUNDWATER SAMPLING

Groundwater samples were collected from monitoring wells MW-1 through MW-4. Prior to the collection of groundwater samples, monitoring wells MW-1 through MW-3 were purged of a minimum of three well volumes of water until pH, conductivity, and temperature stabilized. The wells were allowed to recover to at least 80 percent of their original static groundwater levels prior to sampling. Due to free-floating product, a purge of monitoring well MW-4 was not performed

The following procedures were implemented while performing well monitoring, well purging, and water sampling:

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

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

3. Monitoring wells at the site were prepared for sampling by purging the well of a minimum 3 well volumes of water using an electric pump.

4. Water samples were collected with an electric pump through dedicated polyethylene tubing after the well had been purged and water in the well had equilibrated to approximately 80 percent of the static water level or 2 hours after well purging, whichever occurred first. The water collected was immediately decanted into laboratory-supplied vials and bottles. The containers were overfilled, capped, labeled, and placed in a chilled cooler prior to delivery to the laboratory for analysis.

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

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

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

The groundwater monitoring purge logs are presented in Appendix A.

2.3 WELL MAINTENANCE

During the quarterly sampling event, monitoring wells MW-1 and MW-2 were observed to have no protective boxes and MW-2 had no well cap. As a result, both wells were observed to be covered with mud and MW-2 was partially filled with mud. As part of the well maintenance program, new caps and traffic-rated, protective well boxes were installed for these two wells.

2.4 LABORATORY ANALYSIS AND RESULTS

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

- EPA 8015 modified - Total Petroleum Hydrocarbons as Gasoline (TPH-G);
- EPA 8015 modified - Total Petroleum Hydrocarbons as Diesel (TPH-D);
- EPA 8260 – Volatile Organic Compounds (VOCs)

Due to the observed presence of free-floating product, the sample from MW-4 was not analyzed for TPH-G or TPH-D. In a letter dated April 9, 2001, Alameda County Environmental Health Services requested that the sample from MW-4 be analyzed for Semi-Volatile Organic Compounds (SVOCs) using EPA Test Method 8270.

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

- Groundwater samples from MW-1, MW-2, and MW-3 did not contain detectable concentrations of TPH-G or Benzene, Toluene, Ethylbenzene, and Total Xylenes (BTEX).

- TPH-D was not detected in MW-1 and MW-2 at or above the laboratory detection limit. MW-3 had a TPH-D concentration of 0.54 milligrams per liter (mg/l).

- MTBE was detected in groundwater samples MW-3 and MW-4. MW-3 had a MTBE concentration of 3.8 micrograms per liter (ug/l), while MW-4 had a concentration of 8.5 ug/l.

- MW-4 had the following VOC concentrations: sec-Butylbenzene: 0.6 ug/l, Naphthalene: 26 ug/l, and n-Propylbenzene: 0.6 ug/l.

- MW-4 also had the following SVOC concentrations: Anthracene: 0.018 mg/l, Di-n-octylphalate: 0.035 mg/l, Flourene: 0.046 mg/l, 2-Methylnapthalene: 0.060 mg/l, Naphthalene: 0.046 mg/l, Phenanthrene: 0.099 mg/l, and Pyrene: 0.011 mg/l

The results of the groundwater sample analysis were compared to the State of California Primary Drinking Water Standards (PDWS), and if the compound did not have a PDWS with the EPA Region IX Preliminary Remediation Goals (PRG) for tap water. The following compound was above its respective PDWS or PRG.

- Naphthalene in MW-4 at 46 ug/L (PRG of 6.2 ug/L)

All other compounds detected were below their respective PDWS or PRG.

