BONKOWSKI & ASSOCIATES, INC.

SITE CLOSURE REPORT

421 23RD AVENUE
OAKLAND, CALIFORNIA

Bonkowski & Associates, Inc.
6400 Hollis Street, Suite 4
Emeryville, California 94608

January 14, 2008

BONKOWSKI & ASSOCIATES, INC.
GEOTECHNICAL SERVICES AND HAZARDOUS MATERIALS MANAGEMENT

January 16, 2008
Project No. E27297-3

Mr. Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

Subject: **Closure Report for Golden Gate Petroleum Cardlock**
421 23rd Avenue
Oakland, California

Dear Mr. Wickham:

The enclosed Closure Report was prepared on behalf of Golden Gate Petroleum by Bonkowski & Associates, Inc. The report is submitted to the Alameda County Environmental Health Department and utilizes the findings of the most recent quarterly groundwater monitoring data and site characterization data from all previous investigations to demonstrate plume attenuation and stability. On this basis, this report requests that your agency provide regulatory closure or a "No Further Action" letter for the Site.

We are available to meet with you in the near future to discuss these findings and the overall work conducted at the Site if needed. If you have any questions, please contact Ms. Cindy Dittmar our Project Geologist or Mr. Michael Bonkowski at (510) 450-0770.

Sincerely yours,
BONKOWSKI & ASSOCIATES, INC.

Cindy Dittmar, PG
Project Geologist

Michael S. Bonkowski, PG CEG
Senior Managing Principal

Enclosure

cc: Mr. Dennis O'Keefe

REGISTERED GEOLOGIST
CYNTHIA A. DITTMAR
No. 7213
Exp. 01/08
STATE OF CALIFORNIA

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ENVIRONMENTAL HEALTH SERVICES

BONKOWSKI & ASSOCIATES, INC.

SITE CLOSURE REPORT
GOLDEN GATE PETROLEUM CARDLOCK

421 23RD AVENUE
OAKLAND, CALIFORNIA

INTRODUCTION

This Site Closure Report was prepared by Bonkowski & Associates, Inc. (B&A) on behalf of Golden Gate Petroleum for the underground storage tank site located at 421 23rd Avenue in Oakland, California (Figure 1). This report is submitted to the Alameda County Department of Environmental Health in response to their letter directives dated April 4, 2005 and December 5, 2006 (Appendix A). Pursuant to the requests of these letters, this report develops a Site Conceptual Model based upon applicable sections of Standard Guide for Conceptualization and Characterization of Groundwater Systems (ASTM Method D5979-96). The report includes the most recent results of groundwater monitoring, which was conducted in December 2007. Copies of all referenced reports are provided in digital format in Appendix B.

Discussed below are the investigative results of the leaking underground storage tank site, including a site history review, description of site hydrogeologic conditions, soil and groundwater quality summary, and the results of groundwater monitoring. These latter results document improving groundwater conditions beneath the Site without any active remediation, and that this is the result of natural oxidative processes. No known receptors have been identified which would be impacted by residual hydrocarbons. Further, since source removal, the plume has stabilized. On the basis of these data, B&A reiterates our request for Closure dated January 4, 2005 (Appendix A).

SITE DESCRIPTION

The Golden Gate Petroleum Oakland Cardlock (Site) is located at 421 23rd Avenue in Oakland, California. The Site is situated at the northwest corner of the intersection of Kennedy Street and 23rd Avenue. The site includes two 20,000 gallon double wall steel fiberglass reinforced tanks, and supporting product lines and dispensers; and seven groundwater monitor wells. A Site Plan map is provided in Figure 2. An aerial photograph of the current Site is provided as Figure 3.

Site History

The Site has supplied retail motor vehicle fuels since 1976. The original Site included four gasoline/diesel fuel dispenser islands, a warehouse and five single-

walled underground storage tanks (USTs). The tanks were buried side by side with one 8,000-gallon and four 12,000-gallon capacities. The 8,000 gallon tank stored premium unleaded gasoline. The 12,000-gallon tanks stored regular unleaded gasoline and diesel fuel, all for retail sale. A former Site plan map is provided in Figure 4.

On August 13, 1998 Golden Gate Petroleum initiated the removal of existing USTs, product lines and dispenser islands to comply with 40 CFR Code of Federal Regulations, Part 280. This work included the uncovering of the former USTs, product lines and tanks. B&A prepared an Interim Remedial Measures Workplan dated August 14, 1998 to assist with the removal of contaminated soils and groundwater observed in the day-lighted excavation. This IRM Workplan approved by the City of Oakland on August 14, 1998. A Supplemental IRM Workplan was submitted on August 18, 1998 to address Alameda County Health Department concerns. Copies of these workplans and their regulatory approvals are provided digitally on disk in Appendix B.

Removal of contaminated soil beneath the tanks, product lines and dispenser islands progressed as described in the original and supplemental IRM Workplans. Soil was removed until soil sample OVM readings were below a threshold of 250 ppm TPHD and 100 ppm TPHG. These thresholds were directed by the City of Oakland Fire Marshall. The results of this removal action are described in the Tank Cavity Closure Report dated November 16, 1998 (Appendix B). This work also included the installation of a cut-off trench in the former tank cavity to be used to remove contaminated groundwater. The current USTs, product lines and dispensers were installed at this time.

Subsequent site investigations were conducted to evaluate the extent of subsurface hydrocarbon contamination. In October 1999, Hageman & Aguiar (HA) conducted a geoprobe boring investigation. In November 1999, HA installed monitor wells MW-1, MW-2, MW-3 and MW-4. In July 2000, Hydro-Analysis installed monitor wells MW-5, MW-6 and MW-7 offsite along the south side of Kennedy Street. Logs of these wells and Geoprobe borings are provided in digital format on disk in Appendix C. The locations of these geoprobe borings and monitor wells are shown in Figure 3.

Groundwater monitoring was conducted at this Site by Hydro-Analysis from 1999 to 2002. B&A conducted groundwater monitoring at this Site in December 2007. Groundwater monitoring data is summarized in Table 1. Groundwater water quality data is summarized and provided in Table 2. No other remedial actions have been performed at this Site.

SITE CONCEPTUAL MODEL

Hydrogeologic Conditions

The Site is located about 700 feet northeast of the Alameda Estuary. Groundwater occurs at a depth of about 7 to 10 feet below surface grade. The site is underlain by at least 20 feet of fill. discontinuous clay, sandy clay and clayey sand, clayey gravel and sand units, and gravel. The average depth to groundwater varies seasonally and averages about 8.5 feet. Water levels collected beneath the Site in August 2000 and December 2007 indicate the direction of groundwater flow is toward the west and southwest (Figure 5). No surface water bodies occur on the Site.

Using the boring logs provided by HA and Hydro-Analysis, the distribution of shallow lithologies beneath the Site are shown in Figures 6 and 7. A Site Cross Section index map is provided in Figure 8. The cross sections show the distribution of hydrocarbons that were initially encountered in soil and groundwater beneath the site. As shown, MTBE occurs in shallow groundwater primarily in fat and lean clays, silty clays, and gravelly clays. They occur both above and below coarse sand units. The only substantial unit with relatively high permeability that may be effected by MTBE migration occurs in a sand at depths of about 19 feet or greater beneath the site. However, this unit is separated by about 10-12 feet of clays, silty clays or gravelly clays from MTBE in the near-surface groundwater.

Groundwater Quality

Underground Storage Tank Cavity

Initial groundwater samples collected from the Site in the underground storage tank cavity contained 43 mg/l TPHG, 12 mg/l TPHD and 49,000 µg/l MTBE (Table D1). A groundwater sample collected from the drain placed in the west side of the tank excavation cavity on November 2, 1998 contained 11 µg/l benzene, 4,500 µg/l MTBE, and 98 µg/l TAME. No other volatile organic compounds (VOCs) were reported (Table D2).

Groundwater Monitoring Data

The results of groundwater monitoring performed at the Site from November 1999 to December 2007 are summarized in Table 2. This table also includes the results of grab groundwater sampling of geoprobe borings installed at the Site by Hydro-Analysis in October 1999. In December 2007, TPHG (Figure 9) and TPHD were ND in all wells, except for 0.067 TPHD mg/l in MW-2. MTBE was detected in five wells at concentrations that range from 1.5 µg/l in MW-5 to 320 µg/l in MW-3 (Figure 10). TAME was detected in three wells at concentrations that range from 1.1 µg/l in MW-2 to 3.5 µg/l in MW-3. The December 2008 laboratory report is included as Appendix E.

Site groundwater physical parameters were also measured during the December 2007 monitoring event. These parameters are recorded on the Monitor Well Sampling data sheets (Appendix F). Dissolved Oxygen (DO) ranged from 2.49 to 6.96 mg/l. Salinity ranged from 0.00 to 0.52 percent. Conductivity ranged from 0.159 to 9.8 mS/cm.

Figure 11 is a plot of the concentration of TPHG and MTBE in groundwater as a function of time for each well. As shown these plots a substantial decrease in the concentrations of these chemicals has occurred over the past seven years. Based on the chemical test data collected over time, the remaining chemical of concern (COC) is MTBE.

Soil Quality

Former Tank Cavity

During tank and product line removal activities, up to 18,000 mg/kg of TPHG, 22,000 mg/kg of TPHD, 67,000 µg/kg benzene, 1,800,000 µg/kg toluene, 370,000 µg/kg ethylbenzene, 2,200,000 µg/kg total xylenes and 880,000 µg/kg MTBE were reported in soil samples initially collected beneath the Site (Table D3). Hydrocarbon contaminated soils were over-excavated to the top of the groundwater surface, at a depth of about 11 feet. Final soil samples collected from the base and sidewall of the tank cavity excavation at this depth contained up to 7,300 µg/kg of MTBE, 8.2 mg/kg TPHG, 10 µg/kg benzene, 8.2 µg/kg toluene, and 6.8 µg/kg total xylenes. All of these compounds were detected in soil samples collected from along the east side of the tank cavity excavation. The sample locations are shown in Figures 12 and 13.

Former Dispenser Islands

Soil samples collected beneath the dispenser islands at the time of their removal also contained hydrocarbons. These materials were also excavated depths between 6 and 12 feet. The concentrations of hydrocarbons left in place were as high as 240 mg/kg TPHG, 1,400 mg/kg TPHD, 350 µg/kg benzene, 900 µg/kg toluene, 1,400 µg/kg ethylbenzene, 2,800 µg/kg total xylenes, and 1,900 µg/kg of MTBE. The tank cavity and dispenser island areas were backfilled under directive of the City of Oakland Fire Marshall after review of these chemical test results. The soil sample locations are shown in Figures 12 and 13.

Test Borings Soil Sample Results

Soil samples collected from both geoprobes and monitor wells are presented in Table 3. The subareal distribution of chemicals encountered in these test borings are plotted in Figure 14. The highest concentrations of TPHG and TPHD (450 mg/kg and 4,300 mg/kg, respectively) encountered in any test boring was reported at a depth of 10 feet in MW-2. The highest MTBE concentration was 0.66 mg/kg at a depth of 5 feet in geoprobe GP-2.

DISCUSSION

Petroleum fuel hydrocarbon and fuel oxygenates have been detected in groundwater beneath the Site since the removal of the former USTs, product lines and dispensers in 1998. MTBE is the most persistent and only remaining COC in groundwater. Residual hydrocarbons were also reported in soil samples collected from the base of the former UST tank, dispenser island and product line cavities. However, these samples coincided with the top of the groundwater surface. Hence, these are best evaluated as leachate using groundwater monitoring data.

The subareal distribution of MTBE is shown on Figure 10. As plotted, the MTBE plume is centered on the southwest corner of the site. MTBE has migrated to monitor wells MW-5 and MW-6 on the southwest side of Kennedy Street. However, the concentrations of MTBE in these wells over time (Figure 11) have decreased substantially. Dissolved Oxygen (DO) measurements collected by B&A in December 2007 are all greater than 0.5 mg/l, indicating general oxidative conditions. Under these site conditions, and without additional source contributions, the concentration of MTBE is expected to decrease with time. Beneath this site, the MTBE plume has stabilized and is decreasing.

CLOSURE REQUEST

Based on the reduction in contaminant concentrations from the soil removal in 1998 to the most recent sampling event in 2007, it appears that the contaminant plumes have stabilized. Further, because the Site is paved, currently used as a petroleum distribution facility, and is underlain by fresh to saline groundwater that is not used, the Site does not pose a threat to public health and safety. As of December 2007, MTBE was the only remaining COC (Table 2). Its highest concentration was only 320 µg/l, reported in MW-3. The MTBE plume is centered about the southwest corner of the Site, and there are no other known exposure pathways. The plume appears to have stabilized and decreased in size since source removal, and DO measurements suggest an oxidative environment leading to expected decreases in MTBE with time. Based upon these Site conditions and the current uses of groundwater, the Site is a candidate for Closure.

REFERENCES

Bonkowski & Associates, Inc., "Tank Cavity Closure Report, Golden Gate Petroleum, Oakland Cardlock," September 16, 1998.

Hageman-Aguiar, Inc., "Report of Subsurface Investigation, Golden Gate Petroleum, 421 23rd Avenue, Oakland, California," November 23, 1999.

Hydro Analysis, Inc., "Well Installation and Quarterly Groundwater Monitoring Report, Golden Gate Petroleum, 421 23rd Avenue, Oakland, California, Fuel Leak Case No. 191," August 22, 2000.

Hydro Analysis, Inc., "Quarterly Groundwater Monitoring Report, Golden Gate Petroleum, 421 23rd Avenue, Oakland, California," July 9, 2002.

