RO 401

AKI K. NAKAO, Director

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September 28, 2005

AG

TO: Don Hwang, Hazmat Specialist, HCSA-Environmental Health

FROM: Rod Freitag, Environmental Program Manager, GSA-TSD

SUBJECT: GROUNDWATER MONITORING REPORT AND CASE CLOSURE REQUEST FOR ALCOPARK, 165 - 13TH STREET, OAKLAND, CA

Enclosed for your records is the report documenting groundwater monitoring results for the August, 2005 sampling event. Groundwater monitoring is currently performed semiannually, in accordance with Environmental Health's requirements.

GSA formally requests that groundwater monitoring be suspended and that this case be closed. This request is justified based on groundwater monitoring data accumulated during the past sixteen years, the lack of sensitive receptors, and the stability of the plume. It is also justified based on the attached August 20, 2001 email from Alameda County Environmental Health indicating that the case would be evaluated for closure when MTBE concentrations are consistently below 1000 ppb. MTBE concentrations have not exceeded this level in over two years.

If you have any questions or need additional information, please contact me at x29522. Thank you for your attention this matter.

RDF:rdf:i:\e&em\prjt\env\7001\August 2005 report transmittal

Enclosures

cc: Ariu Levi, Division Chief, HCSA-Environmental Health
Donna Drogos, Supv. Hazardous Materials Specialist, HCSA-Environmental Health

7001

Freitag, Rod, GSA-Technical Services Department

From: Chu, Eva, Env. Health
Sent: Monday, August 20, 2001 11:52 AM
To: Freitag, Rod, GSA-Technical Services Department
Subject: Alco Park

Hi Rod,

I case I never got back to you, you requested I approve the reduction in monitoring frequency at Alco Park. It's approved to conduct semi-annual monitoring at the site. Sampling should be in February and July of each year until further notice. As the MTBE concentrations continue to decrease to less than 1,000 ppb consistently, I will then evaluate for possible closure.

evachu

Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502
(510) 567-6762
(510) 337-9335 fax

SEMI-ANNUAL
GROUNDWATER MONITORING REPORT
THIRD QUARTER, 2005
ALCOPARK FUELING FACILITY
OAKLAND, CALIFORNIA

Prepared for

ALAMEDA COUNTY GENERAL SERVICES AGENCY
1401 Lakeside Drive, 11th Floor
Oakland, California

Prepared by

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

September 12, 2005
575-4G009

TABLE OF CONTENTS

STATEMENT OF LIMITATIONS AND PROFESSIONAL CERTIFICATION

Information provided in this report, prepared by Professional Service Industries, Inc. (PSI), is intended exclusively for the use of Alameda County General Services Agency (ACGSA), for the evaluation of subsurface conditions as they pertain to the subject site. The professional services provided have been performed in accordance with practices generally accepted by other geologists, hydrologists, hydrogeologists, engineers, and environmental scientists practicing in this field. No other warranty, either expressed or implied, is made. As with all subsurface investigations, there is no guarantee that the work conducted will identify any or all sources or locations of contamination.

This report is issued with the understanding that ACGSA is responsible for ensuring that the information contained herein is brought to the attention of the appropriate regulatory agency.

Frank R. Poss, REA
Senior Hydrogeologist

Brand Burfield, PG
Project Geologist

1. INTRODUCTION

Professional Service Industries, Inc. (PSI) was retained by the Alameda County General Services Agency (ACGSA) to perform the semi-annual groundwater monitoring at the ACGSA Alcopark Fueling Facility - Site No. 2, located at 165 13th Street, Oakland, California. The site location is presented on Figure 1.

The groundwater monitoring was prompted by a request by the Alameda County Health Care Services Agency (ACHCSA), which requested additional information on the extent of petroleum hydrocarbon impacted groundwater (ACHCSA, 1997a).

1.1 SCOPE OF WORK

The scope of work consisted of the following tasks:

- Measure the depth to water in the site wells and prepare a groundwater elevation map.
- Determine the groundwater flow direction and gradient.
- Collect and chemically analyze groundwater samples from wells MW-1, MW-6 and MW-7.
- Prepare a report documenting the field procedures, analytical results, and presenting our conclusions regarding the data generated.

1.2 SITE BACKGROUND

The ACGSA operates two 10,000-gallon Underground Storage Tanks (USTs) at the Alcopark fueling station to fuel Alameda County vehicles. Three groundwater monitoring wells were installed at the site in March, 1989 to assess environmental conditions subsequent to the repair of a line leak at Dispenser No. 1. Initial sample results indicated the presence of BTEX (benzene, toluene, ethyl-benzene, and xylenes). in the groundwater. Subsequent sample results indicated the presence of Total Petroleum Hydrocarbons as Gasoline (TPH-G). Based on the analytical data, it was concluded that contaminants detected on-site had originated from a source area located upgradient of the site. Sampling activities were halted in 1992 pending investigation of an upgradient source (ACGSA, 1997).

In their letter dated May 30, 1997, the ACHCSA instructed ACGSA to resume groundwater monitoring at Alcopark (ACHCSA, 1997b). Sampling resumed in July, 1997. Analytical data from that sampling event indicated elevated TPH-G and BTEX

concentrations in the downgradient well. Methyl tert-Butyl ether (MTBE) was also detected. Additional samples collected in October, 1997 provided similar results (ACGSA, 1997). In their letter dated September 11, 1997, the ACHCSA directed ACGSA to investigate the extent and stability of the plume.

To better define groundwater conditions downgradient of the USTs, two borings were drilled on March 23, 1998. A grab groundwater sample was collected from one of the borings, and Well MW-6 was installed in the other boring. One additional small-diameter groundwater monitoring well (MW-7) was installed by PSI in September, 1999 and the analytical results are presented in the PSI report dated October 14, 1999.

ACHCSA issued a letter, dated July 18, 2000, requiring ACGSA to prepare a Site Conceptual Model in accordance with the Regional Water Quality Control Board's final draft "Guideline for Investigation and Cleanup of MTBE and Other Ether-Based Oxygenates." The Site Conceptual Model, dated November 10, 2000, indicated that there are no drinking water wells within ½ mile of the site, and Lake Merritt, the nearest surface water receptor, is salt water and not a potential source of drinking water. Based on these findings, it was concluded that, "...an Interim Remedial Action should not be required for the subject site because the migration of MTBE contaminated groundwater to the nearest receptor, Lake Merritt, is unlikely. Furthermore, since no potential drinking water sources are at risk, a risk assessment is not necessary for the site."

After reviewing the Site Conceptual Model report, ACHCSA required that a supplemental fate and transport screening be done to assess potential MTBE impacts on the Lake Merritt ecosystem. On June 8, 2001, a report was issued indicating no expectation of a significant impact on the ecology of Lake Merritt.

Groundwater sampling is currently being conducted semi- annually, in accordance with ACHCSA's requirements.

1.2.1 STORAGE TANK SYSTEM UPDATES

In September of 1992, overfill protection, spill containment, and automatic tank gauging were installed on the two underground tanks. In July and August of 1996, additional upgrade work was done to comply with Title 23 of the California Code of Regulations. This included replacement of underground single-walled steel piping with double-wall fiberglass piping, and installation of dispenser sumps, piping sumps, and sump leak sensors (ACGSA, 1997).

2. GROUNDWATER MONITORING ACTIVITIES

A PSI representative performed groundwater-monitoring activities on August 17, 2005. The activities were performed in accordance with PSI standard procedures presented in Appendix A, and procedures described in an ACHCSA letter describing collection of samples without purging the wells (ACHCSA, 1997a).

2.1 GROUNDWATER ELEVATION AND FLOW DIRECTION

Prior to groundwater sampling, depth to groundwater was measured from the top of the well casings in monitoring wells MW-1, MW-4, and MW-5. The groundwater measurements were converted to groundwater elevations and the data were plotted on a groundwater elevation map (presented as Figure 2). The groundwater elevation data are presented in Table 1.

PSI's interpretation of the groundwater elevation data indicates the groundwater is flowing to the east-southeast under a hydraulic gradient of 0.006. The flow direction is consistent with the flow direction determined for previous quarterly monitoring events.

2.2 GROUNDWATER SAMPLING

Monitoring wells MW-1, MW-6, and MW-7 were sampled without purging, as requested in the ACHCSA letter dated September 11, 1997. The groundwater samples were collected with disposable polyethylene tubing equipped with a check valve. The groundwater samples were collected according to PSI's standard protocol, included in Appendix A, and were stored in an iced cooler through delivery to the analytical laboratory and maintained under Chain-of-Custody protocol.