3.0 SUMMARY AND CONCLUSIONS

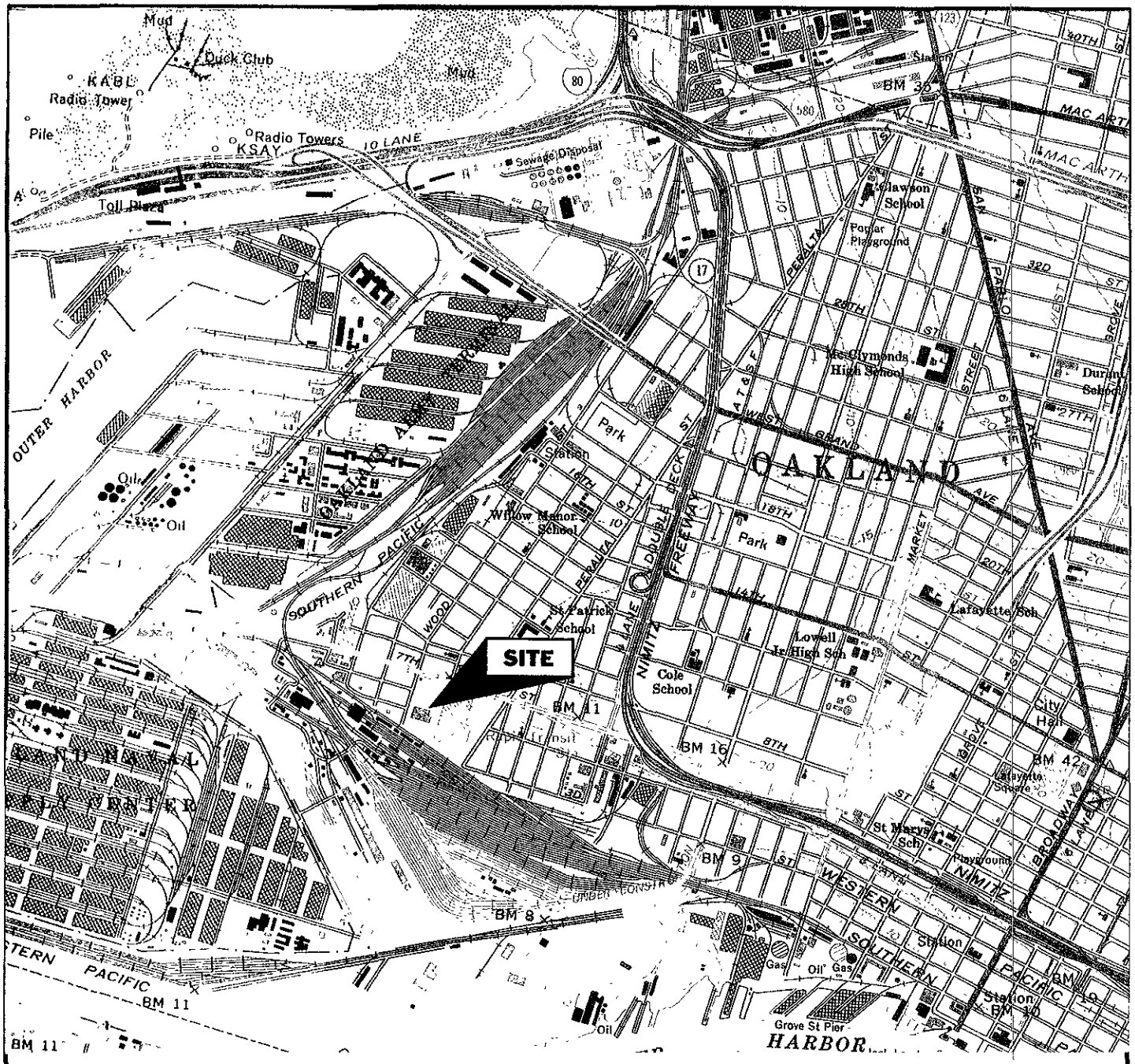
PSI performed groundwater-monitoring activities on March 11, 2002. The results of the monitoring event are summarized below.

- Groundwater flows to the southwest under a hydraulic gradient of 0.01.
- TPH-G and TPH-D concentrations were not detected at or above the laboratory detection limit in all samples except for MW-3.
- VOC concentrations were detected at or above the laboratory detection limit for samples MW-3 and MW-4. SVOC concentrations were detected in MW-4. Only Naphthalene in MW-4 was found above the PRG or PDWS.

4.0 RECOMMENDATIONS

Based on the analytical results, PSI recommends that quarterly sampling, with analysis for TPH-G, TPH-D, and VOCs continue at this site. Since the only SVOC with a concentration greater than the PRG (naphthalene) can also be detected in the VOC analyses, PSI does not recommend the continued analysis of the groundwater samples for SVOCs.

FIGURES



NORTH

0 1/2 1 MILE

SCALE

REFERENCE:
U.S.G.S. OAKLAND WEST QUADRANGLE CALIFORNIA, 7.5 MINUTE SERIES TOPOGRAPHIC MAP, DATED 1959. Photorevised 1980.