ATTACHMENTS

Table 1 Groundwater Elevations, 421 23rd Avenue, Oakland, California

Well	Materials Encountered	Depth (Feet)	Screened Interval (Feet)	Top of Casing Elevation (Feet amsl)	Depth to Water (Feet)	Groundwater Elevation (Feet amsl)	Date
MW-1	Clayey sand, clayey gravel, clay, sand	20	5 - 20	9.47	7.63	1.84	12/21/07
					7.79	1.68	6/4/02
					7.92	1.55	1/29/01
					8.31	1.16	10/18/00
					8.30	1.17	8/7/00
					8.02	1.45	3/28/00
					8.27	1.20	11/11/99
MW-2	Clay, clayey sand, clayey gravel	20	5 - 20	8.72	7.11	1.61	12/21/07
					7.29	1.43	6/4/02
					7.39	1.33	1/29/01
					7.81	0.91	10/18/00
					7.78	0.94	8/7/00
					7.50	1.22	3/28/00
					7.75	0.97	11/11/99
MW-3	Clay, clayey sand, sand	20	5 - 20	9.00	7.94	1.06	12/21/07
					7.62	1.38	6/4/02
					7.78	1.22	1/29/01
					8.20	0.80	10/18/00
					8.22	0.78	8/7/00
					8.92	1.08	3/28/00
					8.09	0.91	11/11/99
MW-4	Clay, clayey sand, sandy gravel, sand	20	5 - 20	9.30	7.58	1.72	12/21/07
					7.84	1.46	6/4/02
					8.20	1.10	1/29/01
					8.54	0.76	10/18/00
					8.60	0.70	8/7/00
					8.33	0.97	3/28/00
					8.44	0.86	11/11/99
MW-5	Clay, silt, sandy clay, sand	20	5 - 20	10.19	8.90	1.29	12/21/07
					9.09	1.10	6/4/02
					9.36	0.83	1/29/01
					9.68	0.51	10/18/00
					9.67	0.52	8/7/00
MW-6	Clay, clayey sand, sand	20	5 - 20	9.86	8.45	1.41	12/21/07
					8.72	1.14	6/4/02
					8.95	0.91	1/29/01
					9.33	0.53	10/18/00
					9.34	0.52	8/7/00
MW-7	Clay, sandy clay, sand	20	5 - 20	8.60	7.06	1.54	12/21/07
					7.27	1.33	6/4/02
					7.48	1.12	1/29/01
					7.93	0.67	10/18/00
					7.92	0.68	8/7/00
Casing 1	--	--	--	10.77	9.65	1.12	11/11/99
Casing 2	--	--	--	9.98	8.87	1.11	11/11/99

Table 2. **Groundwater Chemical Test Results**
421 23rd Avenue, Oakland, California

Well/ Boring No.	TPHG (mg/l)	TPHD (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	1,2-DCA (µg/l)	1,2-EDB (µg/l)	Sample Date
MW-1	<0.050	<0.050	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	12/21/07
	0.051	<0.050	<0.5	<0.5	<0.5	<1.0	**1.6**							6/4/02
	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5							1/29/01
	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5							10/18/00
	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5							8/7/00
	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5							3/28/00
	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<0.5							11/11/99
MW-2	<0.050	**0.067**	<0.50	<0.50	<0.50	<0.50	**210**	<0.50	<0.50	**1.1**	<5.0	<0.50	<0.50	12/21/07 Perc
	0.059	<0.050	<0.5	<0.5	<0.5	<1.0	**582**						dewatered	6/4/02 Bail 2lg
	1.1	**0.75**	**11**	<0.5	<0.5	<0.5	**4,300***							1/29/01
	2.3	**0.51**	<5.0	<5.0	<5.0	<5.0	**8,300***							10/18/00
	4.5	**0.62**	<25	<25	<25	<25	**6,300**							8/7/00 Bail 2lg
	2.5	**1.8**	<25	<25	<25	<25	**1,800**							3/28/00
	6.8	**0.22**	<50	<50	<50	<50	**13,000***							11/11/99
MW-3	<0.050	<0.050	<0.50	<0.50	<0.50	<0.50	**320**	<0.50	<0.50	**3.5**	<5.0	<0.50	<0.50	12/21/07
	0.056	<0.050	<0.50	**0.5**	**0.8**	**3.2**	**2,710**							6/4/02
	0.70	<0.050	**2.0**	<0.50	<0.50	<0.50	**920***							1/29/01
	0.90	**0.058**	<5.0	<5.0	<5.0	<5.0	**2,000***							10/18/00
	1.1	<0.050	<5.0	<5.0	<5.0	<5.0	**1,500**							8/7/00
	0.28	<0.050	<2.5	<2.5	<2.5	<2.5	**610**							3/28/00
	1.6	<0.050	<12.5	<12.5	<12.5	<12.5	**2,500***							11/11/99
MW-4	<0.050	<0.050	<0.50	<0.50	<0.50	<0.50	**4.2**	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	12/21/07
	0.089	<0.050	<0.5	<0.5	**1.1**	**6.3**	**35**							6/4/02
	0.16	<0.056	**1.7**	<0.5	<0.5	<0.5	**230***							1/29/01
	0.26	<0.050	<2.5	<2.5	<2.5	<2.5	**410***							10/18/00
	0.60	<0.050	<5	<5	<5	<5	**500**							8/7/00
	0.43	<0.050	<2.5	<2.5	<2.5	<2.5	**800**							3/28/00
	0.65	<0.050	<5	<5	<5	<5	**540***							11/11/99

Table 2. Groundwater Chemical Test Results
421 23rd Avenue, Oakland, California

Well/ Boring No.	TPHG (mg/l)	TPHD (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	1,2-DCA (µg/l)	1,2-EDB (µg/l)	Sample Date
MW-5	<0.050	<0.050	<0.50	<0.50	<0.50	<0.50	**1.5**	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	12/21/07
	<0.050	<0.050	<0.5	<0.5	<0.5	<1.0	**108**							6/4/02
	0.19	**0.086**	**1.9**	<0.5	<0.5	<0.5	**290***							1/29/01
	0.15	**0.083**	<0.5	<0.5	<0.5	<0.5	**420***							10/18/00
	0.11	<0.050	<0.5	<0.5	<0.5	<0.5	**470***							8/7/00
MW-6	<0.050	<0.050	<0.50	<0.50	<0.50	<0.50	**160**	<0.50	<0.50	**2.5**	<5.0	<0.50	<0.50	12/21/07 Acetone
	<0.050	<0.050	<0.5	<0.5	<0.5	**1.7**	**725**							6/4/02 Ball 69
	0.78	<0.069	**4.2**	<0.5	<0.5	<0.5	**1,200***							1/29/01 Ball 69
	0.89	**0.062**	**5.6**	<2.5	<2.5	**3.1**	**2,400***							10/18/00
	0.46	<0.050	<0.5	<0.5	<0.5	<0.5	**1,900***							8/7/00 Ball 75g
MW-7	<0.050	<0.050†	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0	<0.50	<0.50	12/21/07
	<0.050	<0.050	<0.5	<0.5	<0.5	**1.9**	**1.1**							6/4/02
	<0.050	<0.063	<0.5	<0.5	<0.5	<0.5	<5*							1/29/01
	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<5*							10/18/00
	<0.050	<0.050	<0.5	<0.5	<0.5	<0.5	<5*							8/7/00
Casing 1 **	<0.50	**0.069**	<5	<5	<5	<5	**760**							1/29/01
	0.054	**0.14**	<0.5	<0.5	<0.5	<0.5	**30**							8/7/00
	<0.050	<0.250	<2.5	<2.5	<2.5	<2.5	**350**							11/11/99
	<0.050	<0.050	<0.50	<0.50	<0.50	<0.50	**9.2**							10/8/99
Casing 2 **	**0.082**	**0.11**	<0.5	<0.5	<0.5	<0.5	**190**							8/7/00
	0.27	<0.050	<2.5	<2.5	<2.5	<2.5	**150**							3/28/00
	0.15	<0.050	<1	<1	<1	<1	**320**							11/11/99
	0.68	**0.083**	<0.50	<0.50	<0.50	<0.50	**1,200**							10/8/99

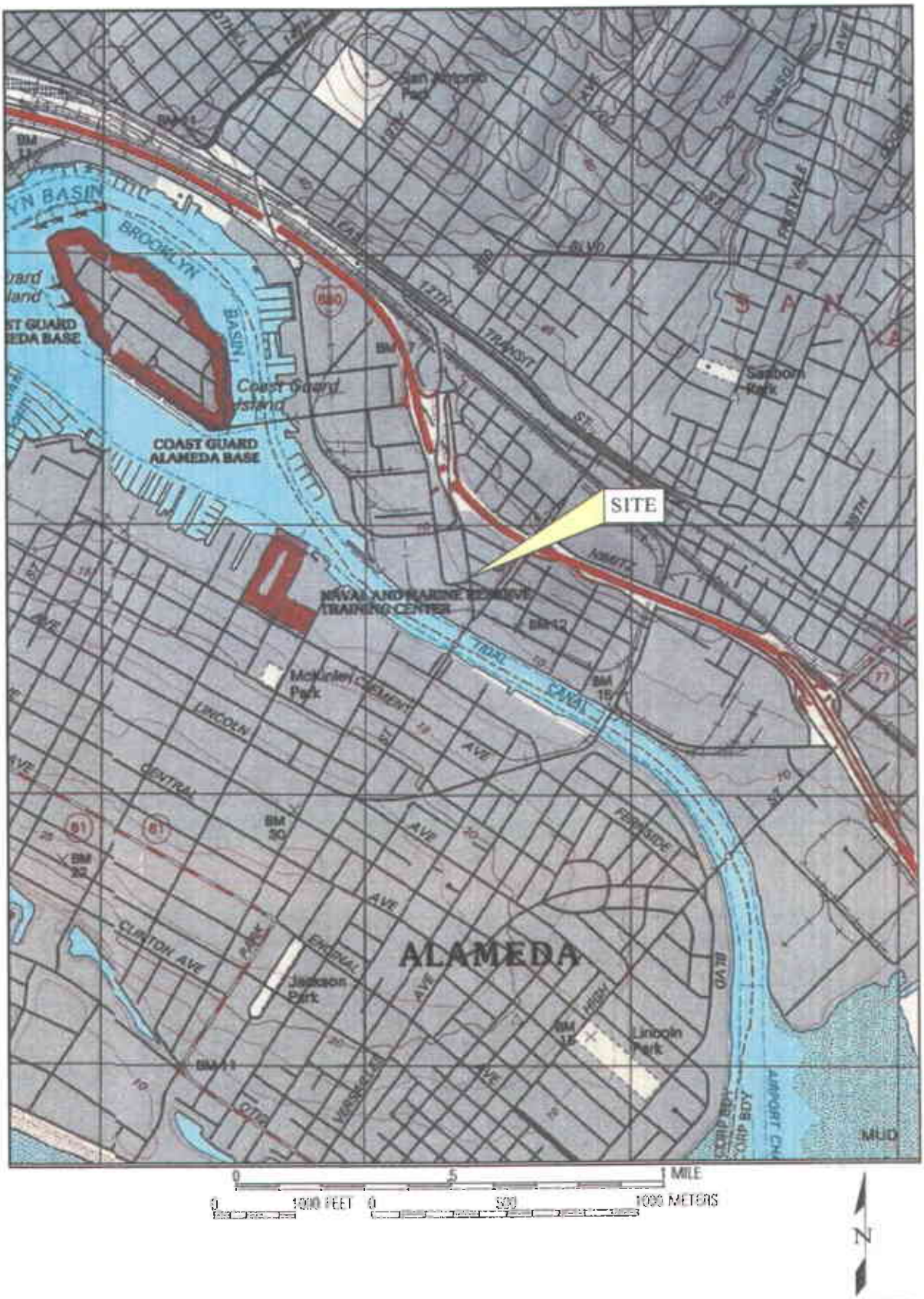
Table 2. Groundwater Chemical Test Results
421 23rd Avenue, Oakland, California

Well/ Boring No.	TPHG (mg/l)	TPHD (mg/l)	Benzene (µg/l)	Toluene (µg/l)	Ethyl-benzene (µg/l)	Total Xylenes (µg/l)	MTBE (µg/l)	DIPE (µg/l)	ETBE (µg/l)	TAME (µg/l)	TBA (µg/l)	1,2-DCA (µg/l)	1,2-EDB (µg/l)	Sample Date
GP-1	<0.050	**0.19**	**1.4**	<0.50	<0.50	<0.50	<5.0							10/8/99
GP-2	**1.2**	**0.35**	**6.1**	**2.9**	**65**	**55**	**76**							10/8/99
GP-3	<0.050	<0.050	<0.50	<0.50	<0.50	<0.50	<5.0							10/8/99
GP-4	**12**	**620**	<0.50	<0.50	<0.50	<0.50	**13,000**							10/8/99
GP-5	**0.79**	**80**	<0.50	<0.50	<0.50	<0.50	**340**							10/8/99
GP-6	**3.1**	<0.050	<0.50	<0.50	<0.50	<0.50	**4,800**							10/8/99
GP-7	**0.18**	<0.050	<0.50	<0.50	<0.50	<0.50	**350**							10/8/99
GP-8	**0.15**	<0.050	<0.50	<0.50	<0.50	<0.50	**240**							10/8/99
Regulatory Limits	0.005[1]	0.1[2]	1.0[3]	42[2]	29[2]	17[2]	5[4]							

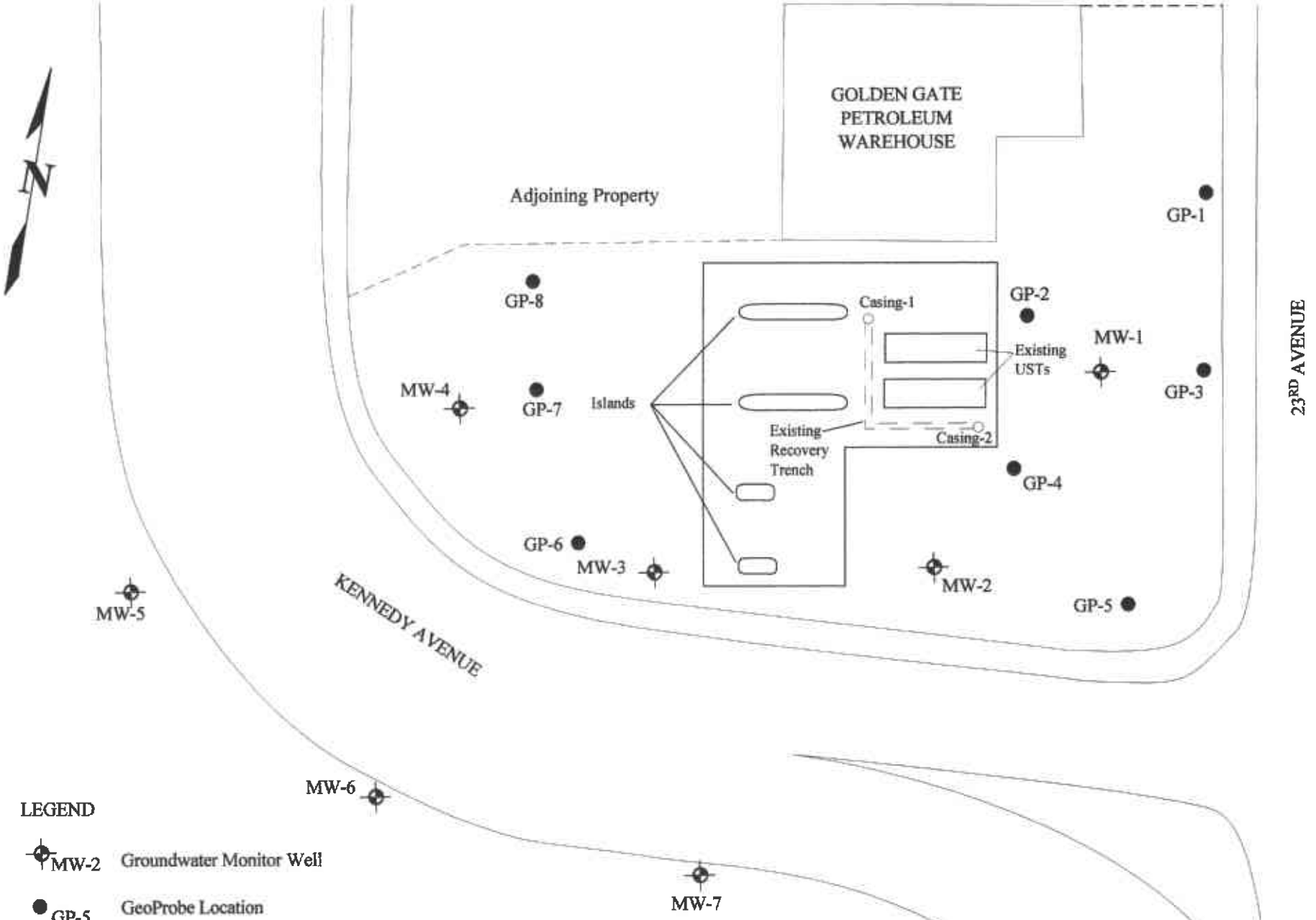
1 -- Taste and odor threshold (SWRCB)
2 -- Taste and odor threshold (U.S. EPA)
3 -- California Primary MCL
4 -- California Secondary MCL
* Confirmed by EPA Method 8260B
** Recovery casing located in the previous tank excavation
† Extracted outside hold time