To minimize the possibility of cross-contamination between sampling locations, most of the sampling equipment used is disposable. To further minimize the possibility of cross-contamination, the water sounder and all other reusable sampling equipment were cleaned with a non-phosphate detergent and rinsed twice with deionized water prior to their use in the next well.

3. LABORATORY ANALYSIS PROGRAM

The groundwater samples collected during this investigation were submitted to McCampbell Analytical, Inc. of Pacheco, California. McCampbell Analytical is a State of California Department of Health Services certified environmental laboratory (Environmental Laboratory Accreditation Program #1644). A summary of the analytical methods is presented below.

The groundwater samples collected at the site were analyzed for the following constituents by the indicated methods:

- Total Petroleum Hydrocarbons as Gasoline (TPH-G) in accordance with Environmental Protection Agency (EPA) Method 8015-Modified.
- Volatile Organic Compounds (VOCs) by EPA Method 8260.

The samples were transported to the laboratory under Chain-of-Custody protocol. A copy of the chain of custody form is included in Appendix B.

3.1 ANALYTICAL RESULTS

The analytical data is summarized in Table 1. Laboratory reports are presented in Appendix B.

VOCs including MTBE were detected in the samples from all three groundwater-monitoring wells sampled for this monitoring event.

- TPH-G was detected in the sample from wells MW-1 (4,100 ug/l), MW-6 (2,800 ug/l), and MW-7 (66 ug/l).
- Benzene was detected in wells MW-1 (410 ug/l), MW-6 (820 ug/l), and MW-7 (9.3 ug/l). The benzene concentrations have increased in all wells sampled (MW-1, MW-6, and MW-7) since the previous sampling event. Figure 3 depicts the benzene concentration with time in MW-1, MW-6, and MW-7. Benzene concentrations have varied with time and have not shown a consistent overall trend.
- MTBE was detected in wells MW-1 (59 ug/l), MW-6 (610 ug/l) and MW-7 (230 ug/l). The MTBE concentrations increased in wells MW-1 and MW-6 and decreased in well MW-7 since the previous sampling event. Figure 4 depicts the MTBE concentration with time in MW-1, MW-6, and MW-7.

- Additional VOCs, commonly associated with gasoline-impacted groundwater, were detected in the groundwater samples. The maximum concentrations for each of the additional VOCs detected are presented below.

  - Naphthalene at 360 ug/L in MW-1
  - 1,2,4 Trimethylbenzene at 790 ug/L in MW-1
  - Xylenes at 1,500 ug/L in MW-1
  - Tert-Amyl methyl ether (TAME) at 110 ug/L in MW-6
  - Ethyl Benzene at 380 ug/L in MW-1
  - t-Butyl alcohol (TBA) at 490 ug/L in MW-6
  - Isopropylbenzene at 22 ug/L in MW-1
  - Naphthalene at 360 ug/L in MW-1
  - N-Propyl benzene at 64 ug/L in MW-1
  - Toluene at 35 ug/L in MW-1
  - 1,3,5 – Trimethylbenzene at 160 ug/L in MW-1

4. CONCLUSIONS AND RECOMMENDATIONS

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

- Groundwater elevations measured at the site range from approximately 15.59 to 15.82 feet above msl.

- Groundwater flow direction is to the east-southeast with a gradient of 0.006.

- The groundwater samples collected from wells MW-1, MW-6 and MW-7 contained measurable concentrations of TPH-G and VOCs, with MTBE and benzene being the primary contaminants of concern.

Based on the groundwater sampling since 1989, the lack of sensitive receptors, and the stability of the plume, PSI recommends that the groundwater sampling schedule should be changed from semi-annual to annual.

5. REFERENCES

ACGSA, 1997, Request For Proposal (RFP) for Groundwater Services, December 2.

ACHCSA, 1997a, Workplan Request Letter to Mr. Rodman Freitag, September 11.

ACHCSA, 1997b, Continuation of Groundwater Monitoring Request, Letter to Mr. Jim DeVos, May 20.

USGS, 1980, Oakland West, California, topographic map.

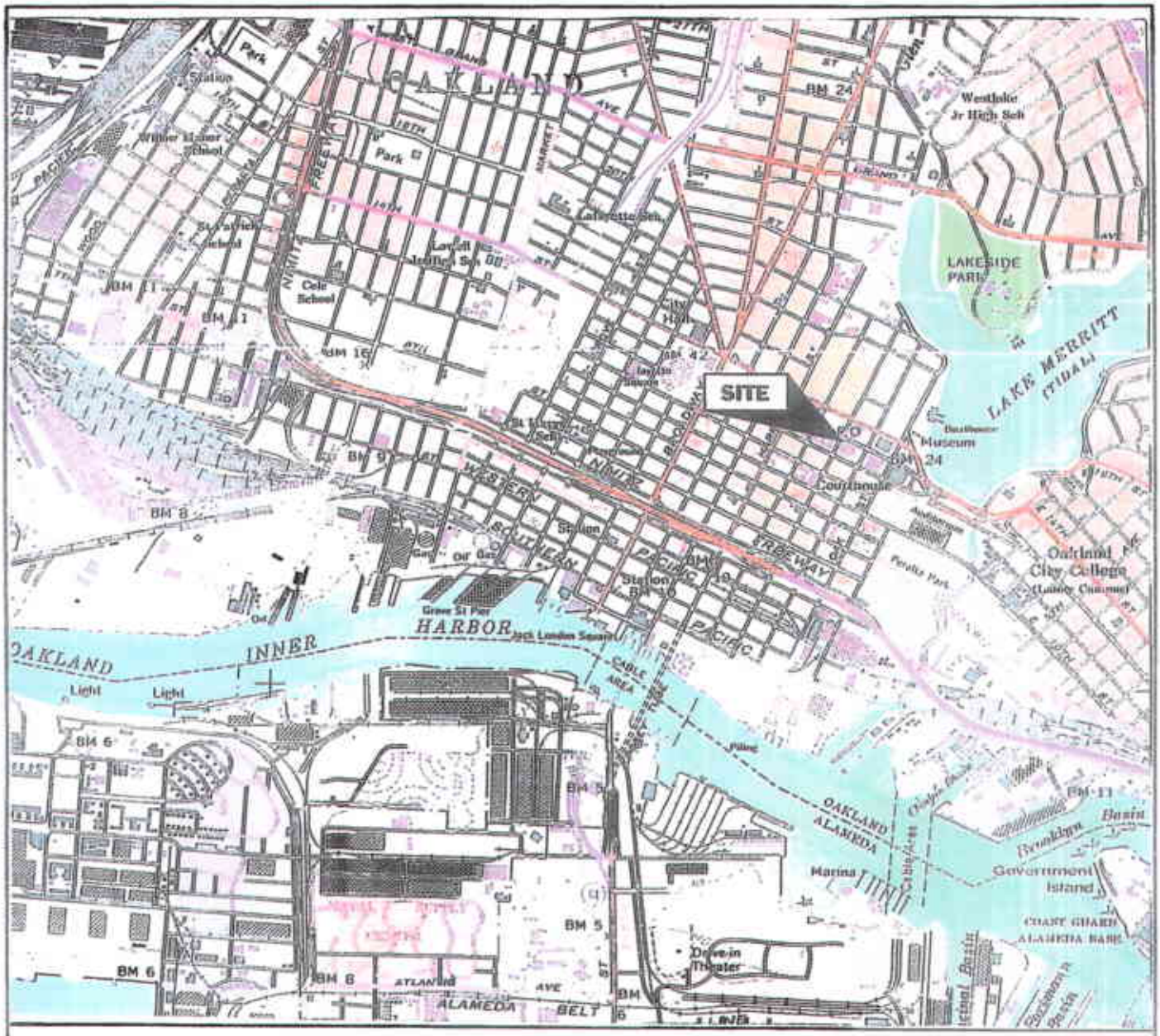
TABLE 1
GROUNDWATER ELEVATION AND ANALYTICAL DATA SUMMARY
ALCOPARK FUELING FACILITY SITE NO. 2
OAKLAND, CALIFORNIA