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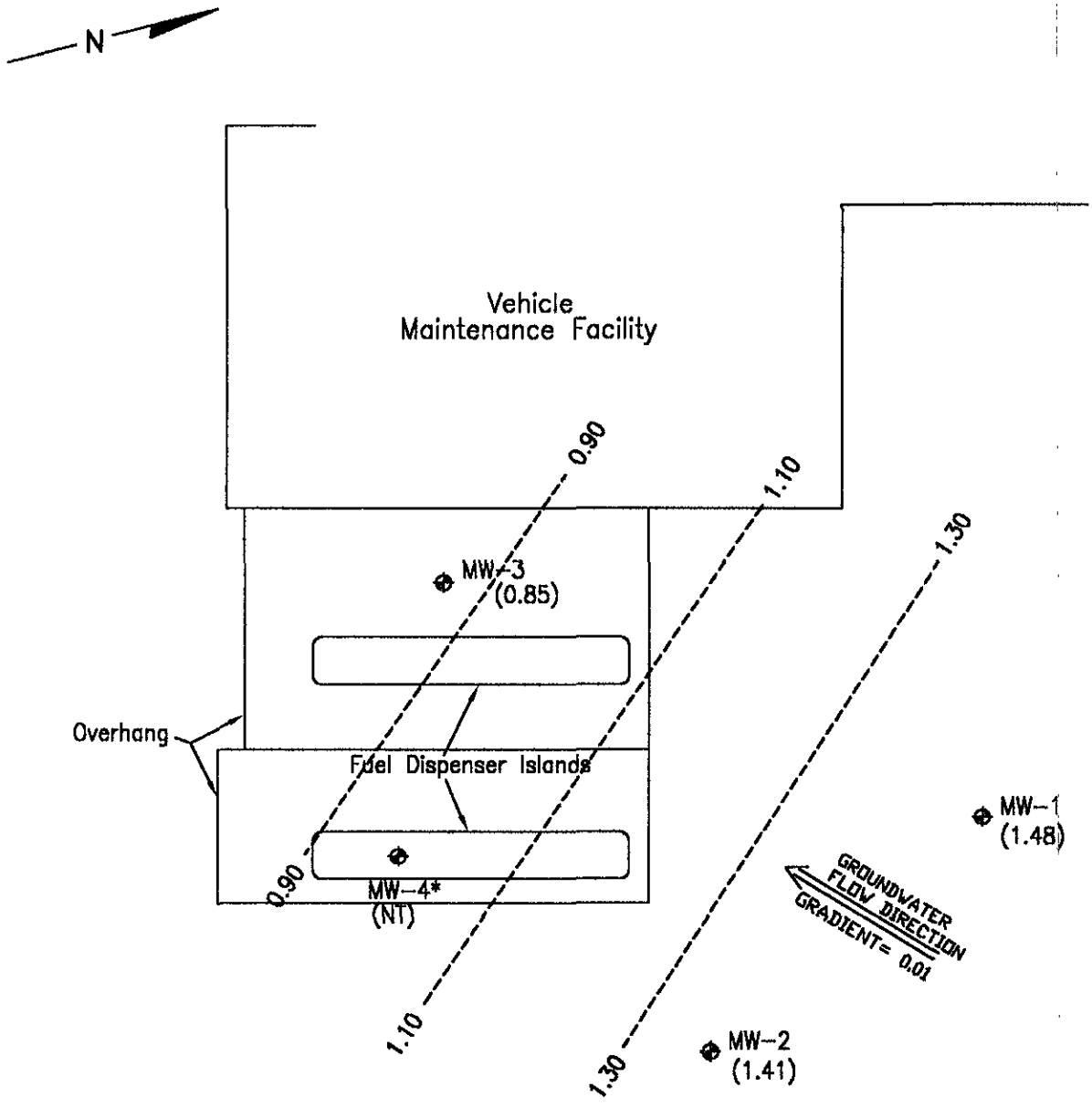
4703 Tidewater Avenue, Suite B
Oakland, California 94601
(510) 434-9200

Project Name	Drawn By:	Date:	File No.:	Figure No.:
Oakland Vehicle Maintenance Facility Oakland, California	B.W.B.	4/05	2E010-01	1
Title: SITE LOCATION MAP	Approved By: F.P.	Project No.: 575-2G007		



LEGEND:

◆ MW-3 (0.85) – APPROXIMATE MONITORING WELL LOCATION (GROUNDWATER ELEVATION INDICATED IN FEET MSL)

1.10 – LINE OF EQUAL GROUNDWATER ELEVATION (IN FEET MSL)

MW-4* (NT) – MW-4 GROUNDWATER ELEVATION NOT MEASURED

0 20 40ft

APPROXIMATE SCALE

DRAWING REFERENCE:
GEO/RESOURCE CONSULTANTS, INC.
FEBRUARY 24, 1994.

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

Project Name:	Drawn By:	Date:	File No.:	Figure No.:
OAKLAND VEHICLE MAINTENANCE FACILITY 1675 7th STREET, OAKLAND, CALIFORNIA	M.C.	4/05	2G007-02	2
Title: GROUNDWATER ELEVATION MAP (MARCH 11, 2002)	Approved By: B.B.	Project No.: 575-2G007		

TABLES

TABLE 1

DEPTH TO GROUNDWATER DATA
USPS OAKLAND
OAKLAND, CALIFORNIA

Sample I.D.	Date	TOC Elevation (feet msl)	Depth To Groundwater (feet)	Groundwater Elevation (feet msl)
MW-1	3/11/02	8.30	6.82	1.48
MW-2	3/11/02	8.86	7.45	1.41
MW-3	3/11/02	9.28	8.43	0.85
MW-4	3/11/02	8.73	NT	NT

Notes: TOC = Top of well casing elevation.
msl = mean sea level
NT = Not Tested/Not Measured

APPENDIX A

GROUNDWATER PURGE LOGS

FLUID MEASUREMENT FIELD DATA

SHEET: 1 OF 1

DATE: MAR 11, 2002	PROJECT NAME: USPS - OAKLAND VMF	PROJECT NO: 575-2600
WATER LEVEL MEASUREMENT INSTRUMENT: SOLINST 5310		SERIAL NO:
PRODUCT DETECTION INSTRUMENT: N/A		SERIAL NO:

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

WELL NUMBER	GROUND SURFACE ELEVATION	TOP OF CASING ELEVATION	DEPTH TO PRODUCT BELOW TOC	DEPTH TO WATER BELOW TOC	WELL DEPTH BELOW TOC	PRODUCT THICKNESS	WATER TABLE ELEVATION	ACTUAL TIME
MW-1	EXIST	8.30	N/A	6.82	20.17	N/A		12:20
MW-2	GRADE	8.86		7.45	8.81 (PLUGGED)			12:15
MW-3	↓	9.28	↓	8.43	20.11	↓		12:25
MW-4	↓	8.73	↓			↓		12:30

PREPARED BY: B. BURFIELD

PSI
Rev. 12/95

WELL PURGING AND SAMPLING DATA

WELL NO: MW-1

DATE: 3/12/02 | PROJECT NAME: USPS - OAKLAND VMF | PROJECT NO: 575-2G007

WEATHER CONDITIONS: PARTLY CLOUDY / COOL

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

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

WELL DEPTH (TOC) 8.30 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 6.82 FT.

LENGTH OF WATER 13.18 FT. | CALCULATED ONE WELL VOLUME[1]: 8.6 GAL.

PURGING DEVICE: PVC PUMP ☐ DEDICATED ☐ DISPOSABLE ☒ DECONTAMINATED

SAMPLING DEVICE: ((☐ DEDICATED ☐ DISPOSABLE ☒ DECONTAMINATED

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

CONTAINER PRESERVATION: ☒ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL & SERIAL NO: MYRON L ULTRAMETER 6L

ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT. µS	pH	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
13:13	INITIAL	19.0	2655	6.93			CL	NO ODOR, NO SHEEN
13:16	5.0	18.2	2705	7.00			CL	
13:19	10.0	17.8	2613	7.08			CL	
13:22	15.0	17.8	2432	7.00			CL	
13:25	20.0	17.9	2507	6.97			CL	
13:28	25.0	17.8	2495	6.99			CL	
13:35	WELL	BAILED						

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

NOTES:

SAMPLE TIME: 13:35 ID# MW-1

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: B. BURFIELD

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

WELL PURGING AND SAMPLING DATA

WELL NO: MW-2

DATE: 3/13/02 | PROJECT NAME: USPS - OAKLAND VMF | PROJECT NO: 575-26007

WEATHER CONDITIONS: PARTLY CLOUDY / COOL

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

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

WELL DEPTH (TOC) 8.86 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 7.45 FT.

LENGTH OF WATER 12.55 FT. | CALCULATED ONE WELL VOLUME[1]: 8.2 GAL.

PURGING DEVICE: PVC PUMP ☐ DEDICATED ☐ DISPOSABLE ☒ DECONTAMINATED

SAMPLING DEVICE: ☐ DEDICATED ☐ DISPOSABLE ☒ DECONTAMINATED

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

CONTAINER PRESERVATION: ☒ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL & SERIAL NO: MYRON L ULTRAMETER 6L

ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT. µS	pH	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
12:00	INITIAL	19.1	171.5	7.18			TU	SLIGHT SURFACTANT SLIGHT DIESEL ODOR
12:06	5.0	18.0	128.2	7.28			TU	↓ ↓
12:12	10.0	17.8	106.1	7.23			TU	↓ ↓
12:18	15.0	17.8	134.2	7.19			CO	AS ABOVE - NO SURFACTANT
12:24	20.0	17.9	138.3	7.09			CO	↓ ↓
12:30	25.0	17.7	137.1	7.10			CO	↓ ↓
12:45	WELL	SAMPLED						

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

NOTES:

SAMPLE TIME: 12:45 ID#

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: B. BURGESS

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

WELL PURGING AND SAMPLING DATA

WELL NO: MW-3

DATE: 3/12/02 | PROJECT NAME: USPS - OAKLAND VMF | PROJECT NO: 575-26007

WEATHER CONDITIONS: PARTLY CLOUDY / COOL

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

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

WELL DEPTH (TOC) 9.28 FT. | DEPTH TO WATER BEFORE PURGING (TOC) 8.43 FT.

LENGTH OF WATER 11.57 FT. | CALCULATED ONE WELL VOLUME[1]: 7.5 GAL.

PURGING DEVICE: PVC PUMP ☐ DEDICATED ☐ DISPOSABLE ☒ DECONTAMINATED

SAMPLING DEVICE: " ☐ DEDICATED ☐ DISPOSABLE ☒ DECONTAMINATED

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

CONTAINER PRESERVATION: ☒ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL & SERIAL NO:
MYRON L ULTRAMETER 6L

ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT. µS	pH	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
14:22	INITIAL	18.0	4541	6.97				
14:25	5.0	18.0	4048	6.95				
14:29	10.0	17.8	3982	7.04				
14:33	15.0	17.9	4872	6.95				
14:37	20.0	17.8	4951	6.94				
14:40	25.0	17.9	5102	6.96				
14:45	WELL SAMPLED							

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

NOTES:

SAMPLE TIME: 14:45 ID# MW-3

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: B. BURFIELD

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

WELL PURGING AND SAMPLING DATA

WELL NO: MW-4

DATE: 3/12/02 | PROJECT NAME: USPS-OAKLAND VMF | PROJECT NO: 579-26007

WEATHER CONDITIONS: PARTLY CLOUDY / COOL

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

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

WELL DEPTH (TOC) 8.73 FT. | DEPTH TO WATER BEFORE PURGING (TOC) NR FT.