Table 3. Soil Chemical Test Results
421 23rd Avenue, Oakland, California

Well/ Boring No.	Sample Depth (feet)	TPHG (mg/kg)	TPHD (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	MTBE (mg/kg)	Sample Date
MW-2	5	<1.0	**9.7**	<0.005	**0.037**	<0.005	<0.005	<0.005	11/1/99
	10	**450**	**4,300**	<0.005	<0.005	<0.005	<0.005	<0.005	
MW-5	5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	7/28/00
	10	<1.0	**130**	<0.005	<0.005	<0.005	<0.005	<0.005	
MW-6	5	<1.0	**13**	<0.005	<0.005	<0.005	<0.005	<0.005	7/28/00
	10	<1.0	**5.6**	<0.005	<0.005	<0.005	<0.005	**0.014**	
MW-7	5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	7/28/00
	10	<1.0	**15**	<0.005	<0.005	<0.005	<0.005	<0.005	
GP-1	10	<1.0	**4.2**	<0.005	<0.005	<0.005	<0.005	<0.005	10/8/99
GP-2	5	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	**0.66**	10/8/99
	10	**220**	**7.9**	**0.41**	**0.44**	**1.2**	**1.2**	<0.005	
GP-3	10	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	10/8/99
GP-4	5	**70**	**610**	<0.005	<0.005	<0.005	<0.005	<0.005	10/8/99
	10	**36**	**56**	<0.005	<0.005	<0.005	<0.005	<0.005	
GP-5	10	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	10/8/99
GP-6	10	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	10/8/99
GP-7	10	<1.0	<1.0	<0.005	<0.005	<0.005	<0.005	<0.005	10/8/99

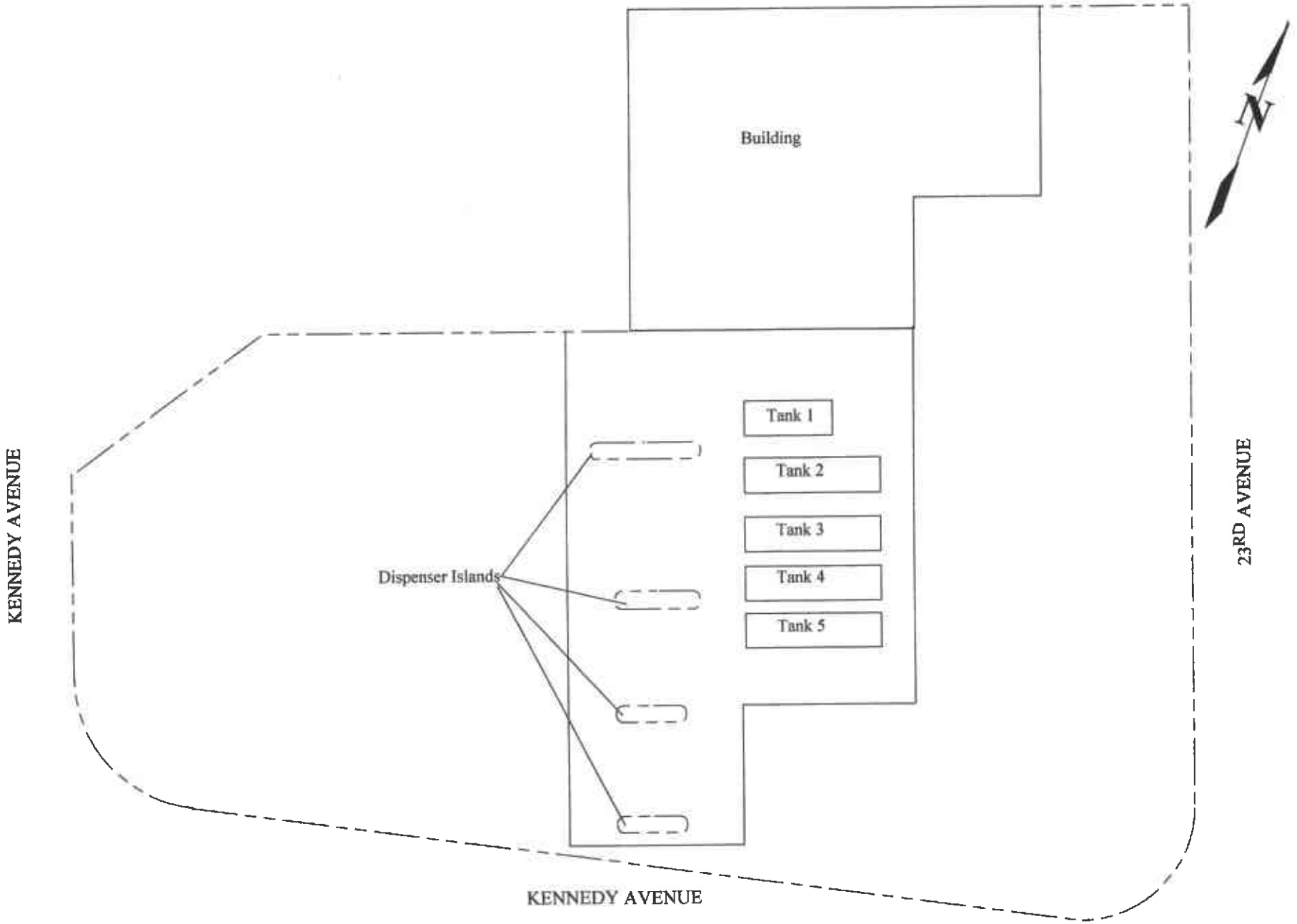


Project No. E27297-3	Golden Gate Petroleum	SITE LOCATION MAP 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 1
Bonkowski & Associates, Inc.			



Project No. E27297-3	Golden Gate Petroleum	SITE PLAN MAP 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 2
Bonkowski & Associates, Inc.			

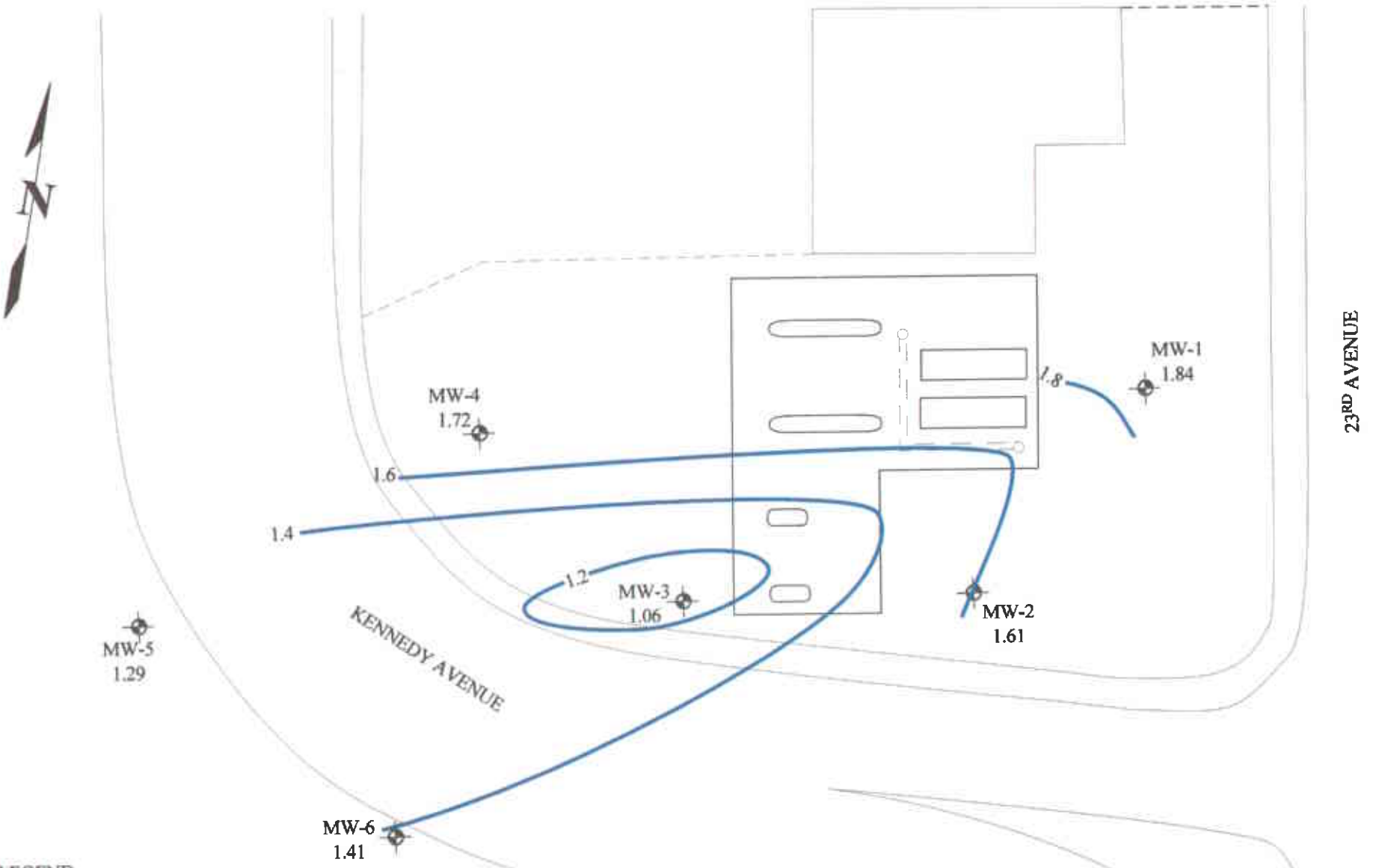
Project No. E27297-3	Golden Gate Petroleum	SITE AIR PHOTO 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 3
Bonkowski & Associates, Inc.			



Approximate Scale:
1 inch = 40 feet

0 20 40

Project No. E27297-3	Golden Gate Petroleum	FORMER SITE PLAN MAP 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 4
Bonkowski & Associates, Inc.			



LEGEND

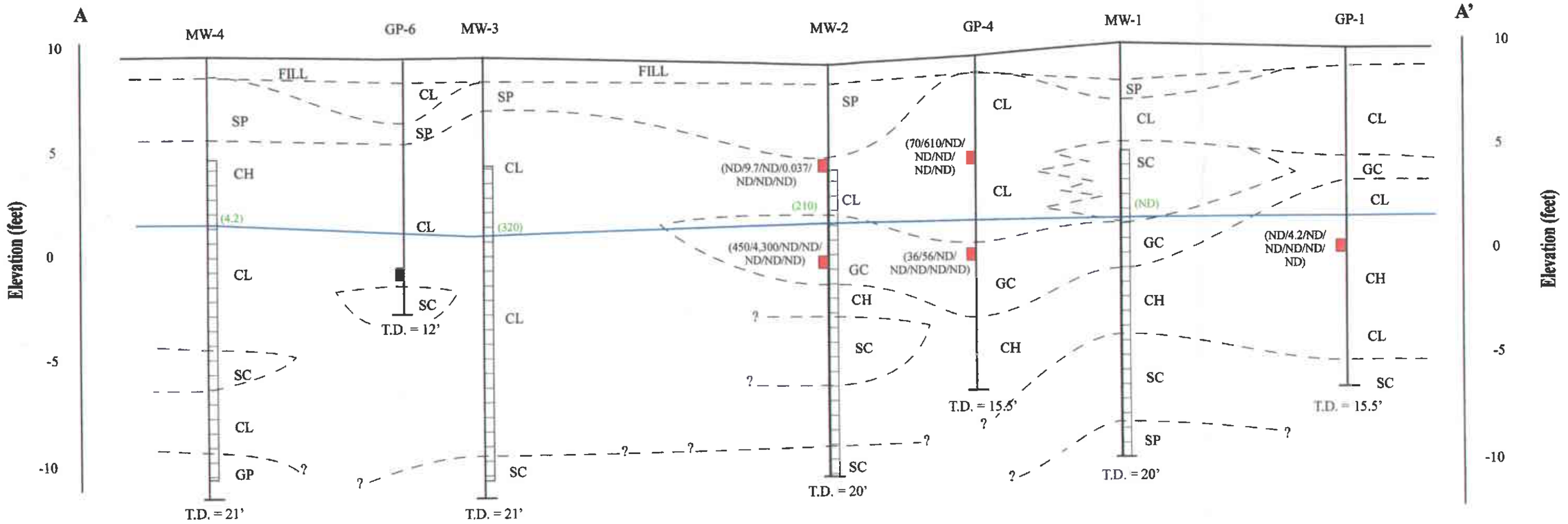
MW-6 20.58 Monitor Well Location with Groundwater Elevation (12/21/07) (feet, amsl)

– 15.10 – Groundwater Elevation Contour (feet, amsl)

Approximate Scale (feet):

0 20 40

Project No. E27297-3	Golden Gate Petroleum	GROUNDWATER ELEVATION CONTOUR MAP 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 5
Bonkowski & Associates, Inc.			