All concentrations in ug/l (PPB).								
Well	Date	Groundwater Elevation	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
MW-1	3/21/1989	12.2	ND	NA	21	3.9	0.4	4.5
	7/26/1990	12.3	1,400	NA	200	45	ND	53
	10/25/1990	12.1	1,200	NA	ND	7.3	2.2	46
	1/25/1991	11.9	270	NA	23	1.5	ND	3.1
	4/25/1991	11.8	230	NA	ND	ND	ND	ND
	8/27/1991	11.8	8,300	NA	370	64	ND	120
	11/25/1991	11.7	810	NA	9.3	ND	7.8	32
	6/11/1992	12.85	2,600	NA	810	16	21	42
	7/16/1997	14.36	19,000	ND (150)	1,400	2,800	500	2,600
	10/21/1997	13.92	14,000	29	1,200	1,000	590	2,800
	3/11/1998	17.14	NS	NS	NS	NS	NS	NS
	4/1/1998	17.14	ND (50)	6.3	5.4	ND (0.5)	ND (0.5)	0.82
	7/15/1998	16.41	71	57	31	ND (0.5)	ND (0.5)	3.1
	10/22/1998	15.62	5,100	360	520	140	250	950
	9/9/1999	15.42	2,400	400	680	140	130	370
	1/18/2000	14.49	4,100	180	420	11	210	350
	5/4/2000	16.19	NS	NS	NS	NS	NS	NS
	8/22/2000	15.34	9,400	410	1,200	130	410	920
	2/8/2001	14.53	NS	NS	NS	NS	NS	NS
	7/20/2001	14.60	9,600	ND (50)	1,000	300	350	2,000
	2/18/2002	15.08	1,500	ND (100)	260	6.5	2.8	49
	7/19/2002	14.84	180	28	68	ND (1.7)	ND (1.7)	6.8
	2/10/2003	14.83	210	11	14	0.75	ND (0.5)	4.0
	7/15/2003	14.80	370	4.6	31	0.99	22	75
	2/12/2004	14.87	1,800	29	170	2.7	140	87
	7/7/2004	14.81	800	37	120	ND (2.5)	67	38
	3/24/2005	15.92	ND (50)	4.7	4	ND (0.5)	2.5	2
	8/17/2005	15.60	4,100	59	410	35	380	1,500
MW-4	3/21/1989	12.4	ND	NA	13	1.4	1.0	ND
	7/26/1990	12.5	NA	NA	0.8	ND	ND	ND
	10/25/1990	12.2	NA	NA	120	1.2	1.1	0.9
	1/25/1991	12.0	NA	NA	230	2.8	1.2	2.0
	4/25/1991	13.0	170	NA	12	ND	ND	2.3
	8/27/1991	11.8	ND	NA	87	1.3	0.8	0.8
	11/25/1991	11.8	1,400	NA	ND	1.7	8.6	3.6
	6/11/1992	12.93	560	NA	150	1.8	1.8	1.1
	7/16/1997	14.46	50	ND	ND	ND	ND	ND
	10/21/1997	14.10	ND	ND	ND	ND	ND	ND
	3/11/1998	17.39	NS	NS	NS	NS	NS	NS
	4/1/1998	17.40	ND (50)	ND (5.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	7/15/1998	16.92	ND (50)	ND (5.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	10/22/1998	15.75	ND (50)	ND (5.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	9/9/1999	15.57	NS	NS	NS	NS	NS	NS
	1/18/2000	14.32	NS	NS	NS	NS	NS	NS
	5/4/2000	16.34	NS	NS	NS	NS	NS	NS
	8/22/2000	15.47	NS	NS	NS	NS	NS	NS
	2/8/2001	14.73	NS	NS	NS	NS	NS	NS
	7/20/2001	14.72	NS	NS	NS	NS	NS	NS
	2/18/2002	15.05	NS	NS	NS	NS	NS	NS
	7/19/2002	14.97	NS	NS	NS	NS	NS	NS
	2/10/2003	14.94	NS	NS	NS	NS	NS	NS
	7/15/2003	14.94	NS	NS	NS	NS	NS	NS
	2/12/2004	14.93	NS	NS	NS	NS	NS	NS
	7/7/2004	14.94	NS	NS	NS	NS	NS	NS
	3/24/2005	16.05	NS	NS	NS	NS	NS	NS
	8/17/2005	15.82	NS	NS	NS	NS	NS	NS
MW-5	3/21/1989	12.2	ND	NA	ND	ND	ND	ND
	7/26/1990	12.4	670	NA	0.8	ND	ND	ND
	10/25/1990	12.1	120	NA	13	ND	ND	ND
	1/25/1991	11.9	120	NA	3.2	ND	ND	ND
	4/25/1991	12.3	ND	NA	ND	ND	ND	ND
	8/27/1991	11.5	ND	NA	20	ND	0.5	ND
	11/25/1991	11.7	190	NA	2.7	ND	0.8	2.5
	6/11/1992	12.85	150	NA	37	ND	ND	ND
	7/16/1997	14.33	ND	22	ND	ND	ND	ND
	10/21/1997	13.88	ND	14	ND	ND	ND	ND
	3/11/1998	17.14	NS	NS	NS	NS	NS	NS

TABLE 1
GROUNDWATER ELEVATION AND ANALYTICAL DATA SUMMARY
ALCOPARK FUELING FACILITY SITE NO. 2
OAKLAND, CALIFORNIA

All concentrations in ug/l (PPB).								
Well	Date	Groundwater Elevation	TPH-G	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes
MW-5 (cont.)	4/1/1998	17.14	ND (50)	11	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	7/15/1998	16.43	ND (50)	ND (5.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	10/22/1998	15.60	ND (50)	ND (5.0)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	9/9/1999	15.44	NS	NS	NS	NS	NS	NS
	1/18/2000	14.67	NS	NS	NS	NS	NS	NS
	5/4/2000	16.18	NS	NS	NS	NS	NS	NS
	8/22/2000	15.32	NS	NS	NS	NS	NS	NS
	2/8/2001	14.53	NS	NS	NS	NS	NS	NS
	7/20/2001	14.59	NS	NS	NS	NS	NS	NS
	2/18/2002	14.94	NS	NS	NS	NS	NS	NS
	7/19/2002	14.83	NS	NS	NS	NS	NS	NS
	2/10/2003	14.83	NS	NS	NS	NS	NS	NS
	7/15/2003	14.80	NS	NS	NS	NS	NS	NS
	2/12/2004	14.87	NS	NS	NS	NS	NS	NS
	7/7/2004	14.82	NS	NS	NS	NS	NS	NS
	3/24/2005	15.91	NS	NS	NS	NS	NS	NS
	8/17/2005	15.59	NS	NS	NS	NS	NS	NS
MW-6	4/1/1998	NA	740	4,600	9.8	3.2	3.0	15
	7/15/1998	NA	6,200	11,000	280	43	180	350
	7/15/1998	NA	NA	13,000	ND (500)	ND (500)	ND (500)	ND (500)
	10/22/1998	NA	4,700	9,600	450	13	200	200
	10/22/1998	NA	NA	9,100	470	ND (250)	ND (250)	ND (250)
	9/9/1999	NA	6,600	3,700	2,500	43	310	250
	1/18/2000	NA	3,500	4,600	800	ND (5.0)	40	13
	5/4/2000	NA	NS	NS	NS	NS	NS	NS
	8/22/2000	NA	1,400	1,700	370	4.8	12	35
	2/8/2001	NA	NS	NS	NS	NS	NS	NS
	7/20/2001	NA	1,100	800	240	2.9	2.3	3.4
	2/18/2002	NA	1,500	570	260	ND (2.0)	11	4.3
	7/19/2002	NA	1,800	800	1,400	ND (50)	ND (50)	ND (50)
	2/10/2003	NA	4,000	830	1,000	ND (50)	ND (50)	ND (50)
	7/15/2003	NA	4,100	1,200	2,200	ND (25)	180	260
	2/12/2004	NA	7,200	980	1,600	ND (25)	100	440
	7/7/2004	NA	4,000	840	1,500	ND (25)	150	210
	3/24/2005	NA	4,600	480	520	ND (10)	86	280
	8/17/2005	NA	2,800	610	820	ND (17)	190	250
MW-7	9/9/1999	NA	92	1,200	1.6	ND (0.5)	ND (0.5)	ND (0.5)
	1/18/2000	NA	ND	2,100	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	5/4/2000	NA	140	1,100	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	8/22/2000	NA	160	830	0.62	ND (0.5)	ND (0.5)	ND (0.5)
	2/8/2001	NA	130	650	ND (0.5)	0.53	ND (0.5)	ND (0.5)
	7/20/2001	NA	56	400	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	2/18/2002	NA	ND (50)	200	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
	7/19/2002	NA	ND (50)	300	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
	2/10/2003	NA	ND (50)	140	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
	7/15/2003	NA	ND (50)	140	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
	2/12/2004	NA	ND (50)	100	ND (1.7)	ND (1.7)	ND (1.7)	ND (1.7)
	7/7/2004	NA	56	200	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
	3/24/2005	NA	ND (50)	350	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
	8/17/2005	NA	66	230	9.3	ND (5.0)	ND (5.0)	6.8
W-B1	3/23/1998	NA	3,100	4,200	250	18	160	290

Notes:
TPH-G denotes Total Petroleum Hydrocarbons as Gasoline. MTBE denotes Methyl tert-Butyl Ether.
NA denotes Not Analyzed. NS denotes Not Sampled. ND denotes Not Detected. ( ) denotes detection limit.
Data collected prior to 1998 was reported in Alameda County Request for Proposal dated December 2, 1997.