LENGTH OF WATER N/A FT. | CALCULATED ONE WELL VOLUME[1]: N/A GAL.

PURGING DEVICE: ~~BAILER~~ N/A ☐ DEDICATED ☐ DISPOSABLE ☒ DECONTAMINATED

SAMPLING DEVICE: POLY PROP BAILER ☒ DEDICATED ☒ DISPOSABLE ☐ DECONTAMINATED

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

CONTAINER PRESERVATION: ☒ LAB PRESERVED ☐ FIELD PRESERVED

WATER ANALYZER MODEL & SERIAL NO: N/A

ACTUAL TIME (MIN)	CUMUL. VOLUME PURGED (GAL)	TEMP ☐ °F ☒ °C	SPECIFIC CONDUCT. µS	pH	DISS. OXYGEN	TURBIDITY (NTUs)	WATER APPEAR CL=CLEAR CO=CLOUDY TU=TURBID	REMARKS (EVIDENT ODOR, COLOR, PID)
15:25	INITIAL	WELL SAMPLED (NO PURGE DUE TO FLOATING PRODUCT)						

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

NOTES:

SAMPLE TIME: 15:25 ID#

DUPLICATE ☐ TIME: ID#:

EQUIP. BLANK: ☐ TIME: ID#:

PREPARED BY: B. BURFIELD

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

APPENDIX B

LABORATORY REPORTS AND CHAIN-OF-CUSTODY FORMS

Centrum Analytical Laboratories, Inc.
CERTIFIED HAZARDOUS WASTE TESTING MOBILE & IN HOUSE LABORATORIES

Client: PSI
4703 Tidewater Ave., Ste. B
Oakland, CA 94601

Date Sampled: 03/12/02
Date Received: 03/13/02
Job Number: 20205

Project: USPS - Oakland

CASE NARRATIVE

The following information applies to samples which were received on 03/13/02 :

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. The date of issue for this report is 04/02/02.

Report approved by:

Tom Wilson
Laboratory Director

Rodolfo Vergara, Jr.
Quality Assurance Manager

ELAP Lab# 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.

Centrum
Analytical
Laboratories, Inc.

EPA 8015B modified - Total Extractable Petroleum Hydrocarbons as Diesel

Client:	PSI	Date Sampled:	03/12/02
Project:	USPS - Oakland	Date Received:	03/13/02
Job No.:	20205	Date Extracted:	03/18/02
Matrix:	Water	Date Analyzed:	3/19-20/02
Analyst:	JB	Batch Number:	8015DW2543

	Reporting Limit	Diesel	Surrogate (OTP)
Sample ID	mg/L	mg/L	Limit: 50 - 150%
Method Blank	0.40	ND	79 %
MW1	0.40	ND	74 %
MW2	0.40	ND	67 %
MW3	0.40	**0.54**	90 %

Centrum
Analytical
Laboratories, Inc.

QC Sample Report - EPA 8015B Diesel

Matrix: Water
Batch #: 8015DW2543

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Diesel	0.8	**75**	70 - 130	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: Laboratory Control Sample

Analyte	Spike Sample Recovery mg/L	Spike Duplicate Recovery mg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Diesel	0.60	0.72	**18%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

Centrum
Analytical
Laboratories, Inc.

EPA 8015B modified - Total Volatile Hydrocarbons as Gasoline

Client:	PSI	Date Sampled:	03/12/02
Project:	USPS - Oakland	Date Received:	03/13/02
Job No.:	20205	Date Analyzed:	03/15/02
Matrix:	Water	Batch Number:	8015GW3246
Analyst:	SEC		

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

Centrum
Analytical
Laboratories, Inc.

QC Sample Report - EPA 8015B Gasoline

Matrix: Water
Batch Number: 8015GW3246

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration mg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Gasoline	10.0	**94**	70 - 130	**Pass**

Analytical Notes:

Batch Precision Results

MS/MSD Sample ID: Laboratory Control Sample

Analyte	Spike Sample Recovery mg/L	Spike Duplicate Recovery mg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Gasoline	9.38	9.27	**1%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample
MSD: Matrix Spike Duplicate

Centrum
Analytical
Laboratories, Inc.