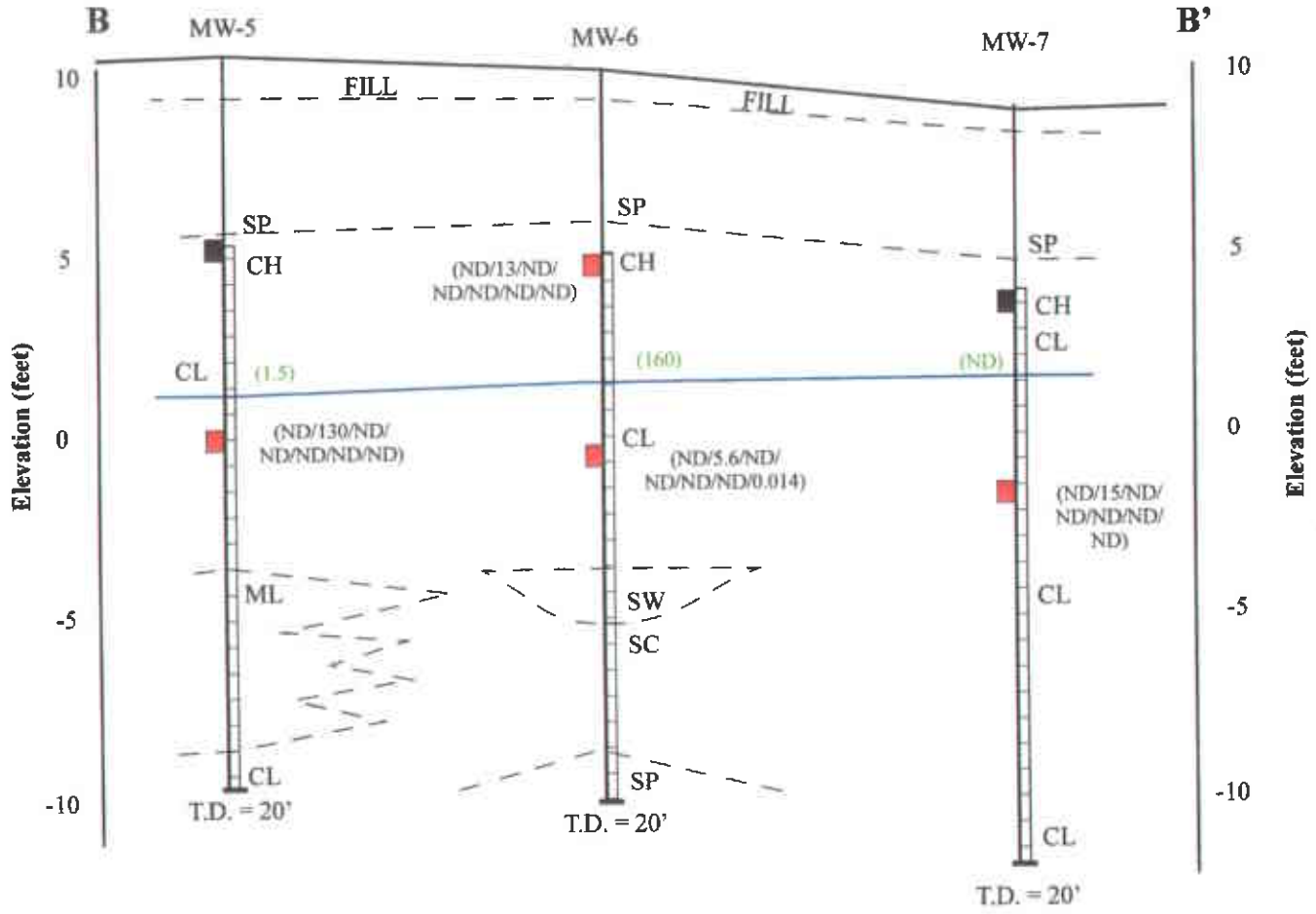
LEGEND

- Monitor Well or GeoProbe Location
- Screen Interval
- T.D. = 70' Total Depth of Well
- Non Detect Soil Sample
- Hydrocarbons Detected Soil Sample (TPHG/TPHD/B/T/E/X/MTBE) (mg/kg)
- Groundwater Elevation (12/21/07)
- (120) Groundwater MTBE Concentration (12/21/07) (µg/l)

NOTES:
Location of cross-section shown on Figure 8.
Soil Classifications as per ASTM Method D-2488.

SCALE:
1" = 30' Horizontal
1" = 5' Vertical

Project No. E27297-3	Golden Gate Petroleum	STRATIGRAPHIC CROSS SECTION A-A' 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 6
Bonkowski & Associates, Inc.			



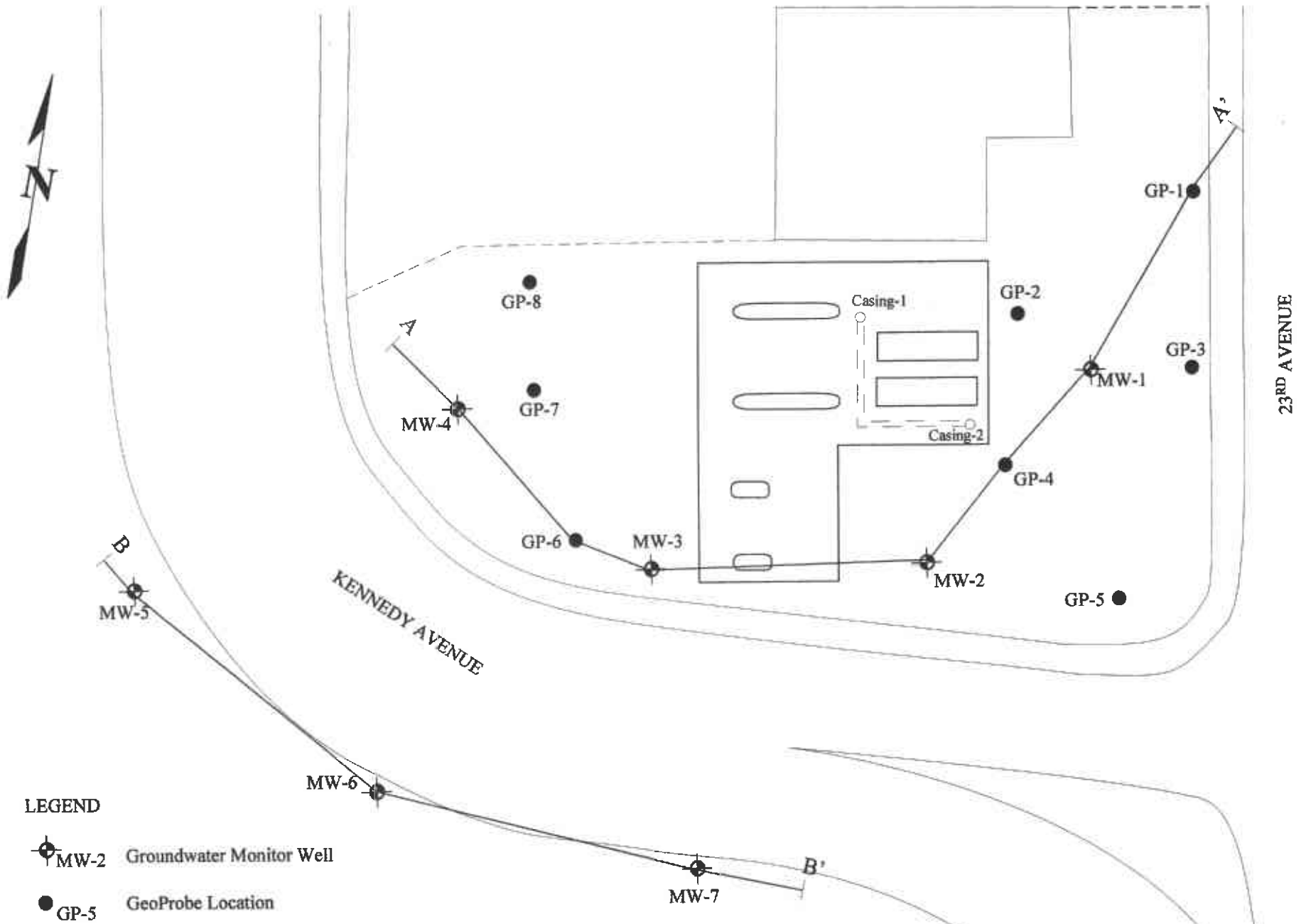
LEGEND

- Monitor Well or GeoProbe Location
- Screen Interval
- T.D. = 70' Total Depth of Well
- Non Detect Soil Sample
- Hydrocarbons Detected Soil Sample (TPHG/TPHD/B/T/E/X/MTBE) (mg/kg)
- Groundwater Elevation (12/21/07)
- (120) Groundwater MTBE Concentration (12/21/07) (µg/l)

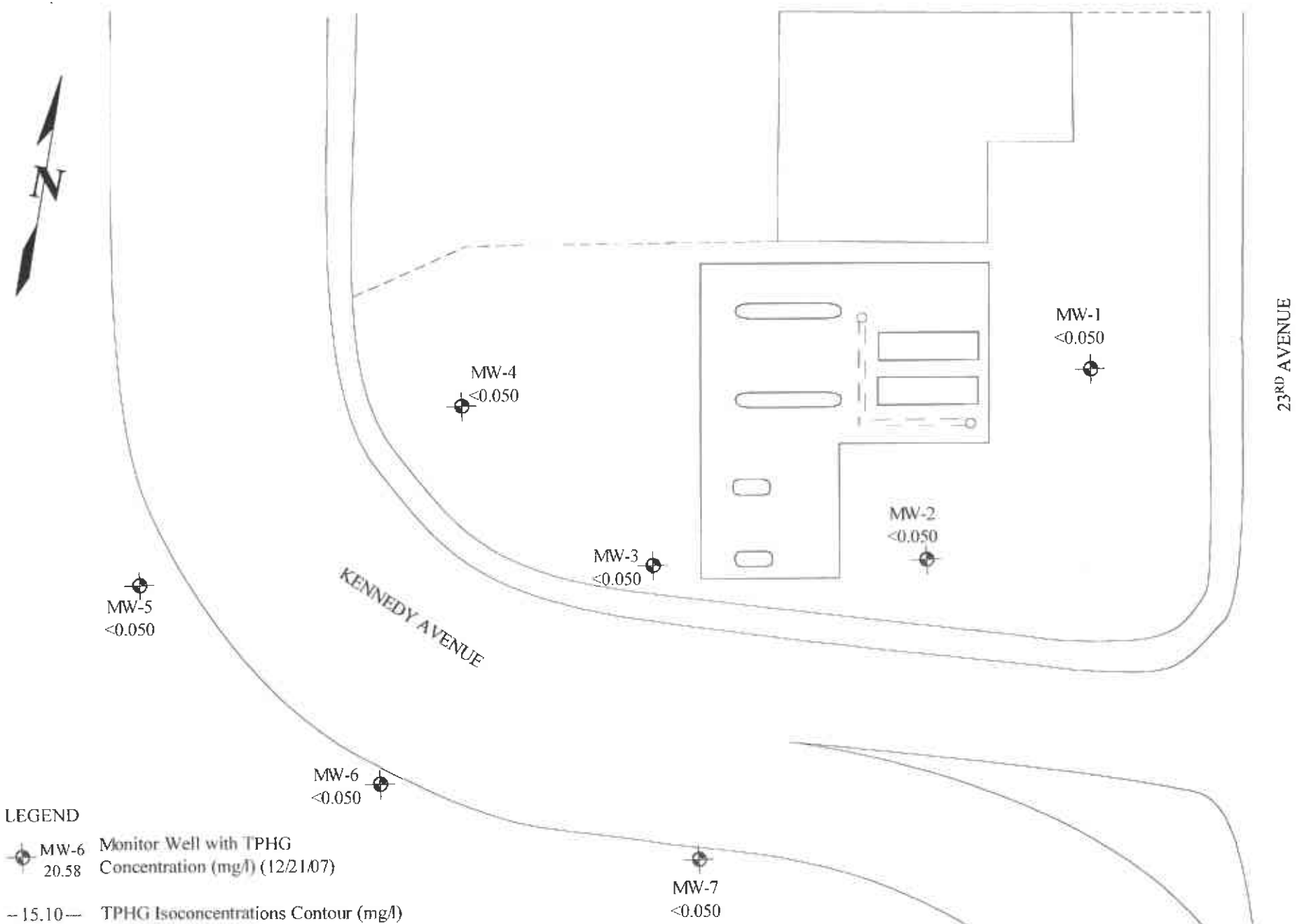
SCALE:
1" = 40' Horizontal
1" = 5' Vertical

NOTES:
Location of cross-section shown on Figure 8.
Soil Classifications as per ASTM Method D-2488.