NORTH

0 1/2 1 MILE

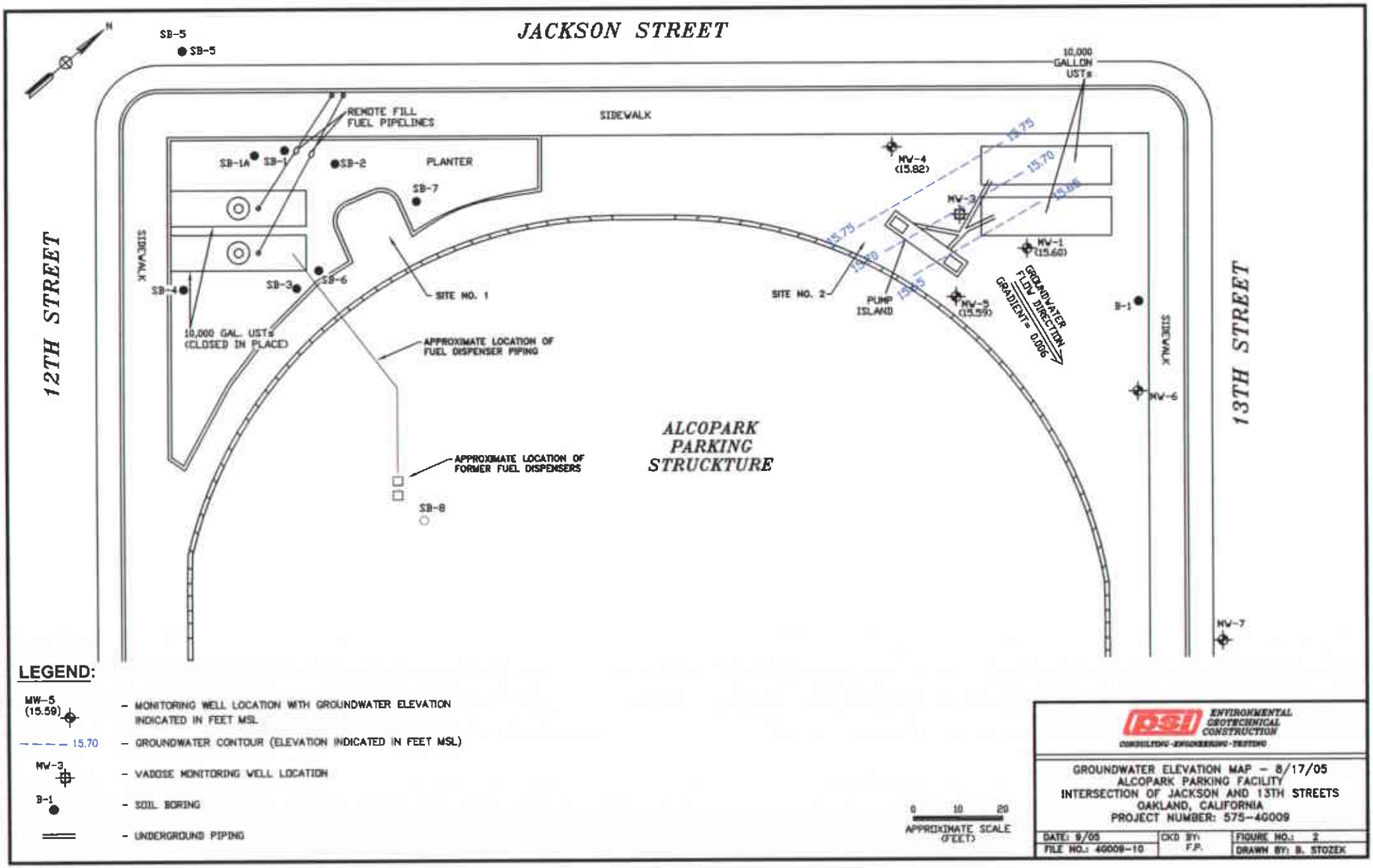
SCALE

REFERENCE:
U.S.G.S. OAKLANDWEST, CALIFORNIA, 1959
PHOTOREVISED 1980

ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING · ENGINEERING · TESTING

SITE LOCATION
ALCOPARK FUELING STATION
165 13TH STREET
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-4G009

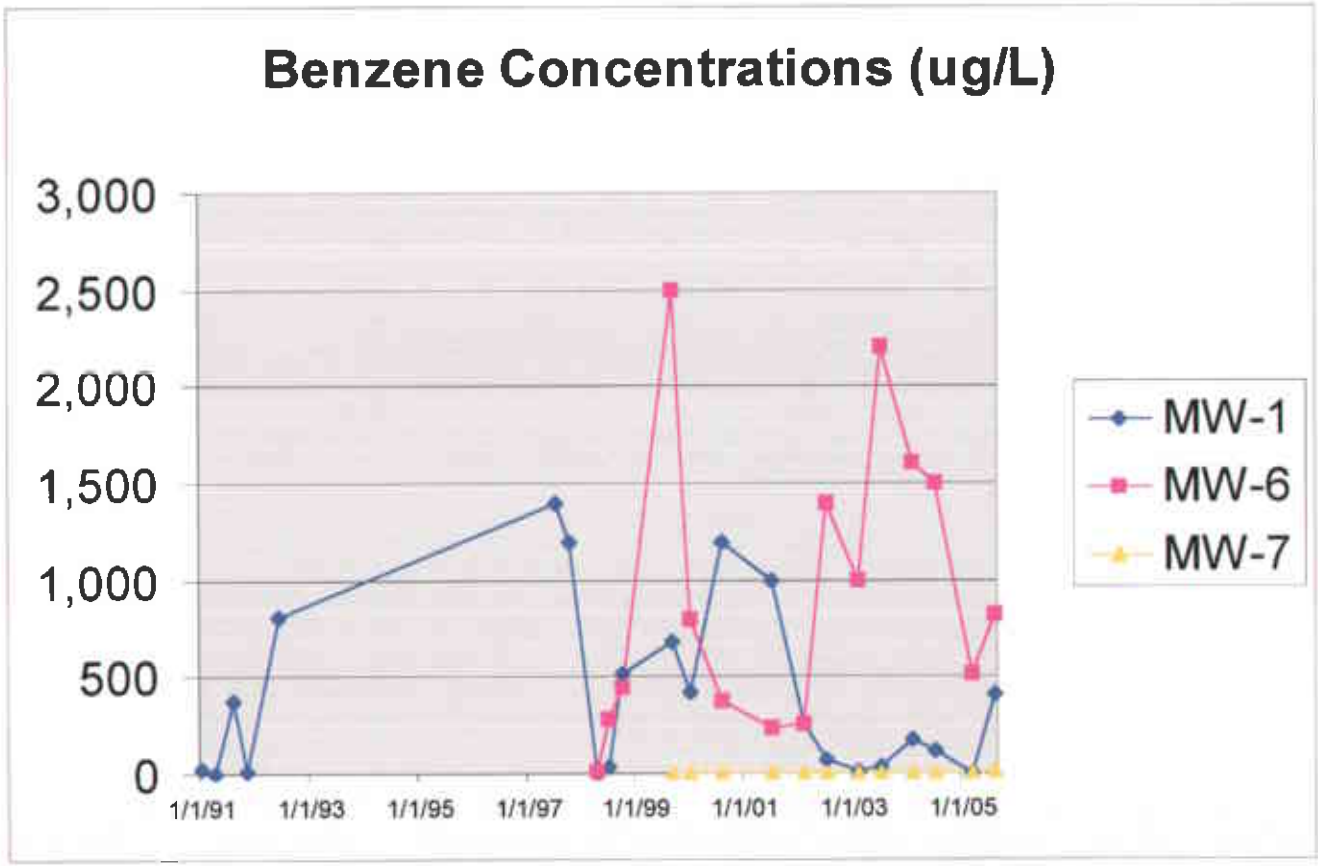
DATE: 3/04	CKD BY:	FIGURE NO: 1
FILE NO: 4G009-1	F.P.	DRAWN BY: B.S.