EPA 8260B - Volatile Organics

Client: PSI
Project: USPS - Oakland
Job No.: 20205
Matrix: Water
Analyst: JTS/CP

Date Sampled: 03/12/02
Date Received: 03/13/02
Date Analyzed: 03/13-20/02
Batch Number: MS28260W236

	Sample ID:	Blank	MW-1	MW-2	MW-3	MW-4
Compounds	RL	µg/L	µg/L	µg/L	µg/L	µg/L
Acetone	50	ND	ND	ND	ND	ND
tert-Amyl Methyl Ether (TAME)	5.0	ND	ND	ND	ND	ND
Benzene	0.5	ND	ND	ND	ND	ND
Bromobenzene	1.0	ND	ND	ND	ND	ND
Bromochloromethane	1.0	ND	ND	ND	ND	ND
Bromodichloromethane	0.5	ND	ND	ND	ND	ND
Bromoform	0.5	ND	ND	ND	ND	ND
Bromomethane	0.5	ND	ND	ND	ND	ND
tert-Butanol (TBA)	10	ND	ND	ND	ND	ND
2-Butanone (MEK)	10	ND	ND	ND	ND	ND
n-Butylbenzene	0.5	ND	ND	ND	ND	ND
sec-Butylbenzene	0.5	ND	ND	ND	ND	**0.6**
tert-Butylbenzene	0.5	ND	ND	ND	ND	ND
Carbon disulfide	10	ND	ND	ND	ND	ND
Carbon tetrachloride	0.5	ND	ND	ND	ND	ND
Chlorobenzene	0.5	ND	ND	ND	ND	ND
Chloroethane	0.5	ND	ND	ND	ND	ND
Chloroform	0.5	ND	ND	ND	ND	ND
Chloromethane	0.5	ND	ND	ND	ND	ND
2-Chlorotoluene	0.5	ND	ND	ND	ND	ND
4-Chlorotoluene	0.5	ND	ND	ND	ND	ND
Dibromochloromethane	0.5	ND	ND	ND	ND	ND
1,2-Dibromoethane	0.5	ND	ND	ND	ND	ND
1,2-Dibromo-3-chloropropane	10	ND	ND	ND	ND	ND
Dibromomethane	0.5	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	0.5	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0.5	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	0.5	ND	ND	ND	ND	ND
Dichlorodifluoromethane	0.5	ND	ND	ND	ND	ND
1,1-Dichloroethane	0.5	ND	ND	ND	ND	ND
1,2-Dichloroethane	0.5	ND	ND	ND	ND	ND
1,1-Dichloroethene	0.5	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	0.5	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	0.5	ND	ND	ND	ND	ND
1,2-Dichloropropane	0.5	ND	ND	ND	ND	ND
1,3-Dichloropropane	0.5	ND	ND	ND	ND	ND
2,2-Dichloropropane	0.5	ND	ND	ND	ND	ND
1,1-Dichloropropene	0.5	ND	ND	ND	ND	ND

Centrum Analytical Laboratories, Inc.

EPA 8260B - Volatile Organics

Client:	PSI	Date Sampled:	03/12/02
Project:	USPS - Oakland	Date Received:	03/13/02
Job No.:	20205	Date Analyzed:	03/13-20/02
Matrix:	Water	Batch Number:	MS28260W236
Analyst:	JTS/CP		

	Sample ID:	Blank	MW-1	MW-2	MW-3	MW-4
Compounds	**RL**	µg/L	µg/L	µg/L	µg/L	µg/L
cis-1,3-Dichloropropene	0.5	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	0.5	ND	ND	ND	ND	ND
Diisopropyl Ether (DIPE)	5.0	ND	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND
Ethyl tert-Butyl Ether (EtBE)	5.0	ND	ND	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND	ND	ND
2-Hexanone	10	ND	ND	ND	ND	ND
Isopropylbenzene	0.5	ND	ND	ND	ND	ND
p-Isopropyltoluene	0.5	ND	ND	ND	ND	ND
Methylene chloride	50	ND	ND	ND	ND	ND
4-Methyl-2-pentanone	5.0	ND	ND	ND	ND	ND
Methyl-tert-butyl ether (MtBE)	1.0	ND	ND	ND	**3.8**	**8.5**
Naphthalene	0.5	ND	ND	ND	ND	**26**
n-Propylbenzene	0.5	ND	ND	ND	ND	**0.6**
Styrene	0.5	ND	ND	ND	ND	ND
1,1,1,2-Tetrachloroethane	0.5	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	1.0	ND	ND	ND	ND	ND
Tetrachloroethene	0.5	ND	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0.5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	0.5	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	0.5	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.5	ND	ND	ND	ND	ND
Trichloroethene	0.5	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0.5	ND	ND	ND	ND	ND
Trichlorofluoromethane	0.5	ND	ND	ND	ND	ND
Trichlorotrifluoroethane	5.0	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0.5	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0.5	ND	ND	ND	ND	ND
Vinyl chloride	0.5	ND	ND	ND	ND	ND
Xylenes, m-,p-	1.0	ND	ND	ND	ND	ND
Xylene, o-	0.5	ND	ND	ND	ND	ND

Surrogates (% recovery) Limits: 70 - 130

Sample ID:	Blank	MW-1	MW-2	MW-3	MW-4
Dibromofluoromethane	91	96	94	97	103
Toluene-d8	93	100	98	98	99
Bromofluorobenzene	95	94	93	96	101

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Laboratories, Inc.