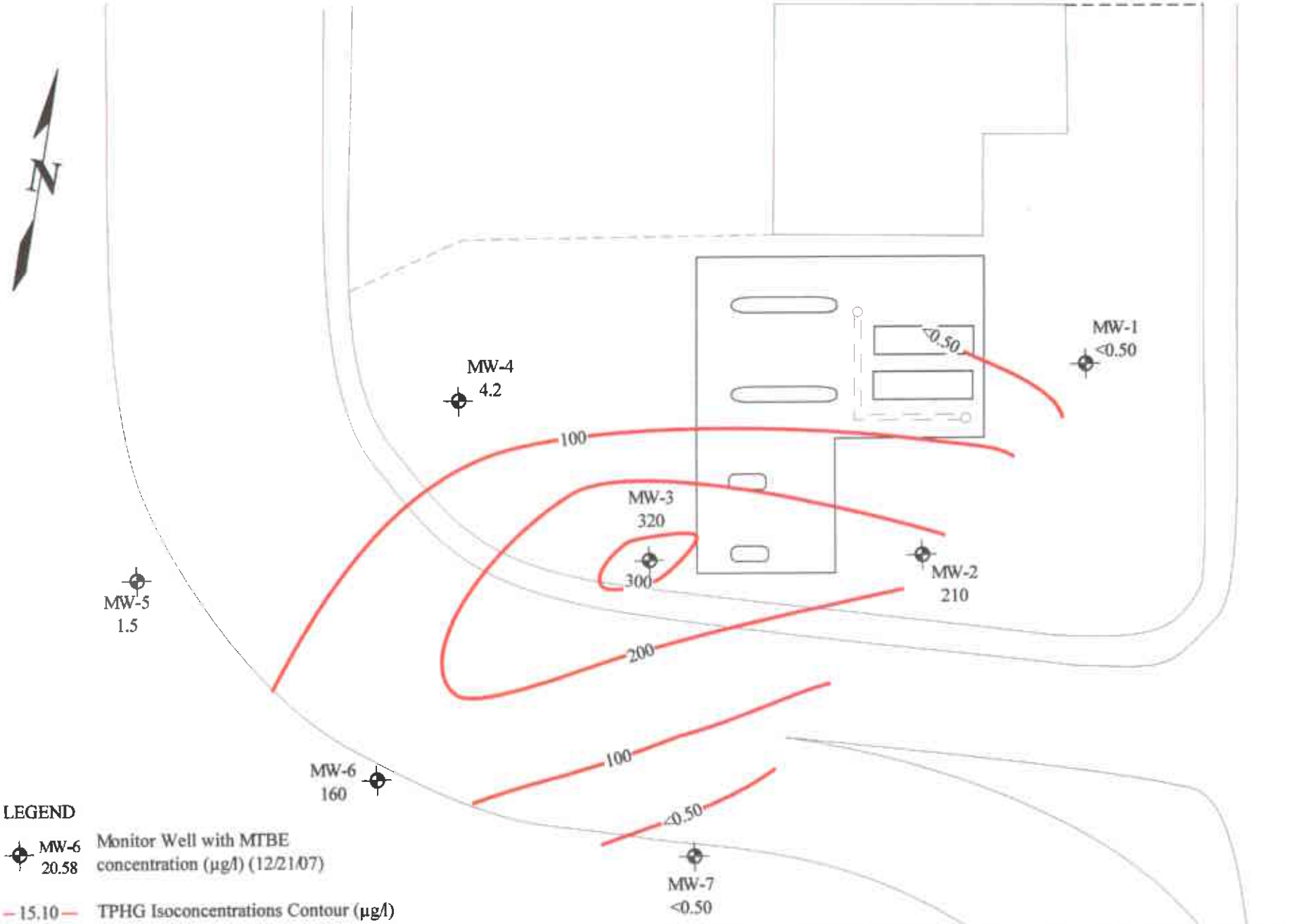
Project No. E23240	Golden Gate Petroleum	STRATIGRAPHIC CROSS SECTION B-B' 421 23RD STREET OAKLAND, CALIFORNIA	Figure 7
Bonkowski & Associates, Inc.			



Project No. E27297-3	Golden Gate Petroleum	CROSS SECTION INDEX MAP 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 8
Bonkowski & Associates, Inc.			



Project No. E27297-3	Golden Gate Petroleum	DISSOLVED TPHG CONCENTRATION MAP 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 9
Bonkowski & Associates, Inc.			



LEGEND

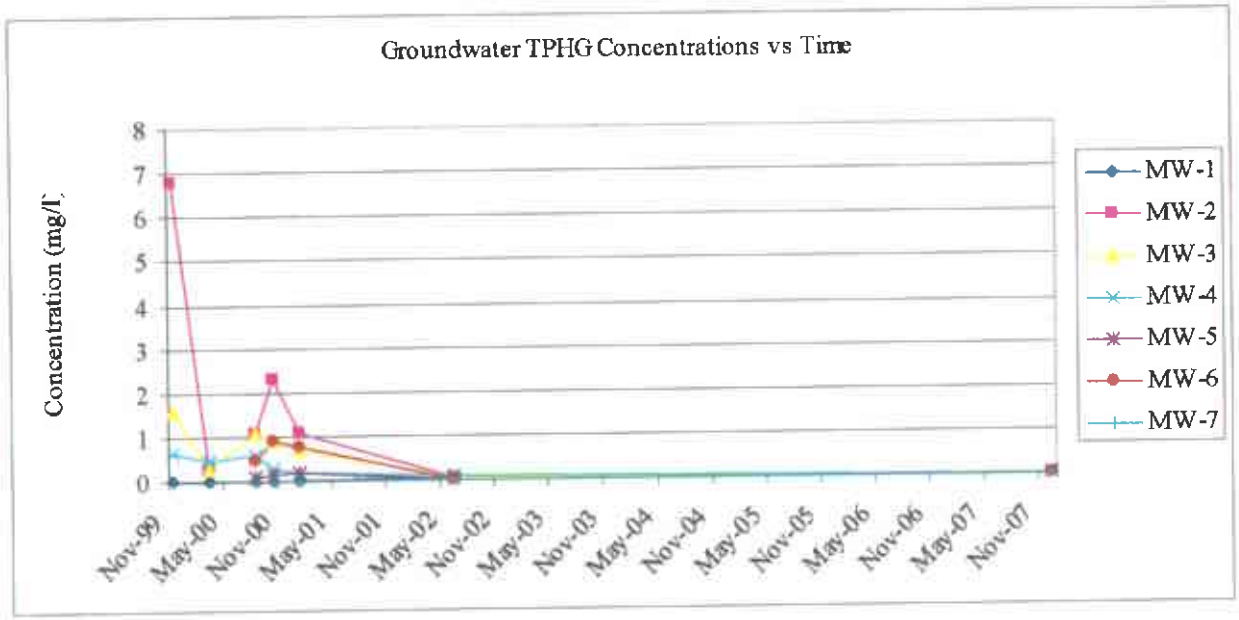
MW-6 20.58 Monitor Well with MTBE concentration (µg/l) (12/21/07)

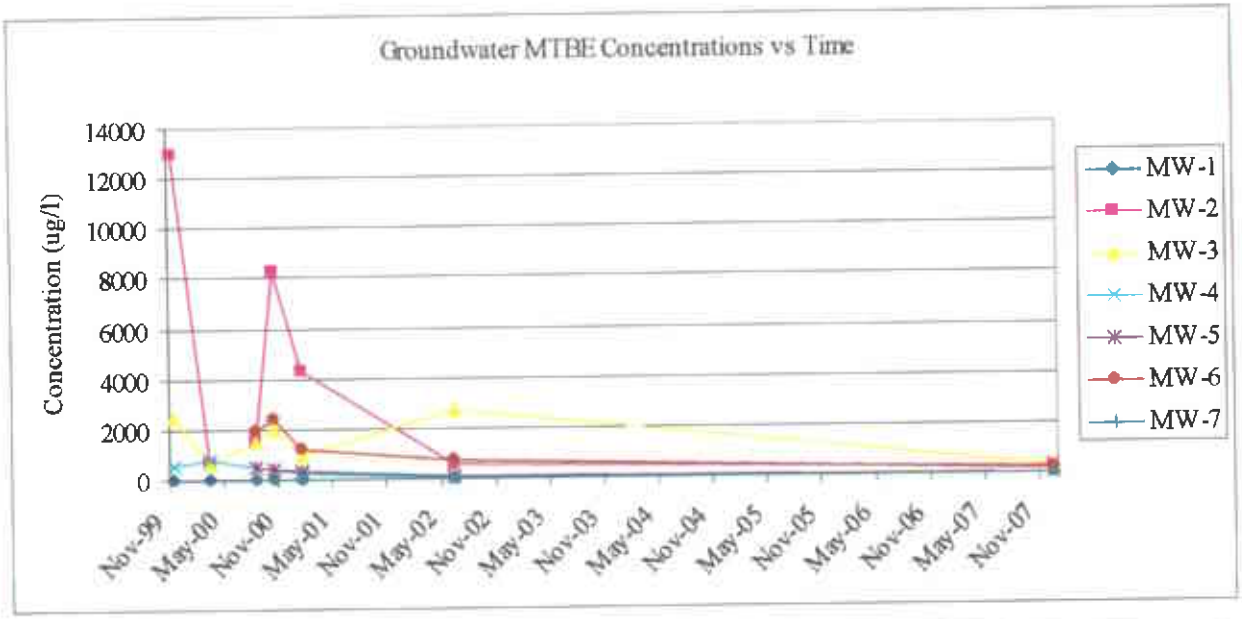
15.10 TPHG Isoconcentrations Contour (µg/l)

Approximate Scale (feet):

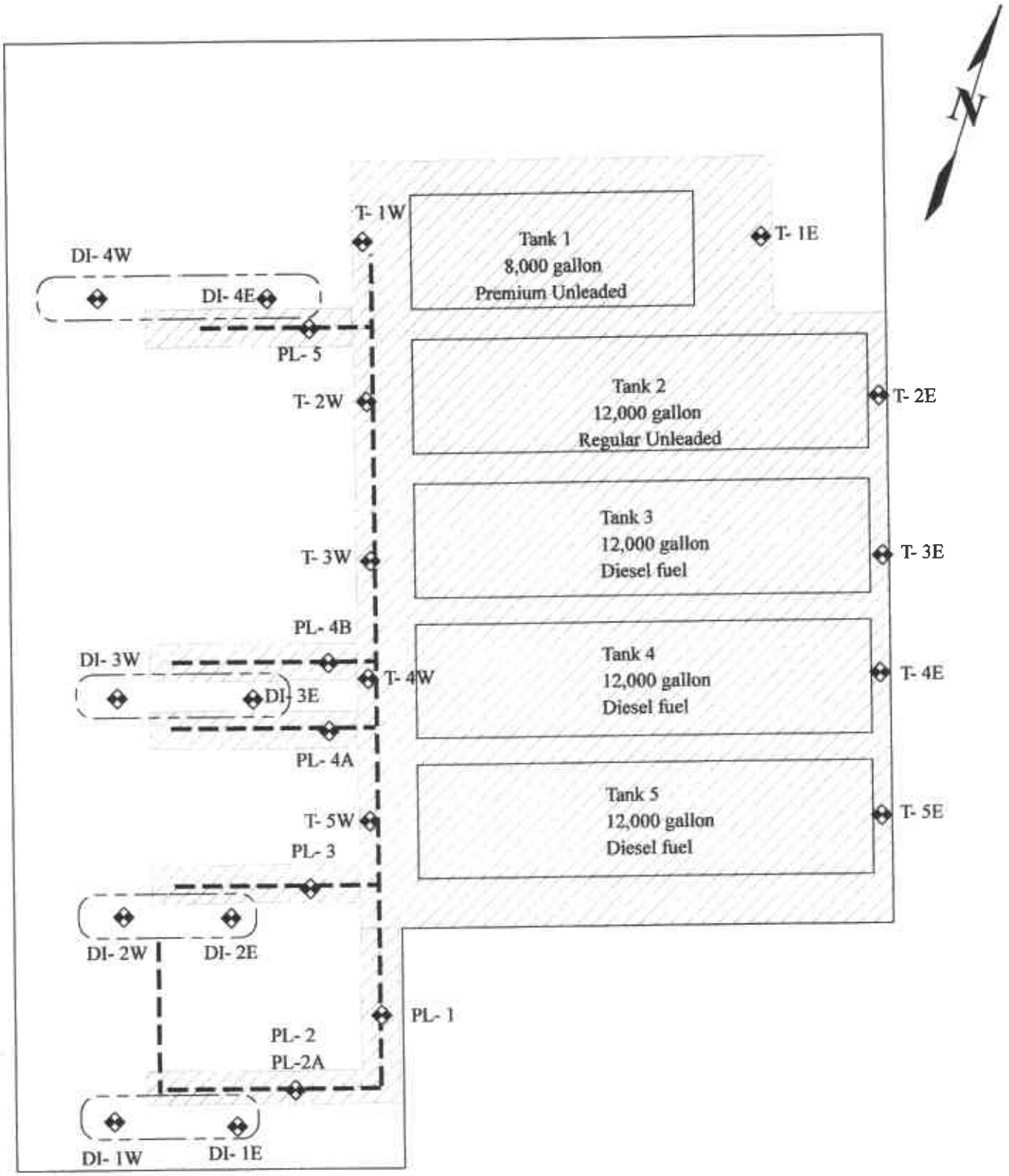
0 20 40

Project No. E27297-3	Golden Gate Petroleum	MTBE ISOCONCENTRATION CONTOUR MAP 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 10
Bonkowski & Associates, Inc.			





Project No. E27297-3	Golden Gate Petroleum	TPHG AND MTBE VS. TIME 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 11
Bonkowski & Associates, Inc.			



Legend

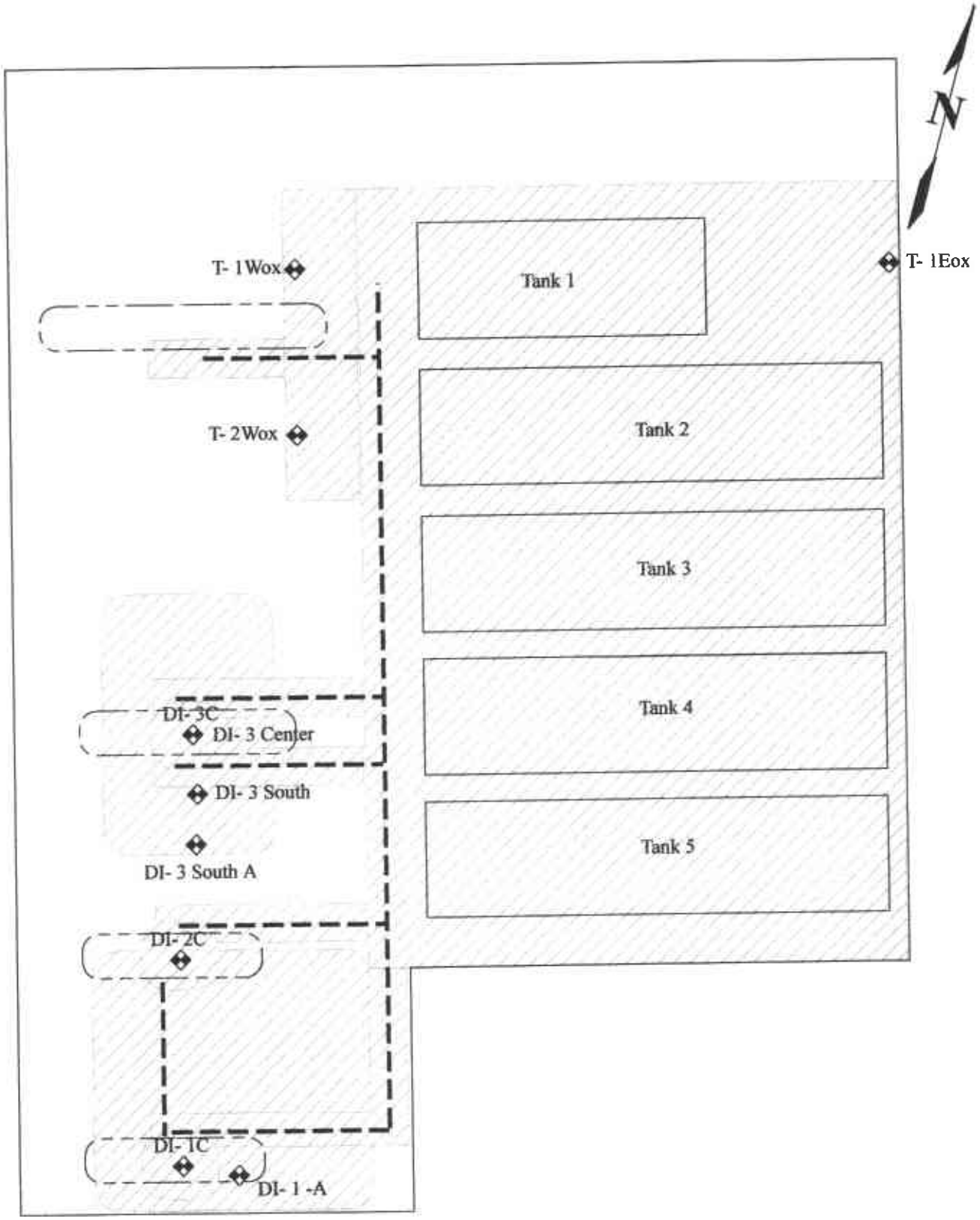
Extent of Excavation

DI- 1C Soil Sample Location

Approximate Scale:
1 inch = 10 feet

0 5 10

Project No. E27297-3	Golden Gate Petroleum	EXCAVATION SOIL SAMPLE LOCATIONS, 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 12
Bonkowski & Associates, Inc.			