PSI ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING · ENGINEERING · TESTING

GROUNDWATER ELEVATION MAP – 8/17/05
ALCOPARK PARKING FACILITY
INTERSECTION OF JACKSON AND 13TH STREETS
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-40009

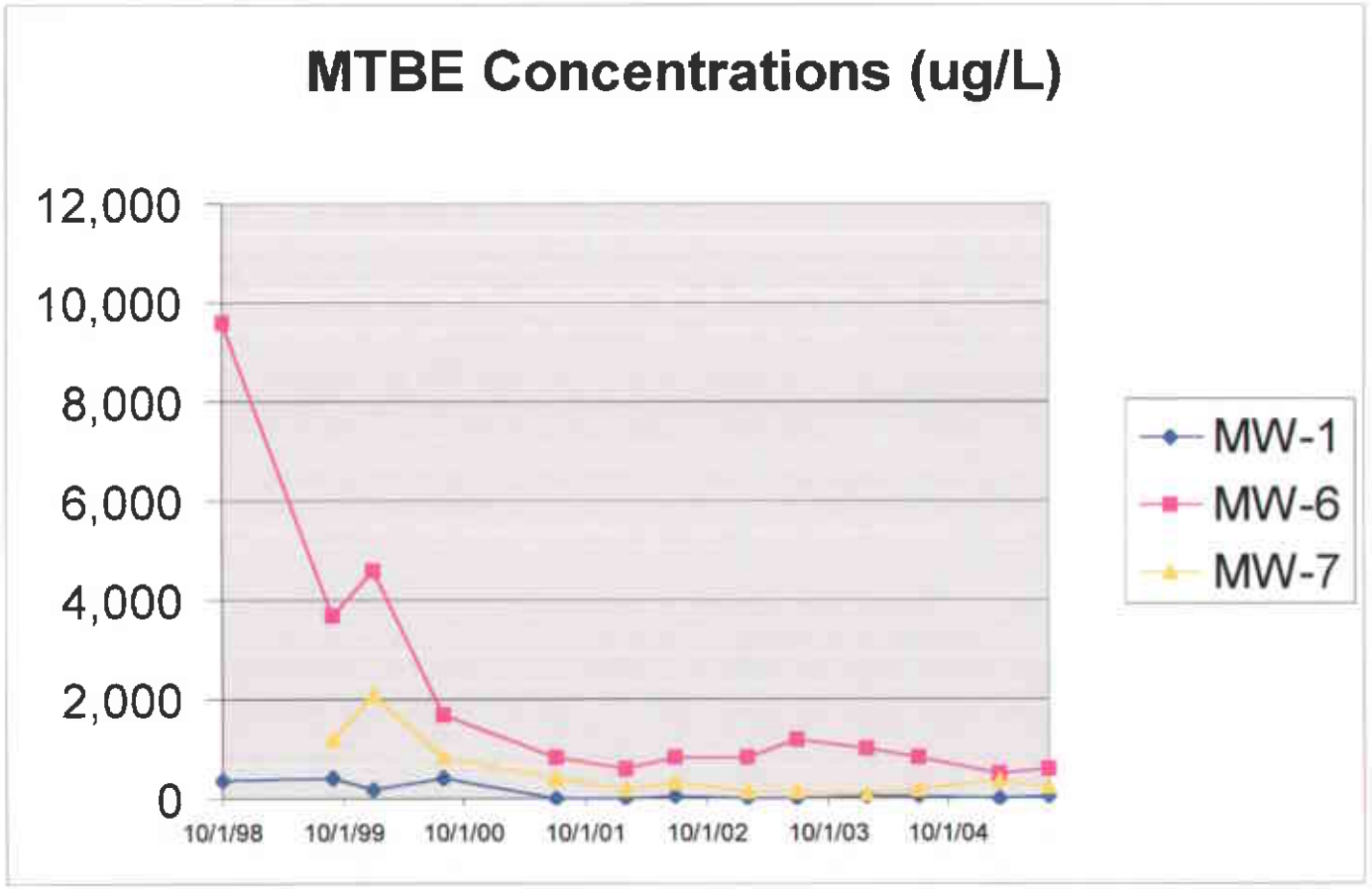
DATE: 9/05	CKD BY: F.P.	FIGURE NO.: 2
FILE NO.: 40009-10		DRAWN BY: B. STOZEK



PSI ENVIRONMENTAL GEOTECHNICAL
CONSULTING · ENGINEERING · TESTING

BENZENE VS. TIME
ALCOPARK PARKING FACILITY
INTERSECTION OF JACKSON AND 13TH STREETS
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-4G009

DATE: 9/05	CKD BY: F.P.	FIGURE NO.: 3
FILE NO.: 4G009-BEN		DRAWN BY: B.S.



PSI ENVIRONMENTAL GEOTECHNICAL CONSTRUCTION
CONSULTING · ENGINEERING · TESTING

MTBE VS. TIME
ALCOPARK PARKING FACILITY
INTERSECTION OF JACKSON AND 13TH STREETS
OAKLAND, CALIFORNIA
PROJECT NUMBER: 575-4G009

DATE: 9/05	CKD BY: F.P.	FIGURE NO.: 4
FILE NO.: 3G026-MTBE		DRAWN BY: B. STOZEK

APPENDIX A

GROUNDWATER SAMPLING FIELD PROCEDURES & WATER ELEVATIONS

APPENDIX A

GROUND-WATER SAMPLING

The following procedures will be used for ground water sampling:

1. All non-dedicated equipment shall be washed prior to entering the well with an Alconox solution, followed by two deionized water rinses.

2. Prior to purging wells, depth-to-water will be measured using an electronic sounder with an accuracy of approximately 0.01 foot. The measurements will be made to the top of the well casing on the north side.

4. Free floating product thickness and depth-to-ground water will be measured in wells containing free floating product using a Solinst oil-water interface probe to an accuracy of approximately 0.01 foot. The measurements will be made to the top of the well casing on the north side.

5. Water samples will be collected with a Teflon disposable bailer. In the case of grab groundwater sampling, samples will be collected with a disposable Teflon lined plastic tube equipped with a check valve. The water collected will be immediately decanted into laboratory-supplied vials and bottles. The containers will be overfilled, capped, labeled, and placed in a chilled cooler, prior to delivery to the laboratory for analysis.

6. Chain of custody procedures, including chain of custody forms, will be used to document water sample handling and transport from collection to delivery to the laboratory for analysis.

7. Ground-water samples will be delivered to a State-certified environmental laboratory within approximately 24 hours of collection.

FLUID MEASUREMENT FIELD DATA

SHEET: 1 OF 1

DATE: 8/17/05 | PROJECT NAME: ALCO PARK | PROJECT NO: 575-46009

WATER LEVEL MEASUREMENT INSTRUMENT: Solinst | SERIAL NO:

PRODUCT DETECTION INSTRUMENT: | SERIAL NO:

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

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

WELL NUMBER	GROUND SURFACE ELEVATION	TOP OF CASING ELEVATION	DEPTH TO PRODUCT BELOW TOC	DEPTH TO WATER BELOW TOC	WELL DEPTH BELOW TOC.	PRODUCT THICKNESS	WATER TABLE ELEVATION	ACTUAL TIME
MW-1				17.40	34.10			13:42
MW-4				17.81	34.60			13:35
MW-5				17.42	34.25			13:38

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

PREPARED BY: B.S.