QC Sample Report - EPA 8260B

Matrix: Water

Batch #: MS28260W236

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analyte	Spike Concentration µg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
1,1-Dichloroethene	20	**100**	70 - 130	**Pass**
Benzene	20	**95**	70 - 130	**Pass**
Trichloroethene	20	**98**	70 - 130	**Pass**
Toluene	20	**94**	70 - 130	**Pass**
Chlorobenzene	20	**100**	70 - 130	**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	19.94	22.82	**13%**	25%	**Pass**
Benzene	19.09	20.76	**8%**	25%	**Pass**
Trichloroethene	19.63	21.37	**8%**	25%	**Pass**
Toluene	19.08	20.63	**8%**	25%	**Pass**
Chlorobenzene	20.06	21.93	**9%**	25%	**Pass**

Analytical Notes:

MS: Matrix Spike Sample

MSD: Matrix Spike Duplicate

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EPA 8270C - Semivolatile Organics

Client:	PSI	Date Sampled:	03/12/02
Project:	USPS - Oakland	Date Received:	03/13/02
Job No.:	20205	Date Extracted:	03/18/02
Matrix:	Water	Dates Analyzed:	03/21-30/02
Analyst:	TPW	Batch Number:	8270W0770

	Sample ID:	Blank	MW-4
Compound	RL	mg/L	mg/L
Acenaphthene	0.010	ND	ND
Acenaphthylene	0.010	ND	ND
Anthracene	0.010	ND	**0.018**
Benzo[a]anthracene	0.020	ND	ND
Benzo[a]pyrene	0.020	ND	ND
Benzo[b]fluoranthene	0.010	ND	ND
Benzo[g,h,i]perylene	0.030	ND	ND
Benzo[k]fluoranthene	0.010	ND	ND
Benzyl alcohol	0.040	ND	ND
bis(2-Chloroethoxy)methane	0.020	ND	ND
bis(2-Chloroethyl)ether	0.020	ND	ND
bis(2-Chloroisopropyl)ether	0.030	ND	ND
bis(2-Ethylhexyl)phthalate	0.10	ND	ND
4-Bromophenylphenylether	0.010	ND	ND
Butylbenzylphthalate	0.010	ND	ND
4-Chloro-3-methylphenol	0.050	ND	ND
4-Chloroaniline	0.050	ND	ND
2-Chloronaphthalene	0.010	ND	ND
2-Chlorophenol	0.040	ND	ND
4-Chlorophenylphenylether	0.010	ND	ND
Chrysene	0.010	ND	ND
Di-n-butylphthalate	0.10	ND	ND
Di-n-octylphthalate	0.010	ND	**0.035**
Dibenzo[a,h]anthracene	0.030	ND	ND
Dibenzofuran	0.010	ND	ND
1,2-Dichlorobenzene	0.010	ND	ND
1,3-Dichlorobenzene	0.010	ND	ND
1,4-Dichlorobenzene	0.010	ND	ND
3,3-Dichlorobenzidine	0.040	ND	ND
2,4-Dichlorophenol	0.050	ND	ND
Diethylphthalate	0.10	ND	ND
2,4-Dimethylphenol	0.030	ND	ND
Dimethylphthalate	0.010	ND	ND
4,6-Dinitro-2-methylphenol	0.10	ND	ND
2,4-Dinitrophenol	0.50	ND	ND
2,4-Dinitrotoluene	0.010	ND	ND

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EPA 8270C - Semivolatile Organics

Client:	PSI	Date Sampled:	03/12/02
Project:	USPS - Oakland	Date Received:	03/13/02
Job No.:	20205	Date Extracted:	03/18/02
Matrix:	Water	Dates Analyzed:	03/21-30/02
Analyst:	TPW	Batch Number:	8270W0770

	Sample ID:	Blank	MW-4
Compound	RL	mg/L	mg/L
2,6-Dinitrotoluene	0.030	ND	ND
Fluoranthene	0.010	ND	ND
Fluorene	0.010	ND	**0.046**
Hexachlorobenzene	0.010	ND	ND
Hexachlorobutadiene	0.010	ND	ND
Hexachlorocyclopentadiene	0.50	ND	ND
Hexachloroethane	0.010	ND	ND
Indeno[1,2,3-cd]pyrene	0.040	ND	ND
Isophorone	0.010	ND	ND
2-Methylnaphthalene	0.010	ND	**0.060**
2-Methylphenol	0.050	ND	ND
4-Methylphenol	0.050	ND	ND
N-Nitroso-di-n-propylamine	0.010	ND	ND
N-Nitrosodiphenylamine	0.010	ND	ND
Naphthalene	0.010	ND	**0.046**
2-Nitroaniline	0.030	ND	ND
3-Nitroaniline	0.030	ND	ND
4-Nitroaniline	0.10	ND	ND
Nitrobenzene	0.030	ND	ND
2-Nitrophenol	0.040	ND	ND
4-Nitrophenol	0.10	ND	ND
Pentachlorophenol	0.50	ND	ND
Phenanthrene	0.020	ND	**0.099**
Phenol	0.040	ND	ND
Pyrene	0.010	ND	**0.011**
1,2,4-Trichlorobenzene	0.010	ND	ND
2,4,5-Trichlorophenol	0.060	ND	ND
2,4,6-Trichlorophenol	0.10	ND	ND