Legend

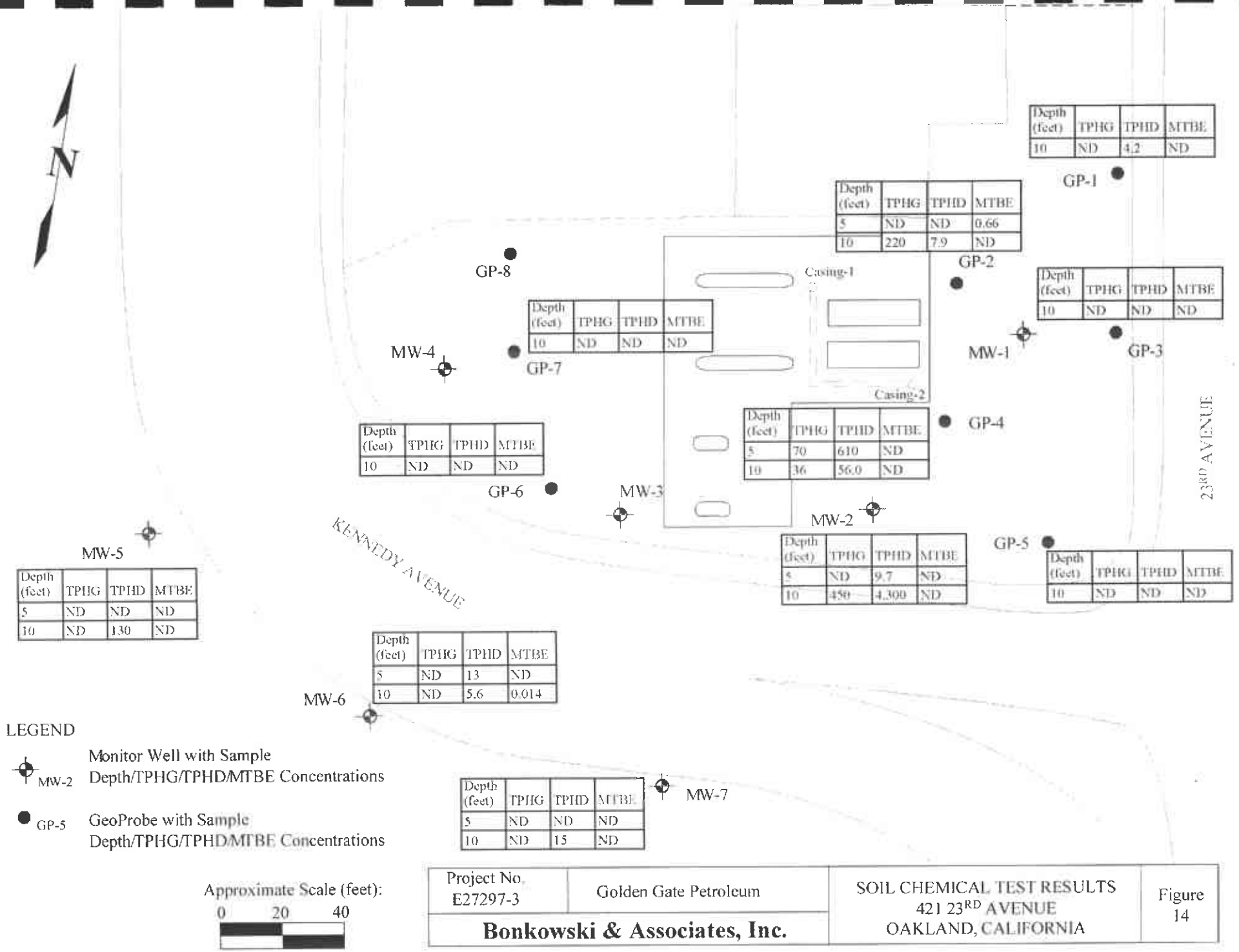
Extent of Excavation

DI- 1C Soil Sample Location

Approximate Scale:
1 inch = 10 feet

0 5 10

Project No. E27297-3	Golden Gate Petroleum	EXCAVATION AND OVER-EXCAVATION SOIL SAMPLE LOCATIONS	Figure 13
Bonkowski & Associates, Inc.		421 23RD AVENUE, OAKLAND, CALIFORNIA	



LEGEND

MW-2 Monitor Well with Sample Depth/TPHG/TPHD/MTBE Concentrations

GP-5 GeoProbe with Sample Depth/TPHG/TPHD/MTBE Concentrations

Approximate Scale (feet): 0 20 40

Project No. E27297-3	Golden Gate Petroleum	SOIL CHEMICAL TEST RESULTS 421 23RD AVENUE OAKLAND, CALIFORNIA	Figure 14
Bonkowski & Associates, Inc.			

Subject: RO0395 Groundwater monitoring at 4212 23rd Avenue, Oakland
Date: Tuesday, December 5, 2006 6:45 PM
From: Wickham, Jerry, Env. Health <jerry.wickham@acgov.org>
To: <cindy@bonkowski.com>

Cynthia,

This message is in response to our telephone conversation of November 13, 2006 and your recent phone message of December 5, 2006. As we discussed on November 13, 2006, groundwater sampling of the existing monitoring wells is required for the site at 421 23rd Avenue to obtain representative data of current conditions. Groundwater monitoring has not been conducted at the site since 2001. Groundwater samples are to be analyzed for TPH as gasoline, TPH as diesel, MTBE and fuel oxygenates by EPA Method 8260, and 1,2-dcihloroethane and EDB by EPA Method 8260.

Regards,
Jerry Wickham
Alameda County Environmental Health
1131 Harbor Bay Parkway
Alameda, CA 94502-6577
510-567-6791 Phone
510-933-9335 Fax
jerry.wickham@acgov.org

Jim Springer

From: Gholami, Amir, Env. Health [amir.gholami@acgov.org]
Sent: Monday, April 04, 2005 2:13 PM
To: jspringer@bonkowski.com
Subject: RO395, 421 23rd Ave.

Hi Jim:

Per our discussion, I need a **stand alone document** which includes the following:

SCM which includes the following:

- geological cross sections
- plume delineation contours , horizontal and vertical
- MWs conc along with depth to water tabulated
- all soil borings tabulated and shown on a plot plan along with conc at diff depths per our discussion
- all soil borings after all the excavation performed in order to reveal what concentrations of CoCs are present at the site. shown on a plot plan
- cross sections of the site to show mw screens, plume delineation, all preferential pathways, etc. per our discussion
- compare the concentrations of CoCs with the Regional board's ESLs

If you have any other questions, please contact me at 510-567-6876.

Thanks

Amir

FILE COPY

January 4, 2005
L98174

Mr. Amir K. Gholami
Hazardous Materials Specialist
Alameda County Health Care Services
Environmental Protection Department
1131 Harbor Bay Parkway
Alameda, CA 94502-6577

BONKOWSKI & ASSOCIATES, INC.
Geotechnical Services and
Hazardous Materials Management

Corporate Headquarters
6400 Hollis Street, Suite 4
Emeryville, California 94608
Phone: (510) 450-0770
Fax: (510) 450-0801

Subject: Closure Request for the Golden Gate Petroleum Site at 421 23rd Avenue, Oakland, CA

Dear Mr. Gholami:

On behalf of Bay Area/ Diablo Petroleum (dba Golden Gate Petroleum), Bonkowski & Associates, Inc. has reviewed the files for their site at 421 23rd Avenue in Oakland. Based on our review, it appears that the petroleum hydrocarbon contaminant plume has stabilized and any remaining off-site migration of contaminants no longer poses a significant human health or ecological risk.

We request that you grant closure for this site. Upon your letter granting closure, we plan to destroy any existing monitor wells in accordance with Alameda County Public Works Department's permit requirements.

Sincerely,
BONKOWSKI & ASSOCIATES, INC.

James E. Springer, CEG 1827
Project Geologist

Cynthia A. Dittmar, RG 7213
Project Geologist

cc. Dennis O'Keefe, Golden Gate Petroleum
File

JES/jes

REGISTERED GEOLOGIST
JAMES E. SPRINGER
No. EG 1827
CERTIFIED
ENGINEERING
GEOLOGIST
EXP. 1-31-06
STATE OF CALIFORNIA

APPENDIX B

Reports & Approvals on CD

APPENDIX C

Boring Logs on CD

Table D1. Groundwater Sample Chemical Analyses Results, Petroleum Fuel Hydrocarbons, Golden Gate Petroleum Cardlock, Oakland, California.

Sample Number	Sample Locaton	TPHG (mg/l)	TPHD (mg/l)	Benzene (μg/l)	Toluene (μg/l)	Ethyl-benzene (μg/l)	Total Xylenes (μg/l)	MTBE (8020) (μg/l)	Lead (200.7) (μg/l)	Date Sampled
Pit	Tank Cavity	43	12	<25	<25	<25	<25	49,000		8/13/98
ST-A	Storage Tank A	0.12	<0.05	<0.50	<0.50	<0.50	<0.50	5,600		9/1/98
ST-B	Storage Tank B	<0.05	<0.05	<0.50	<0.50	<0.50	<0.50	1,700		9/1/98
Effluent	Discharge from Storage Tank A	--	--	<0.50	<0.50	<0.50	<0.50	--	26	9/22/98
State MCL		0.005[1]	0.100[2]	1.0[3]	42[2]	29[2]	17[2]	14[4]		

1 -- Taste and odor threshold (SWRCB)

2 -- Taste and odor threshold (U.S. EPA)

3 -- California Primary MCL

4 -- Proposed public health goal (OEHHA)

Table D2. Groundwater Sample Chemical Test (EPA 8260 and Total Lead) Results Golden Gate Petroleum Cardlock Oakland, California

Sample No.	West
Sample Location	Collector Trench West Access
Units	(µg/l)
Analyte	
Benzene	11
Bromobenzene	ND
Bromochloromethane	ND
Bromodichloromethane	ND
Bromoform	ND
Bromomethane	ND
t-Butanol	ND
n-Butylbenzene	ND
Sec-butylbenzene	ND
Tert-butylbenzene	ND
Carbon Tetrachloride	ND
Chlorobenzene	ND
Chloroethane	ND
Chloroform	ND
Chloromethane	ND
2-Chlorotoluene	ND
4-Chlorotoluene	ND
Dibromochloromethane	ND
1,2-Dibromo-3-chloropropane	ND
1,2-Dibromoethane	ND
Dibromomethane	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Dichlorodifluoromethane	ND
1,1-Dichloroethane	ND
1,2-Dichloroethane	ND
1,1-Dichloroethene	ND
Cis-1,2-Dichloroethene	ND
Trans-1,2-Dichloroethene	ND
1,2-Dichloropropane	ND
1,3-Dichloropropane	ND
2,2-Dichloropropane	ND
1,1-Dichloropropene	ND
Cis-1,3-Dichloropropene	ND
Trans-1,3-Dichloropropene	ND

Table D2. Groundwater Sample Chemical Test (EPA 8260 and Total Lead) Results Golden Gate Petroleum Cardlock Oakland, California

Sample No.	**West**
Sample Location	**Collector Trench West Access**
Units	**(µg/l)**
Analyte	
Di-isopropyl Ether	ND
Ethanol	ND
Ethylbenzene	ND
Ethyl Tertiary Butyl Ether	ND
Hexachlorobutadiene	ND
Isopropylbenzene	ND
p-Isopropyltoluene	ND
Methylene Chloride	ND
Methyl Tertiary Butyl Ether	4,500
Naphthalene	ND
N-Propylbenzene	ND
Styrene	ND
Tertiary Amyl Methyl Ether	98
Tertiary Butyl Alcohol	ND
1,1,1,2-Tetrachloroethane	ND
1,1,2,2-Tetrachloroethane	ND
Tetrachloroethene	ND
Toluene	ND
1,2,3-Trichlorobenzene	ND
1,2,4-Trichlrorbenzene	ND
1,1,1-Trichloroethane	ND
1,1,2-Trichloroethane	ND
Trichloroethene	ND
Trichlorofluoromethane	ND
1,2,3-Trichloropropane	ND
1,2,4-Trimethylbenzene	ND
1,3,5-Trimethylbenzene	ND
Vinyl Chloride	ND
Total xylene	ND
Total Lead	ND
Date Sampled	11/2/98

Table D3. Soil Sample Chemical Analyses Results, Golden Gate Petroleum Oakland Cardlock, Oakland California

Sample No.	Sample Location	Sample Depth (feet)	TPHG (mg/kg)	TPHD (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Date Sampled
Tank 1	East end	11	3,100	4,400	5,400	3,000	30,000	45,000	2,700	8/13/98
	West end	11	2,000	2,300	15,000	120,000	45,000	240,000	56,000	8/13/98
Tank 2	East end	11	ND	15	ND	ND	ND	ND	850	8/13/98
	West end	11	12,000	9,400	67,000	650,000	240,000	1,400,000	100,000	8/13/98
Tank 3	East end	11	1.4	1.7	ND	ND	ND	ND	1,800	8/13/98
	West end	11	2.6	8.8	34	5.4	36	200	270	8/13/98
Tank 4	East end	11	2.0	2.7	6.1	ND	ND	ND	2,800	8/13/98
	West end	11	1.8	150	ND	ND	8.1	12	7.1	8/13/98
Tank 5	East end	11	ND	ND	ND	ND	ND	ND	20	8/13/98
	West end	11	ND	1.8	ND	ND	ND	ND	ND	8/13/98
SP-N,S,E,W	Soil Pile		70	760	54	74	49	1,800	66	8/13/98
PL-1	Product line	2.5	ND	33	ND	ND	ND	ND	ND	8/14/98
PL-2	Product line	2.5	1,400	20,000	<500	10,000	1,200	5,000	1,200	8/14/98
PL-2A	Product line	2.5	60	670	42	160	<20	360	300	8/14/98
PL-3	Product line	2.5	ND	32	ND	ND	ND	ND	ND	8/14/98
PL-4A	Product line	2.5	ND	ND	ND	ND	ND	ND	ND	8/14/98
PL-4B	Product line	2.5	18,000	<50	60,000	1,800,000	370,000	2,200,000	880,000	8/14/98