PSI
Rev. 12/95

APPENDIX B

LABORATORY REPORT AND CHAIN OF CUSTODY

McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

Professional Service Industries 4703 Tidewater Ave., Suite B Oakland, CA 94601	Client Project ID: #575-4G009; ALCO PARK	Date Sampled: 08/17/05
		Date Received: 08/18/05
	Client Contact: Frank Poss	Date Reported: 08/26/05
	Client P.O.:	Date Completed: 08/26/05

WorkOrder: 0508318

August 26, 2005

Dear Frank:

Enclosed are:

1). the results of **3** analyzed samples from your **#575-4G009; ALCO PARK project,**

2). a QC report for the above samples

3). a copy of the chain of custody, and

4). a bill for analytical services.

All analyses were completed satisfactorily and all QC samples were found to be within our control limits. If you have any questions please contact me. McCampbell Analytical Laboratories strives for excellence in quality, service and cost. Thank you for your business and I look forward to working with you again.

Yours truly,

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.

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Professional Service Industries 4703 Tidewater Ave., Suite B Oakland, CA 94601	Client Project ID: #575-4G009; ALCO PARK	Date Sampled: 08/17/05
		Date Received: 08/18/05
	Client Contact: Frank Poss	Date Extracted: 08/20/05-08/25/05
	Client P.O.:	Date Analyzed: 08/20/05-08/25/05

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline*

Extraction method: SW5030B Analytical methods: SW8015Cm Work Order: 0508318

Lab ID	Client ID	Matrix	TPH(g)	DF	% SS
001A	MW-1	W	4100,a	5	102
002A	MW-6	W	2800,a	5	111
003A	MW-7	W	66,a	1	118

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	50	µg/L
	S	NA	NA

* water and vapor samples and all TCLP & SPLP extracts are reported in ug/L, soil/sludge/solid samples in mg/kg, wipe samples in µg/wipe, product/oil/non-aqueous liquid samples in mg/L.

cluttered chromatogram; sample peak coelutes with surrogate peak.

+The following descriptions of the TPH chromatogram are cursory in nature and McCampbell Analytical is not responsible for their interpretation: a) unmodified or weakly modified gasoline is significant; b) heavier gasoline range compounds are significant(aged gasoline?); c) lighter gasoline range compounds (the most mobile fraction) are significant; d) gasoline range compounds having broad chromatographic peaks are significant; biologically altered gasoline?; e) TPH pattern that does not appear to be derived from gasoline (stoddard solvent / mineral spirit?); f) one to a few isolated non-target peaks present; g) strongly aged gasoline or diesel range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) reporting limit raised due to high MTBE content; k) TPH pattern that does not appear to be derived from gasoline (aviation gas). m) no recognizable pattern; n) TPH(g) range non-target isolated peaks subtracted out of the TPH(g) concentration at the client's request.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

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Website: www.mccampbell.com E-mail: main@mccampbell.com

Professional Service Industries	Client Project ID: #575-4G009; ALCO PARK	Date Sampled: 08/17/05
4703 Tidewater Ave., Suite B		Date Received: 08/18/05
	Client Contact: Frank Poss	Date Extracted: 08/19/05
Oakland, CA 94601	Client P.O.:	Date Analyzed: 08/19/05

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B | Analytical Method: SW8260B | Work Order: 0508318

Lab ID	0508318-001B
Client ID	MW-1
Matrix	Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND<170	33	5.0	Acrolein (Propenal)	ND<170	33	5.0
Acrylonitrile	ND<67	33	2.0	tert-Amyl methyl ether (TAME)	ND<17	33	0.5
Benzene	410	33	0.5	Bromobenzene	ND<17	33	0.5
Bromochloromethane	ND<17	33	0.5	Bromodichloromethane	ND<17	33	0.5
Bromoform	ND<17	33	0.5	Bromomethane	ND<17	33	0.5
2-Butanone (MEK)	ND<67	33	2.0	t-Butyl alcohol (TBA)	ND<170	33	5.0
n-Butyl benzene	ND<17	33	0.5	sec-Butyl benzene	ND<17	33	0.5
tert-Butyl benzene	ND<17	33	0.5	Carbon Disulfide	ND<17	33	0.5
Carbon Tetrachloride	ND<17	33	0.5	Chlorobenzene	ND<17	33	0.5
Chloroethane	ND<17	33	0.5	2-Chloroethyl Vinyl Ether	ND<33	33	1.0
Chloroform	ND<17	33	0.5	Chloromethane	ND<17	33	0.5
2-Chlorotoluene	ND<17	33	0.5	4-Chlorotoluene	ND<17	33	0.5
Dibromochloromethane	ND<17	33	0.5	1,2-Dibromo-3-chloropropane	ND<17	33	0.5
1,2-Dibromoethane (EDB)	ND<17	33	0.5	Dibromomethane	ND<17	33	0.5
1,2-Dichlorobenzene	ND<17	33	0.5	1,3-Dichlorobenzene	ND<17	33	0.5
1,4-Dichlorobenzene	ND<17	33	0.5	Dichlorodifluoromethane	ND<17	33	0.5
1,1-Dichloroethane	ND<17	33	0.5	1,2-Dichloroethane (1,2-DCA)	ND<17	33	0.5
1,1-Dichloroethene	ND<17	33	0.5	cis-1,2-Dichloroethene	ND<17	33	0.5
trans-1,2-Dichloroethene	ND<17	33	0.5	1,2-Dichloropropane	ND<17	33	0.5
1,3-Dichloropropane	ND<17	33	0.5	2,2-Dichloropropane	ND<17	33	0.5
1,1-Dichloropropene	ND<17	33	0.5	cis-1,3-Dichloropropene	ND<17	33	0.5
trans-1,3-Dichloropropene	ND<17	33	0.5	Diisopropyl ether (DIPE)	ND<17	33	0.5
Ethylbenzene	380	33	0.5	Ethyl tert-butyl ether (ETBE)	ND<17	33	0.5
Freon 113	ND<330	33	10	Hexachlorobutadiene	ND<17	33	0.5
Hexachloroethane	ND<17	33	0.5	2-Hexanone	ND<17	33	0.5
Isopropylbenzene	22	33	0.5	4-Isopropyl toluene	ND<17	33	0.5
Methyl-t-butyl ether (MTBE)	59	33	0.5	Methylene chloride	ND<17	33	0.5
4-Methyl-2-pentanone (MIBK)	ND<17	33	0.5	Naphthalene	360	33	0.5
Nitrobenzene	ND<330	33	10	n-Propyl benzene	64	33	0.5
Styrene	ND<17	33	0.5	1,1,1,2-Tetrachloroethane	ND<17	33	0.5
1,1,2,2-Tetrachloroethane	ND<17	33	0.5	Tetrachloroethene	ND<17	33	0.5
Toluene	35	33	0.5	1,2,3-Trichlorobenzene	ND<17	33	0.5
1,2,4-Trichlorobenzene	ND<17	33	0.5	1,1,1-Trichloroethane	ND<17	33	0.5
1,1,2-Trichloroethane	ND<17	33	0.5	Trichloroethene	ND<17	33	0.5
Trichlorofluoromethane	ND<17	33	0.5	1,2,3-Trichloropropane	ND<17	33	0.5
1,2,4-Trimethylbenzene	790	33	0.5	1,3,5-Trimethylbenzene	160	33	0.5
Vinyl Chloride	ND<17	33	0.5	Xylenes	1500	33	0.5

Surrogate Recoveries (%)			
%SS1:	112	%SS2:	105
%SS3:	91		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

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Telephone : 925-798-1620 Fax : 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

Professional Service Industries	Client Project ID: #575-4G009; ALCO PARK	Date Sampled: 08/17/05
		Date Received: 08/18/05
4703 Tidewater Ave., Suite B	Client Contact: Frank Poss	Date Extracted: 08/19/05
Oakland, CA 94601	Client P.O.:	Date Analyzed: 08/19/05