Surrogates (Limits) in Percent Recovery

Sample ID:	Blank	MW-4
2-Fluorophenol (21 - 100%)	*66*	*51*
Phenol-D5 (10 - 94%)	52	41
Nitrobenzene-D5 (35 - 114%)	94	87
2-Fluorobiphenyl (43 - 116%)	75	79
2,4,6-Tribromophenol (10 - 123%)	103	68
p-Terphenyl-D14 (33 - 141%)	97	92

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QC Sample Report - EPA 8270C

Batch #: 8270W0770 Matrix: Water

Batch Accuracy Results

Sample ID: Laboratory Control Sample

Analytical Notes:

Analyte	Spike Concentration µg/L	% Recovery LCS	Acceptance Limits % Recovery	Pass/Fail
Phenol	80	**46**	5 - 112	**Pass**
2-Chlorophenol	80	**86**	23 - 134	**Pass**
1,4-Dichlorobenzene	40	**73**	20 - 124	**Pass**
N-Nitrosodi-n-propylamine	40	**101**	0 - 230	**Pass**
1,2,4-Trichlorobenzene	40	**85**	44 - 142	**Pass**
4-Chloro-3-Methylphenol	80	**106**	22 - 147	**Pass**
Acenaphthene	40	**74**	47 - 145	**Pass**
4-Nitrophenol	80	**37**	0 - 132	**Pass**
2,4-Dinitrotoluene	40	**91**	39 - 139	**Pass**
Pentachlorophenol	80	**91**	14 - 176	**Pass**
Pyrene	40	**104**	52 - 115	**Pass**

Batch Precision Results

MS/MSD Sample ID: Laboratory Control Sample

Analytical Notes:

Analyte	Spike Sample Recovery µg/L	Spike Duplicate Recovery µg/L	Relative Percent Difference (RPD)	Upper Control Limit RPD	Pass/Fail
Phenol	37.0	37.5	**1%**	35%	**Pass**
2-Chlorophenol	69.1	68.4	**1%**	50%	**Pass**
1,4-Dichlorobenzene	29.2	32.4	**10%**	27%	**Pass**
N-Nitrosodi-n-propylamine	40.4	42.6	**5%**	38%	**Pass**
1,2,4-Trichlorobenzene	34.1	36.4	**7%**	28%	**Pass**
4-Chloro-3-Methylphenol	84.6	84.5	**0%**	33%	**Pass**
Acenaphthene	29.7	32.0	**8%**	23%	**Pass**
4-Nitrophenol	30.2	29.7	**2%**	50%	**Pass**
2,4-Dinitrotoluene	36.5	36.5	**0%**	47%	**Pass**
Pentachlorophenol	72.7	75.1	**3%**	47%	**Pass**
Pyrene	41.7	40.7	**2%**	36%	**Pass**

Chain of Custody Record

Centrum Analytical Laboratories, Inc.

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Centrum Job # 20205

Project No: 575-2G007

Project Name: USPS - OAKLAND

Project Manager: FRANK POSS

Phone: 510 434 9200

Fax: 510 434 7676

Client Name: (Report and Billing) PSE

Address: (Report and Billing) 4703 TIDEWATER AVE, STE B OAKLAND CA 94601

Please Circle Analyses Requested

Centrum ID (Lab use only)	Sample ID (As it should appear on report)	Date sampled	Time sampled	Sample matrix	Site location	Containers: # and type	8015M: (Diesel) Fuel Screen, Carbon Chain	8015M: (Gas only)	8021B: BTEX/MtBE Only	418.1 (TRPH), 413.2, 1664	GC or GCMS Volatiles by 5035*	GCMS: 8260B, 8021B, 624, 524.2	GCMS: MtBE Conf. Only, BTEX/Oxygenates Only	GCMS: 8270C, 625	8080: Pesticides, PCBs, Pest/PCB	Metals: Title 22 (CAM), RCRA, PP	pH, TDS, TSS, Conductivity	Flashpoint, Hex Cr
1	MW-1	3/12/02	13:35	W		4 VOAs 1 AMBER	X	X				X						
2	MW-2		12:45				X	X				X						
3	MW-3		14:45				X	X				X						
4	MW-4		15:25			4 VOAs 2 AMBER						X		X					

Turn-Around Time

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

*Requires PRIOR approval, additional charges apply

Requested due date: _____

Remarks/Special Instructions

1) Relinquished by: (Sampler's Signature) — Date: 3/12/02 Time: 17:10

2) Received by: FED EX #830135936458 — Date: Time:

3) Relinquished by: — Date: Time:

4) Received by: — Date: Time:

5) Relinquished by: FEDEX — Date: Time:

6) Received for Laboratory by: — Date: 3/13 Time: 920A

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

To be completed by Laboratory personnel:

Samples chilled? ☒ Yes ☐ No ☐ From Field

Custody seals? ☐ Yes ☒ No

All sample containers intact? ☒ Yes ☐ No

☐ Courier ☒ UPS/Fed Ex ☐ Hand carried

Sample Disposal

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

Laboratory Notes: *All Amber bottles received unpreserved 3/13 QO

Sample Locator No.: K/VOA