Table D3. Soil Sample Chemical Analyses Results, Golden Gate Petroleum Oakland Cardlock, Oakland California

Sample No.	Sample Location	Sample Depth (feet)	TPHG (mg/kg)	TPHD (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Date Sampled
PL-5	Product line	2.5	ND	540	ND	ND	ND	ND	8.4	8/14/98
DI-1E	Dispenser Island 1 East end	4	510	8,000	<200	390	<200	2,200	<200	8/14/98
DI-1W	Dispenser Island 1 West end	4	870	22,000	<200	1,400	350	7,600	<200	8/14/98
DI-2E	Dispenser Island 1 East end	4	290	1,900	<50	130	<50	<50	<50	8/14/98
DI-2W	Dispenser Island 1 West end	4	580	9,300	<200	310	<200	<200	<200	8/14/98
DI-3E	Dispenser Island 1 East end	4	680	4,600	<200	430	<200	900	<200	8/14/98
DI-3W	Dispenser Island 1 West end	4	21	31	230	2,000	350	3,400	240	8/14/98
DI-4E	Dispenser Island 1 East end	4	ND	<1.0	6.4	ND	ND	ND	7.9	8/14/98
DI-4W	Dispenser Island 1 West end	4	ND	<1.0	ND	ND	ND	ND	ND	8/14/98

Table D3. Soil Sample Chemical Analyses Results, Golden Gate Petroleum Oakland Cardlock, Oakland California

Sample No.	Sample Location	Sample Depth (feet)	TPHG (mg/kg)	TPHD (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Date Sampled
T1-Eox	Tank 1 East end over- excavation	11	ND	<1.0	ND	ND	ND	ND	150	8/15/98
T1-Wox	Tank 1 West end over- excavation	11	ND	<1.0	ND	ND	ND	ND	68	8/15/98
T2-Wox	Tank 2 East end over- excavation	11	8.2	<1.0	10	8.2	ND	6.8	7,300	8/15/98
DI-1c	Dispenser Island 1 Center	7	240	1,400	350	900	1,400	2,800	1,700	8/15/98
DI-2c	Dispenser Island 2 Center	8	ND	<1.0	ND	ND	ND	ND	120	8/15/98
DI-3c	Dispenser Island 3 Center	6	87	86	30	120	440	380	130	8/15/98
DI-1-A	Dispenser Island 1 South End	11	20	520	ND	ND	ND	ND	ND	8/20/98
DI-3-South	Dispenser Island 3 South	6	25	140	ND	ND	8.7	110	35	8/20/98
DI-3-South-A	Dispenser Island 3 South	10	ND	1.2	ND	ND	ND	9.4	ND	8/20/98
DI-3-Center-12	Dispenser Island 3-Center	12	30	1,800	<20	95	34	200	1,900	8/20/98

Table D3. Soil Sample Chemical Analyses Results, Golden Gate Petroleum Oakland Cardlock, Oakland California

Sample No.	Sample Location	Sample Depth (feet)	TPHG (mg/kg)	TPHD (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Date Sampled
Truck 4	Soil Pile		3.4	240	19	ND	ND	ND	240	8/19/98
Truck 8	Soil Pile		23	230	41	ND	ND	240	340	8/19/98
Truck 12	Soil Pile		22	270	39	7.1	ND	56	560	8/19/98
Truck 6B	Soil Pile		3.2	210	ND	ND	ND	34	930	8/20/98
Truck 8B	Soil Pile		5.0	150	6.6	ND	ND	ND	250	8/20/98
Truck 10B	Soil Pile		12	430	12	ND	ND	11	160	8/20/98
Truck 15B	Soil Pile		ND	140	ND	ND	ND	ND	ND	8/20/98
Truck 17B	Soil Pile		60	450	56	96	ND	88	69	8/20/98
Truck 19B	Soil Pile		94	750	87	110	ND	140	ND	8/20/98
Truck 25B	Soil Pile		ND	57	ND	ND	ND	ND	ND	8/20/98
Truck 27B	Soil Pile		99	770	<50	80	<50	<50	<50	8/20/98
Truck 29B	Soil Pile		100	460	<50	80	<50	60	<50	8/20/98

KIFF Analytical LLC

Report Number : 60340
Date : 01/07/2008

Cindy Dittmar
Bonkowski and Associates
6400 Hollis Street, Suite 4
Emeryville, CA 94608

Subject : 7 Water Samples
Project Name : Golden Gate Petroleum Cardlock
Project Number : E23240

Dear Ms. Dittmar,

Chemical analysis of the samples referenced above has been completed. Summaries of the data are contained on the following pages. Sample(s) were received under documented chain-of-custody. US EPA protocols for sample storage and preservation were followed.

Kiff Analytical is certified by the State of California (# 2236). If you have any questions regarding procedures or results, please call me at 530-297-4800.

Sincerely,

Joel Kiff

KIFF Analytical LLC

Report Number : 60340
Date : 01/07/2008

Subject : 7 Water Samples
Project Name : Golden Gate Petroleum Cardlock
Project Number : E23240

Case Narrative

Sample MW-7 was extracted for TPH as Diesel by Mod. EPA Method 8015 outside of hold time.

Approved By: _____
Joel Kiff

2795 2nd St, Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 60340
Date : 01/07/2008

Project Name : **Golden Gate Petroleum Cardlock**
Project Number : **E23240**

Sample : **MW-1** Matrix : Water Lab Number : 60340-01
Sample Date :12/21/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	98.2		% Recovery	EPA 8260B	12/27/2007
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	01/03/2008
Octacosane (Diesel Surrogate)	118		% Recovery	M EPA 8015	01/03/2008

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 60340
Date : 01/07/2008

Project Name : **Golden Gate Petroleum Cardlock**
Project Number : **E23240**

Sample : **MW-2** Matrix : Water Lab Number : 60340-02
Sample Date :12/21/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	**210**	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	**1.1**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	93.4		% Recovery	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	103		% Recovery	EPA 8260B	12/27/2007
TPH as Diesel	**67**	50	ug/L	M EPA 8015	01/03/2008
Octacosane (Diesel Surrogate)	110		% Recovery	M EPA 8015	01/03/2008

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 60340
Date : 01/07/2008

Project Name : **Golden Gate Petroleum Cardlock**
Project Number : **E23240**

Sample : **MW-3** Matrix : Water Lab Number : 60340-03
Sample Date :12/21/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	**320**	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	**3.5**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	98.6		% Recovery	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	102		% Recovery	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	101		% Recovery	EPA 8260B	12/27/2007
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	01/03/2008
Octacosane (Diesel Surrogate)	120		% Recovery	M EPA 8015	01/03/2008

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 60340
Date : 01/07/2008

Project Name : **Golden Gate Petroleum Cardlock**
Project Number : **E23240**

Sample : **MW-4** Matrix : Water Lab Number : 60340-04
Sample Date :12/21/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	**4.2**	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	99.4		% Recovery	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	94.1		% Recovery	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	98.5		% Recovery	EPA 8260B	12/27/2007
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	01/03/2008
Octacosane (Diesel Surrogate)	124		% Recovery	M EPA 8015	01/03/2008

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 60340
Date : 01/07/2008

Project Name : **Golden Gate Petroleum Cardlock**
Project Number : **E23240**

Sample : **MW-5** Matrix : Water Lab Number : 60340-05
Sample Date :12/21/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	**1.5**	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	99.2		% Recovery	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	94.4		% Recovery	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	96.6		% Recovery	EPA 8260B	12/27/2007
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	01/03/2008
Octacosane (Diesel Surrogate)	126		% Recovery	M EPA 8015	01/03/2008

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 60340

Date : 01/07/2008

Project Name : **Golden Gate Petroleum Cardlock**

Project Number : **E23240**

Sample : **MW-6** Matrix : Water Lab Number : 60340-06

Sample Date :12/21/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	**160**	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	**2.5**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	99.7		% Recovery	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	94.7		% Recovery	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	96.5		% Recovery	EPA 8260B	12/27/2007
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	01/03/2008
Octacosane (Diesel Surrogate)	119		% Recovery	M EPA 8015	01/03/2008

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

KIFF Analytical LLC

Report Number : 60340
Date : 01/07/2008

Project Name : **Golden Gate Petroleum Cardlock**
Project Number : **E23240**

Sample : **MW-7** Matrix : Water Lab Number : 60340-07
Sample Date :12/21/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	**< 5.0**	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	**< 50**	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	**< 0.50**	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	99.4		% Recovery	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	101		% Recovery	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	100		% Recovery	EPA 8260B	12/27/2007
TPH as Diesel	**< 50**	50	ug/L	M EPA 8015	01/07/2008
Octacosane (Diesel Surrogate)	100		% Recovery	M EPA 8015	01/07/2008

Approved By: Joel Kiff

2795 2nd St., Suite 300 Davis, CA 95616 530-297-4800

Report Number : 60340

Date : 01/07/2008

QC Report : Method Blank Data

Project Name : **Golden Gate Petroleum Cardlock**

Project Number : **E23240**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
TPH as Diesel	< 50	50	ug/L	M EPA 8015	01/07/2008
Octacosane (Diesel Surrogate)	106		%	M EPA 8015	01/07/2008
TPH as Diesel	< 50	50	ug/L	M EPA 8015	01/02/2008
Octacosane (Diesel Surrogate)	117		%	M EPA 8015	01/02/2008
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	99.5		%	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	94.8		%	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	98.4		%	EPA 8260B	12/27/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/26/2007
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/26/2007
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/26/2007
Toluene - d8 (Surr)	99.1		%	EPA 8260B	12/26/2007
4-Bromofluorobenzene (Surr)	95.3		%	EPA 8260B	12/26/2007
1,2-Dichloroethane-d4 (Surr)	98.5		%	EPA 8260B	12/26/2007
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	99.6		%	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	101		%	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	98.7		%	EPA 8260B	12/27/2007

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd Street. Suite 300 Davis. CA 95618 530-297-4800

Report Number : 60340

Date : 01/07/2008

QC Report : Method Blank Data

Project Name : **Golden Gate Petroleum Cardlock**

Project Number : **E23240**

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	100		%	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	99.6		%	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	97.0		%	EPA 8260B	12/27/2007
Benzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Toluene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	12/27/2007
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	12/27/2007
1,2-Dichloroethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
1,2-Dibromoethane	< 0.50	0.50	ug/L	EPA 8260B	12/27/2007
Toluene - d8 (Surr)	102		%	EPA 8260B	12/27/2007
4-Bromofluorobenzene (Surr)	93.1		%	EPA 8260B	12/27/2007
1,2-Dichloroethane-d4 (Surr)	102		%	EPA 8260B	12/27/2007

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd Street. Suite 300 Davis. CA 95618 530-297-4800

Report Number : 60340

Date : 01/07/2008

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Golden Gate Petroleum**

Project Number : **E23240**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
TPH as Diesel	Blank	<50	1000	1000	1040	1030	ug/L	M EPA 8015	1/7/08	104	103	1.52	70-130	25
TPH as Diesel	Blank	<50	1000	1000	1050	1070	ug/L	M EPA 8015	1/2/08	105	107	1.76	70-130	25
Benzene	60340-07	<0.50	39.8	39.9	37.4	37.4	ug/L	EPA 8260B	12/27/07	94.0	93.8	0.222	70-130	25
Toluene	60340-07	<0.50	39.8	39.9	37.5	37.5	ug/L	EPA 8260B	12/27/07	94.2	94.0	0.201	70-130	25
Tert-Butanol	60340-07	<5.0	199	200	199	180	ug/L	EPA 8260B	12/27/07	100	90.2	10.6	70-130	25
Methyl-t-Butyl Ether	60340-07	<0.50	39.8	39.9	38.8	37.4	ug/L	EPA 8260B	12/27/07	97.5	93.6	4.11	70-130	25
Benzene	60314-03	<0.50	40.0	40.0	40.7	40.1	ug/L	EPA 8260B	12/26/07	102	100	1.50	70-130	25
Toluene	60314-03	<0.50	40.0	40.0	38.9	38.5	ug/L	EPA 8260B	12/26/07	97.3	96.3	1.06	70-130	25
Tert-Butanol	60314-03	<5.0	200	200	179	192	ug/L	EPA 8260B	12/26/07	89.3	95.8	7.03	70-130	25
Methyl-t-Butyl Ether	60314-03	<0.50	40.0	40.0	31.2	33.6	ug/L	EPA 8260B	12/26/07	78.0	84.0	7.44	70-130	25
Benzene	60329-07	<0.50	40.0	40.0	39.9	38.2	ug/L	EPA 8260B	12/27/07	99.7	95.4	4.32	70-130	25
Toluene	60329-07	<0.50	40.0	40.0	39.9	37.9	ug/L	EPA 8260B	12/27/07	99.8	94.7	5.20	70-130	25
Tert-Butanol	60329-07	<5.0	200	200	208	203	ug/L	EPA 8260B	12/27/07	104	102	2.14	70-130	25
Methyl-t-Butyl Ether	60329-07	<0.50	40.0	40.0	39.1	38.4	ug/L	EPA 8260B	12/27/07	97.8	96.1	1.75	70-130	25
Benzene	60301-03	<0.50	40.0	40.0	40.1	39.4	ug/L	EPA 8260B	12/27/07	100	98.6	1.65	70-130	25
Toluene	60301-03	<0.50	40.0	40.0	43.7	43.3	ug/L	EPA 8260B	12/27/07	109	108	0.920	70-130	25
Tert-Butanol	60301-03	<5.0	200	200	205	216	ug/L	EPA 8260B	12/27/07	102	108	5.16	70-130	25