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0508318

Lab ID	0508318-002B
Client ID	MW-6
Matrix	Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND<170	33	5.0	Acrolein (Propenal)	ND<170	33	5.0
Acrylonitrile	ND<67	33	2.0	tert-Amyl methyl ether (TAME)	110	33	0.5
Benzene	820	33	0.5	Bromobenzene	ND<17	33	0.5
Bromochloromethane	ND<17	33	0.5	Bromodichloromethane	ND<17	33	0.5
Bromoform	ND<17	33	0.5	Bromomethane	ND<17	33	0.5
2-Butanone (MEK)	ND<67	33	2.0	t-Butyl alcohol (TBA)	490	33	5.0
n-Butyl benzene	ND<17	33	0.5	sec-Butyl benzene	ND<17	33	0.5
tert-Butyl benzene	ND<17	33	0.5	Carbon Disulfide	ND<17	33	0.5
Carbon Tetrachloride	ND<17	33	0.5	Chlorobenzene	ND<17	33	0.5
Chloroethane	ND<17	33	0.5	2-Chloroethyl Vinyl Ether	ND<33	33	1.0
Chloroform	ND<17	33	0.5	Chloromethane	ND<17	33	0.5
2-Chlorotoluene	ND<17	33	0.5	4-Chlorotoluene	ND<17	33	0.5
Dibromochloromethane	ND<17	33	0.5	1,2-Dibromo-3-chloropropane	ND<17	33	0.5
1,2-Dibromoethane (EDB)	ND<17	33	0.5	Dibromomethane	ND<17	33	0.5
1,2-Dichlorobenzene	ND<17	33	0.5	1,3-Dichlorobenzene	ND<17	33	0.5
1,4-Dichlorobenzene	ND<17	33	0.5	Dichlorodifluoromethane	ND<17	33	0.5
1,1-Dichloroethane	ND<17	33	0.5	1,2-Dichloroethane (1,2-DCA)	ND<17	33	0.5
1,1-Dichloroethene	ND<17	33	0.5	cis-1,2-Dichloroethene	ND<17	33	0.5
trans-1,2-Dichloroethene	ND<17	33	0.5	1,2-Dichloropropane	ND<17	33	0.5
1,3-Dichloropropane	ND<17	33	0.5	2,2-Dichloropropane	ND<17	33	0.5
1,1-Dichloropropene	ND<17	33	0.5	cis-1,3-Dichloropropene	ND<17	33	0.5
trans-1,3-Dichloropropene	ND<17	33	0.5	Diisopropyl ether (DIPE)	ND<17	33	0.5
Ethylbenzene	190	33	0.5	Ethyl tert-butyl ether (ETBE)	ND<17	33	0.5
Freon 113	ND<330	33	10	Hexachlorobutadiene	ND<17	33	0.5
Hexachloroethane	ND<17	33	0.5	2-Hexanone	ND<17	33	0.5
Isopropylbenzene	ND<17	33	0.5	4-Isopropyl toluene	ND<17	33	0.5
Methyl-t-butyl ether (MTBE)	610	33	0.5	Methylene chloride	ND<17	33	0.5
4-Methyl-2-pentanone (MIBK)	ND<17	33	0.5	Naphthalene	300	33	0.5
Nitrobenzene	ND<330	33	10	n-Propyl benzene	ND<17	33	0.5
Styrene	ND<17	33	0.5	1,1,1,2-Tetrachloroethane	ND<17	33	0.5
1,1,2,2-Tetrachloroethane	ND<17	33	0.5	Tetrachloroethene	ND<17	33	0.5
Toluene	ND<17	33	0.5	1,2,3-Trichlorobenzene	ND<17	33	0.5
1,2,4-Trichlorobenzene	ND<17	33	0.5	1,1,1-Trichloroethane	ND<17	33	0.5
1,1,2-Trichloroethane	ND<17	33	0.5	Trichloroethene	ND<17	33	0.5
Trichlorofluoromethane	ND<17	33	0.5	1,2,3-Trichloropropane	ND<17	33	0.5
1,2,4-Trimethylbenzene	230	33	0.5	1,3,5-Trimethylbenzene	ND<17	33	0.5
Vinyl Chloride	ND<17	33	0.5	Xylenes	250	33	0.5

Surrogate Recoveries (%)			
%SS1:	113	%SS2:	104
%SS3:	94		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

DHS Certification No. 1644

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Professional Service Industries 4703 Tidewater Ave., Suite B Oakland, CA 94601	Client Project ID: #575-4G009; ALCO PARK	Date Sampled: 08/17/05
		Date Received: 08/18/05
	Client Contact: Frank Poss	Date Extracted: 08/19/05
	Client P.O.:	Date Analyzed: 08/19/05

Volatile Organics by P&T and GC/MS (Basic Target List)*

Extraction Method: SW5030B | Analytical Method: SW8260B | Work Order: 0508318

Lab ID	0508318-003B
Client ID	MW-7
Matrix	Water

Compound	Concentration *	DF	Reporting Limit	Compound	Concentration *	DF	Reporting Limit
Acetone	ND<50	10	5.0	Acrolein (Propenal)	ND<50	10	5.0
Acrylonitrile	ND<20	10	2.0	tert-Amyl methyl ether (TAME)	26	10	0.5
Benzene	9.3	10	0.5	Bromobenzene	ND<5.0	10	0.5
Bromochloromethane	ND<5.0	10	0.5	Bromodichloromethane	ND<5.0	10	0.5
Bromoform	ND<5.0	10	0.5	Bromomethane	ND<5.0	10	0.5
2-Butanone (MEK)	ND<20	10	2.0	t-Butyl alcohol (TBA)	ND<50	10	5.0
n-Butyl benzene	ND<5.0	10	0.5	sec-Butyl benzene	ND<5.0	10	0.5
tert-Butyl benzene	ND<5.0	10	0.5	Carbon Disulfide	ND<5.0	10	0.5
Carbon Tetrachloride	ND<5.0	10	0.5	Chlorobenzene	ND<5.0	10	0.5
Chloroethane	ND<5.0	10	0.5	2-Chloroethyl Vinyl Ether	ND<10	10	1.0
Chloroform	ND<5.0	10	0.5	Chloromethane	ND<5.0	10	0.5
2-Chlorotoluene	ND<5.0	10	0.5	4-Chlorotoluene	ND<5.0	10	0.5
Dibromochloromethane	ND<5.0	10	0.5	1,2-Dibromo-3-chloropropane	ND<5.0	10	0.5
1,2-Dibromoethane (EDB)	ND<5.0	10	0.5	Dibromomethane	ND<5.0	10	0.5
1,2-Dichlorobenzene	ND<5.0	10	0.5	1,3-Dichlorobenzene	ND<5.0	10	0.5
1,4-Dichlorobenzene	ND<5.0	10	0.5	Dichlorodifluoromethane	ND<5.0	10	0.5
1,1-Dichloroethane	ND<5.0	10	0.5	1,2-Dichloroethane (1,2-DCA)	ND<5.0	10	0.5
1,1-Dichloroethene	ND<5.0	10	0.5	cis-1,2-Dichloroethene	ND<5.0	10	0.5
trans-1,2-Dichloroethene	ND<5.0	10	0.5	1,2-Dichloropropane	ND<5.0	10	0.5
1,3-Dichloropropane	ND<5.0	10	0.5	2,2-Dichloropropane	ND<5.0	10	0.5
1,1-Dichloropropene	ND<5.0	10	0.5	cis-1,3-Dichloropropene	ND<5.0	10	0.5
trans-1,3-Dichloropropene	ND<5.0	10	0.5	Diisopropyl ether (DIPE)	ND<5.0	10	0.5
Ethylbenzene	ND<5.0	10	0.5	Ethyl tert-butyl ether (ETBE)	ND<5.0	10	0.5
Freon 113	ND<100	10	10	Hexachlorobutadiene	ND<5.0	10	0.5
Hexachloroethane	ND<5.0	10	0.5	2-Hexanone	ND<5.0	10	0.5
Isopropylbenzene	ND<5.0	10	0.5	4-Isopropyl toluene	ND<5.0	10	0.5
Methyl-t-butyl ether (MTBE)	230	10	0.5	Methylene chloride	ND<5.0	10	0.5
4-Methyl-2-pentanone (MIBK)	ND<5.0	10	0.5	Naphthalene	ND<5.0	10	0.5
Nitrobenzene	ND<100	10	10	n-Propyl benzene	ND<5.0	10	0.5
Styrene	ND<5.0	10	0.5	1,1,1,2-Tetrachloroethane	ND<5.0	10	0.5
1,1,2,2-Tetrachloroethane	ND<5.0	10	0.5	Tetrachloroethene	ND<5.0	10	0.5
Toluene	ND<5.0	10	0.5	1,2,3-Trichlorobenzene	ND<5.0	10	0.5
1,2,4-Trichlorobenzene	ND<5.0	10	0.5	1,1,1-Trichloroethane	ND<5.0	10	0.5
1,1,2-Trichloroethane	ND<5.0	10	0.5	Trichloroethene	ND<5.0	10	0.5
Trichlorofluoromethane	ND<5.0	10	0.5	1,2,3-Trichloropropane	ND<5.0	10	0.5
1,2,4-Trimethylbenzene	ND<5.0	10	0.5	1,3,5-Trimethylbenzene	ND<5.0	10	0.5
Vinyl Chloride	ND<5.0	10	0.5	Xylenes	6.8	10	0.5

Surrogate Recoveries (%)

%SS1:	112	%SS2:	106
%SS3:	94		

Comments:

* water and vapor samples are reported in µg/L, soil/sludge/solid samples in mg/kg, product/oil/non-aqueous liquid samples and all TCLP & SPLP extracts are reported in mg/L, wipe samples in µg/wipe.

ND means not detected above the reporting limit; N/A means analyte not applicable to this analysis.

surrogate diluted out of range or coelutes with another peak; &) low surrogate due to matrix interference.

h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted due to high organic content/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0508318

EPA Method: SW8015Cm **Extraction: SW5030B** **BatchID: 17607** **Spiked Sample ID: 0508286-004A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(btex)£	ND	60	94.3	89	5.84	100	102	1.60	70 - 130	70 - 130
MTBE	ND	10	92.5	90.8	1.84	91.4	98	7.06	70 - 130	70 - 130
Benzene	ND	10	91.7	91.5	0.281	104	110	5.03	70 - 130	70 - 130
Toluene	ND	10	90.9	91.3	0.491	103	108	4.28	70 - 130	70 - 130
Ethylbenzene	ND	10	93.2	93.3	0.120	107	111	4.00	70 - 130	70 - 130
Xylenes	ND	30	95	95	0	96	96.3	0.347	70 - 130	70 - 130
%SS:	107	10	98	101	2.92	107	112	4.73	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 17607 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0508318-001A	8/17/05 1:50 PM	8/20/05	8/20/05 11:37 PM	0508318-002A	8/17/05 2:05 PM	8/21/05	8/21/05 12:09 AM
0508318-003A	8/17/05 2:35 PM	8/25/05	8/25/05 8:52 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

£ TPH(btex) = sum of BTEX areas from the FID.

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not applicable or not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

DHS Certification No. 1644

QA/QC Officer

McCampbell Analytical, Inc.

110 2nd Avenue South, #D7, Pacheco, CA 94553-5560
Telephone : 925-798-1620 Fax : 925-798-1622
Website: www.mccampbell.com E-mail: main@mccampbell.com

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water | QC Matrix: Water | WorkOrder: 0508318

EPA Method: SW8260B	Extraction: SW5030B	BatchID: 17629	Spiked Sample ID: 0508323-007B

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
tert-Amyl methyl ether (TAME)	ND	10	116	119	3.02	107	101	5.66	70 - 130	70 - 130
Benzene	ND	10	115	115	0	111	108	2.55	70 - 130	70 - 130
t-Butyl alcohol (TBA)	ND	50	99.4	106	6.90	96.4	89.6	7.34	70 - 130	70 - 130
Chlorobenzene	ND	10	114	112	1.57	110	108	1.42	70 - 130	70 - 130
1,2-Dibromoethane (EDB)	ND	10	103	102	1.15	97.9	92	6.15	70 - 130	70 - 130
1,2-Dichloroethane (1,2-DCA)	ND	10	109	110	0.762	112	108	4.31	70 - 130	70 - 130
1,1-Dichloroethene	ND	10	115	116	0.516	111	111	0	70 - 130	70 - 130
Diisopropyl ether (DIPE)	ND	10	119	114	4.61	113	109	3.57	70 - 130	70 - 130
Ethyl tert-butyl ether (ETBE)	ND	10	113	116	2.38	106	101	4.64	70 - 130	70 - 130
Methyl-t-butyl ether (MTBE)	0.52	10	109	113	3.36	105	99.2	5.33	70 - 130	70 - 130
Toluene	ND	10	113	107	5.11	108	107	0.770	70 - 130	70 - 130
Trichloroethene	ND	10	93	93	0	89.4	87.5	2.23	70 - 130	70 - 130
%SS1:	107	10	103	103	0	102	102	0	70 - 130	70 - 130
%SS2:	100	10	100	97	2.91	99	100	1.14	70 - 130	70 - 130
%SS3:	103	10	107	111	3.00	107	109	2.46	70 - 130	70 - 130

All target compounds in the Method Blank of this extraction batch were ND less than the method RL with the following exceptions:

NONE

BATCH 17629 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0508318-001B	8/17/05 1:50 PM	8/19/05	8/19/05 7:34 PM	0508318-002B	8/17/05 2:05 PM	8/19/05	8/19/05 8:16 PM
0508318-003B	8/17/05 2:35 PM	8/19/05	8/19/05 8:59 PM				

MS = Matrix Spike; MSD = Matrix Spike Duplicate; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample Duplicate; RPD = Relative Percent Deviation.

% Recovery = 100 * (MS-Sample) / (Amount Spiked); RPD = 100 * (MS - MSD) / ((MS + MSD) / 2).

MS / MSD spike recoveries and / or %RPD may fall outside of laboratory acceptance criteria due to one or more of the following reasons: a) the sample is inhomogenous AND contains significant concentrations of analyte relative to the amount spiked, or b) the spiked sample's matrix interferes with the spike recovery.

N/A = not enough sample to perform matrix spike and matrix spike duplicate.

NR = analyte concentration in sample exceeds spike amount for soil matrix or exceeds 2x spike amount for water matrix or sample diluted due to high matrix or analyte content.

Laboratory extraction solvents such as methylene chloride and acetone may occasionally appear in the method blank at low levels.

DHS Certification No. 1644

QA/QC Officer

PS10-0508318

McCAMPBELL ANALYTICAL, INC.

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Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

TURN AROUND TIME ☐ RUSH ☐ 24 HR ☐ 48 HR ☐ 72 HR ☒ 5 DAY

EDF Required? Coelt (Normal) No Write On (DW) No

Report To:	Frank Poss/Rod Frietag
Bill To:	Rod Frietag
Company:	PSI
	Alameda GSA
	4703 Tidewater Ave, Suite B
	Oakland, CA 94601
E-Mail:	Frank.Poss@PSIUSA.com
Tele:	(510) 434-9200
Fax:	(510) 434-9200
Project #:	575-46009
Project Name:	ALCO PARK
Project Location:	Oakland, CA
Sampler Signature:	Brian Stozek

	SAMPLE ID (Field Point Name)	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	Soil	Air	Sludge	Other	METHOD PRESERVED ICE	HCL	HNO_3	Other	MTBE / BTEX & TPH as Gas (602 / 8021 + 8015)	MTBE / BTEX ONLY (EPA 602 / 8021)	TPH as Diesel / Motor Oil (8015)	Total Petroleum Oil & Grease (1664 / 5520 E/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 502.2 / 601 / 8010 / 8021 (HVOCs)	EPA 505/ 608 / 8081 (Cl Pesticides)	EPA 608 / 8082 PCB's ONLY; Aroclors / Congeners	EPA 507 / 8141 (NP Pesticides)	EPA 515 / 8151 (Acidic Cl Herbicides)	EPA 524.2 / 624 / 8260 (VOCs)	EPA 525.2 / 625 / 8270 (SVOCs)	EPA 8270 SIM / 8310 (PAHs / PNAs)	CAM 17 Metals (200.7 / 200.8 / 6010 / 6020)	LUFT 5 Metals (200.7 / 200.8 / 6010 / 6020)	Lead (200.7 / 200.8 / 6010 / 6020)	Other: TPH-G/8260 w/oxy	Comments
1	MW-1		8/17/05	13:50									X																			X	X	Filter Samples for Metals analysis: Yes / No
+2	MW-6		↓	14:05									X																			X	X	
+2	MW-7		↓	14:35									X																			X	X	

Relinquished By:	Date:	Time:	Received By:
Brian Stozek	8/18/05	12:00	
	8/18/05	14:35	
	8/18/05	5:45	

ICE/t° ✓
COOD CONDITION ✓
HEAD SPACE ABSENT ✓
DECHLORINATED IN LAB ✓
APPROPRIATE CONTAINERS ✓
PRESERVED IN LAB

COMMENTS:

PRESERVATION	VOAS	O&G	METALS pH<2	OTHER