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 60340

Date : 01/07/2008

QC Report : Matrix Spike/ Matrix Spike Duplicate

Project Name : **Golden Gate Petroleum**

Project Number : **E23240**

Parameter	Spiked Sample	Sample Value	Spike Level	Spike Dup. Level	Spiked Sample Value	Duplicate Spiked Sample Value	Units	Analysis Method	Date Analyzed	Spiked Sample Percent Recov.	Duplicate Spiked Sample Percent Recov.	Relative Percent Diff.	Spiked Sample Percent Recov. Limit	Relative Percent Diff. Limit
Methyl-t-Butyl Ether	60301-03	17	40.0	40.0	56.8	56.2	ug/L	EPA 8260B	12/27/07	99.1	97.7	1.44	70-130	25
Benzene	60301-04	<0.50	40.0	40.0	40.3	39.5	ug/L	EPA 8260B	12/27/07	101	98.8	1.95	70-130	25
Toluene	60301-04	0.70	40.0	40.0	41.5	40.9	ug/L	EPA 8260B	12/27/07	102	100	1.42	70-130	25
Tert-Butanol	60301-04	<5.0	200	200	202	202	ug/L	EPA 8260B	12/27/07	101	101	0.265	70-130	25
Methyl-t-Butyl Ether	60301-04	0.70	40.0	40.0	42.4	42.0	ug/L	EPA 8260B	12/27/07	104	103	0.858	70-130	25

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 60340

Date : 01/07/2008

QC Report : Laboratory Control Sample (LCS)

Project Name : **Golden Gate Petroleum**

Project Number : **E23240**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Benzene	40.0	ug/L	EPA 8260B	12/27/07	93.5	70-130
Toluene	40.0	ug/L	EPA 8260B	12/27/07	93.2	70-130
Tert-Butanol	200	ug/L	EPA 8260B	12/27/07	98.9	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	12/27/07	88.3	70-130
Benzene	40.0	ug/L	EPA 8260B	12/26/07	103	70-130
Toluene	40.0	ug/L	EPA 8260B	12/26/07	102	70-130
Tert-Butanol	200	ug/L	EPA 8260B	12/26/07	99.4	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	12/26/07	86.6	70-130
Benzene	40.0	ug/L	EPA 8260B	12/27/07	97.2	70-130
Toluene	40.0	ug/L	EPA 8260B	12/27/07	99.3	70-130
Tert-Butanol	200	ug/L	EPA 8260B	12/27/07	104	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	12/27/07	99.3	70-130
Benzene	40.0	ug/L	EPA 8260B	12/27/07	98.6	70-130
Toluene	40.0	ug/L	EPA 8260B	12/27/07	107	70-130
Tert-Butanol	200	ug/L	EPA 8260B	12/27/07	101	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	12/27/07	97.8	70-130
Benzene	40.0	ug/L	EPA 8260B	12/27/07	101	70-130

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

Report Number : 60340

Date : 01/07/2008

QC Report : Laboratory Control Sample (LCS)

Project Name : **Golden Gate Petroleum**

Project Number : **E23240**

Parameter	Spike Level	Units	Analysis Method	Date Analyzed	LCS Percent Recov.	LCS Percent Recov. Limit
Toluene	40.0	ug/L	EPA 8260B	12/27/07	103	70-130
Tert-Butanol	200	ug/L	EPA 8260B	12/27/07	102	70-130
Methyl-t-Butyl Ether	40.0	ug/L	EPA 8260B	12/27/07	108	70-130

Approved By: Joel Kiff

KIFF ANALYTICAL, LLC

2795 2nd Street, Suite 300 Davis, CA 95618 530-297-4800

BONKOWSKI & ASSOCIATES

60340 **Chain of Custody**

6400 Hollis St, Suite 4
Emeryville, CA 94608
Bonkowski & Associates Log Code: BAE
phone: (510) 450-0770
fax: (510) 450-0801
Contact: Cindy Dittmar (cindy@bonkowski.com)

SRG # / Lab No. 41709

Laboratory: Kiff Analytical LLC
Address: 2795 2nd St, Suite 4, Davis, CA 95616
Phone: 530-297-4800 | Fax #: 530-297-4808
Lab Project/WO #
Laboratory Required Information

California EDF Report? ☑ Yes ☐ No
Send EDF to: mail@bonkowski.com
Global ID:
Project Address: 421 3rd St. Oakland, CA
Project Name: Golden Gate Petroleum Cardlock
B&A Project #: 060340
Sampler Signature:

Sampling Information

Sample Name	Date	Time	Container: 40 ml VOA	Container: 1 Liter Amber	Container: Summa Canister	Preservative: HCl	Preservative: HNO_3	Preservative: None	Preservative: Ice	Matrix: Water	Matrix: Soil	Matrix: Air	Analysis Request: TPHG, BTEX, MTBE (8260B)	Analysis Request: TPHD (8015M)	Analysis Request: TPHG, BTEX & 5 oxys	Analysis Request: 4 lead scavengers	TAT: For Lab Use Only
MW-1	12/21/07	10:49	3	1		X			X	X			X	X	X	X	01
MW-2		12:07	3			X			X	X			X	X			02
MW-3		11:40	3			X			X	X			X	X			03
MW-4		11:16	3			X			X	X			X	X			04
MW-5		09:00	3			X			X	X			X	X			05
MW-6		09:33	3			X			X	X			X	X			06
MW-7		~~09:44~~	3			X			X	X			X	X			07
		10:02															

TAT: ☐ 24 ☐ 48 ☐ 72 ☐ 1 Wk ☑ Std

Comments:

Relinquished by:	Date	Time	Received by:
	12/22/07	15:28	
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by Laboratory:
	122207	1330	kiff analytical

Remarks:

Bill to:

For Lab Use Only: Sample Receipt

Temp °C	Initials	Date	Time	Therm. ID #	Coolant Present
2.4	TMH	122207	1320	IR4	Yes / No

MONITOR WELL SAMPLING
Well No.: **MW-1**

DTW 7.63 **DTW Date** 12/26/07 **DTW Time** 10:28

File No./Site: GGP Oakland **Project #:** E23240 **Task #:**

Field Tech.: Dev Clough **Date:**

Sampling Order 2 **Screen Interval** 5-20 **Sample Method** Peri-Pump

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.):	Total depth of casing (ft.): 20 ft
Before Purging:	Casing Diameter: 2"
After Purging: 7.84	Linear feet of water:
Thickness of FP (ft):	Gallons/ft.
Total purging time (min.)	1 casing volume (gal)
Begin: 10:32	
End:	

Time	Cumulative Volume Removed	Water Temp (°F)	pH of Water	Conductivity (µohm/cm)	* Water Appearance	** Primary Particulate

* Appearance
CL = clear
CO = cloudy
TU = turbid

** Particle
S = sand
ML = silt
CL = clay

Comments:	pH	mS/cm Cond	ntu Turb	mg/l DO	°C Temp	% Sal
10:35	7.38	.779	8	2.94	20.0	0.03
10:38	7.30	.729	7	3.16	20.6	0.02
10:41	7.28	.718	8	2.87	20.7	0.02

TOC: 9.47 DTW:

Time Sampled: 10:49 Groundwater Elevation:

MONITOR WELL SAMPLING

Well No.: **MW-2**

DTW 7.11 DTW Date 12/21/07 DTW Time ~~11:30~~ 11:50

File No./Site: GGP Oakland Project #: E23240 Task #:

Field Tech.: Dev Clough Date: 12/21/07

Sampling Order 5 Screen Interval 5-20 Sample Method Peri-Pump

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.):	Total depth of casing (ft.): 20 ft
Before Purging:	Casing Diameter: 4"
After Purging: 7.16	Linear feet of water:
Thickness of FP (ft):	Gallons ft.
Total purging time (min.)	1 casing volume (gal)
Begin: ~~12:~~ ~~11:29~~ 11.52	Casing Diameter 2"
End:	

Time	Cumulative Volume Removed	Water Temp (°F)	pH of Water	Conductivity (µohm/cm)	* Water Appearance	** Primary Particulate

* Appearance
CL = clear
CO = cloudy
TU = turbid

** Particle
S = sand
ML = silt
CL = clay

Comments:

	pH	con	Turb	DO	Temp	Sal
11:55 ~~11:29~~	7.30	.760	2	5.03	19.0	0.03
11:58 ~~11:30~~	7.26	.836	2	4.09	19.4	0.03
12:01 ~~11:33~~	7.41	.793	3	2.93	19.6	0.03

TOC: 8.72 DTW:

Time Sampled: 12:07 Groundwater Elevation:

MONITOR WELL SAMPLING

Well No.: **MW-3**

DTW ~~7.24~~ 7.94 **DTW Date** 12/21/07 **DTW Time** 11:20

File No./Site: GGP Oakland **Project #:** E23240 **Task #:**

Field Tech.: Dev Clough **Date:** 12/21/07

Sampling Order 7 **Screen Interval** 5-20 **Sample Method** Peri-Pump

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.):	Total depth of casing (ft.): 20 ft
Before Purging:	Casing Diameter: 4"
After Purging: 7.95	Linear feet of water:
Thickness of FP (ft):	Gallons/ft:
Total purging time (min.)	1 casing volume (gal)
Begin: 11:24	Casing Diameter: 2"
End:	

Time	Cumulative Volume Removed	Water Temp (°F)	pH of Water	Conductivity (µohm/cm)	* Water Appearance	** Primary Particulate

* Appearance
CL = clear
CO = cloudy
TU = turbid

** Particle
S = sand
ML = silt
CL = clay

Comments:	PH	Cond	Turb	DO	Temp	Sal
11:27	7.00	.729	5	3.06	20.2	0.02
11:30	7.02	.713	4	2.87	20.5	0.03
11:33	~~7.02~~ 7.02	.724	120	6.96	20.6	0.03

TOC: 9.00 DTW:

Time Sampled: 11:40 Groundwater Elevation:

MONITOR WELL SAMPLING
Well No.: **MW-4**

DTW 7.58 **DTW Date** 12/21/07 **DTW Time** 10:56

File No./Site: GGP Oakland **Project #:** E23240 **Task #:**

Field Tech.: Dev Clough **Date:** 12/21/07

Sampling Order 3 **Screen Interval** 5-20 **Sample Method** Peri-Pump

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.):	Total depth of casing (ft.): 20 ft
Before Purging:	Casing Diameter: 2"
After Purging: 7.58	Linear feet of water:
Thickness of FP (ft):	Gallons /ft:
Total purging time (min.)	1 casing volume (gal)
Begin: 10:59	Casing Diameter: 2"
End:	

Time	Cumulative Volume Removed	Water Temp (°F)	pH of Water	Conductivity (µohm/cm)	* Water Appearance	** Primary Particulate
11						

* Appearance
CL = clear
CO = cloudy
TU = turbid

** Particle
S = sand
ML = silt
Cl. = clay

Comments:	pH	cond	Turb	DO	Temp	Sal
11:02	6.89	.273	3	2.49	20.5	0.01
11:05	6.87	.284	7	2.88	20.6	0.01
11:08	6.84	.307	4	3.22	20.5	0.01

TOC: 9.30 DTW:

Time Sampled: 11:16 Groundwater Elevation:

MONITOR WELL SAMPLING
Well No.:**MW-5**

DTW 8.90 **DTW Date** 12/21/07 **DTW Time** 08:35

File No./Site: GGP Oakland **Project #:** E23240 **Task #:**

Field Tech.: Dev Clough **Date:** 12/21/07

Sampling Order 4 **Screen Interval** 5-20 **Sample Method** Peri-Pump

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.):	Total depth of casing (ft.): 20 ft
Before Purging:	Casing Diameter 2"
After Purging: 8.58	Linear feet of water:
Thickness of FP (ft):	Gallons/ft:
Total purging time (min.)	1 casing volume (gal)
Begin: 08:43	Casing Diameter: 2"
End:	

Time	Cumulative Volume Removed	Water Temp (°F)	pH of Water	Conductivity (µohm/cm)	* Water Appearance	** Primary Particulate

* Appearance
CL = clear
CO = cloudy
TU = turbid

** Particle
S = sand
ML = silt
CL = clay

Comments:	PH	COND	Turb	DO	Temp	Sal
08:46	7.52	.161	3	3.18	17.8	0.00
08:49	7.49	.164	3	3.77	18.2	0.00
08:52	7.36	.159	2	2.71	18.6	0.00

TOC: 10.19 DTW:

Time Sampled: 09:00 Groundwater Elevation:

MONITOR WELL SAMPLING
Well No.: **MW-6**

DTW 8.45 **DTW Date** 12/21/07 **DTW Time** 09:13

File No./Site: GGP Oakland **Project #:** E23240 **Task #:**

Field Tech.: Dev Clough **Date:** 12/21/07

Sampling Order 6 **Screen Interval** 5-20 **Sample Method** Peri-Pump

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.):	Total depth of casing (ft.): 20 ft
Before Purging:	Casing Diameter: 2"
After Purging:	Linear feet of water:
Thickness of FP (ft):	Gallons /ft:
Total purging time (min.)	1 casing volume (gal)
Begin: 09:16	Casing Diameter: 2"
End:	

Time	Cumulative Volume Removed	Water Temp (°F)	pH of Water	Conductivity (µohm/cm)	* Water Appearance	** Primary Particulate

* Appearance
CL = clear
CO = cloudy
TU = turbid

** Particle
S = sand
ML = silt
CL = clay

Comments:

	pH	cond	Turb	DO	Temp	Sal
09:19	7.06	1.35	3	3.21	18.0	0.06
09.22	6.98	1.44	3	3.42	15.5	0.06
09 25	6.97	1.45	2	3.58	18.06	0.06

TOC: 9.86 DTW:

Time Sampled: 09:33 Groundwater Elevation:

MONITOR WELL SAMPLING
Well No.:**MW-7**

DTW 7.06 **DTW Date** 12/21/07 **DTW Time** 09 41

File No./Site: GGP Oakland **Project #:** E23240 **Task #:**

Field Tech.: Dev Clough **Date:** 12/21/07

Sampling Order 1 **Screen Interval** 5-20 **Sample Method** Peri-Pump

DATA FROM IMMEDIATELY BEFORE AND AFTER DEVELOPMENT

Depth to water measured from TOC (ft.):	Total depth of casing (ft.): 20 ft
Before Purging:	Casing Diameter: 2"
After Purging: 7.05	Linear feet of water:
Thickness of FP (ft):	Gallons/ft:
Total purging time (min.)	1 casing volume (gal)
Begin: 09:45	Casing Diameter: 2"
End:	

Time	Cumulative Volume Removed	Water Temp (°F)	pH of Water	Conductivity (µohm/cm)	* Water Appearance	** Primary Particulate

* Appearance
CL = clear
CO = cloudy
TU = turbid

** Particle
S = sand
ML = silt
CL = clay

Comments:

	pH	Cond	Turb	DO	Temp	Sal
09:48	6.89	9.2	5	3.61	17.0	0.51
09:51	6.85	9.5	10	3.08	17.4	0.51
09:54	6.86	9.5	8	3.58	17.7	0.52

TOC: 8.60 DTW:

Time Sampled: 10:02 Groundwater Elevation: