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W. A. Craig, Inc.
Construction & Engineering

QUARTERLY MONITORING REPORT
Fourth Quarter 2004

PROJECT SITE:
Express Gas & Mart
2951 High Street
Oakland, California 94619

PREPARED FOR:
Mr. Aziz Kandahari
Himalaya Trading Company
2951 High Street
Oakland, California 94619

SUBMITTED TO:
Alameda County Health Care Services
Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502

PREPARED BY:
W.A. Craig, Inc.
6940 Tremont Road
Dixon, California 95620
A,B, & Haz Lic. No. 455752

Project No. 3936

October 21, 2004

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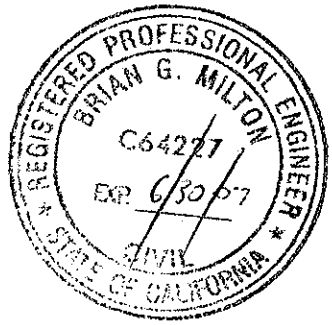


Brian Milton, P.E.
Principal Engineer

INTRODUCTION

This report presents the results of the fourth quarter 2004 groundwater monitoring at Express Gas & Mart, located at 2951 High Street in Oakland, California (the "Site"). The sampling described herein is part of an ongoing characterization and remediation of subsurface contamination that was caused by accidental releases from an underground storage tank (UST) system that was replaced in 2001. The contaminant investigation and corrective action are being conducted by W.A. Craig, Inc. (WAC) on behalf of Mr. Aziz Kandahari. The lead regulatory agency overseeing the investigation is the Alameda County Health Care Services, Environmental Health Services, Environmental Protection (Alameda County). Groundwater monitoring this quarter was conducted on October 1, 2004. This report also contains operational information for an ozone-sparging (OS) system that began operating at the Site on April 14, 2004.

PHYSICAL SETTING

Site Location

The Site is a self-service retail gasoline station and convenience store located on the corner of High Street and Penniman Avenue, in southeastern Oakland, California. The Site location is shown on **Figure 1** and Site features are depicted on **Figure 2**. The surrounding area is densely developed. Neighboring land uses include commercial and residential developments.

Topography and Drainage

The Site is located about 3½ miles east of the San Francisco Bay. The Site location is near the base of the Oakland Hills, at a surface elevation of approximately 132 feet above mean sea level (amsl). Hilly topography occurs directly south and east of the Site, a short distance beyond High Street. The ground surface at the Site slopes gently toward High Street, but the regional topographic slope is southwesterly away from the Oakland Hills. The nearest surface water body is Peralta Creek, located approximately ½ mile north-northeast of the Site.

Geology and Soils

The Site area is located on an alluvial apron that extends northwest and southeast between the San Francisco Bay on the west and the northern Diablo Range on the east. The active Hayward Fault forms a structural boundary between the alluvial apron and the Diablo Range. Surficial sediments at the Site have been classified as Holocene-age alluvial fan and fluvial deposits (Helley, E.J. and Graymer, R.W., 1997). These sediments are described as gravelly sand and sandy gravel that grade into sand and silty clay. The nearby hilly areas directly south and east of the Site are underlain by similar, though older, deposits of Pleistocene age.

WAC drilled and sampled soil borings at the Site to install monitoring wells in March and April 2003. Soils encountered in the 25-foot deep borings were predominantly gravelly to sandy silts with some interbedded silts, sandy clays and silty fine sands. Groundwater was positively identified in two of the four borings, at depths of 16 feet below grade (fbg) and 4 fbg. The latter boring was drilled offsite, within the High Street right-of-way.

Groundwater

The Site is within the San Francisco Bay regional watershed. The Quaternary alluvial deposits of the region host beneficial use aquifers. Slightly less than half the region's water supply is derived from groundwater. The balance is obtained from imported surface water. Confined groundwater occurs at a depth of approximately 21 fbg at the Site. The aquifer formation is primarily gravelly sandy silt. Static water levels in the onsite monitoring wells have generally ranged from about 5 to 9 fbg, depending upon the season. Water level data indicate the direction of groundwater flow is southerly. Field measurements of specific conductance (SC) among the monitoring wells have ranged from approximately 400 to 2,000 microsiemens, suggesting that the mineralogical quality of the groundwater is variable.

PROJECT BACKGROUND

The history of subsurface contamination investigations at the Site predates WAC's involvement, which began in 2001. Groundwater monitoring has been conducted periodically at the Site since early 1995. Groundwater quality is impacted by petroleum hydrocarbons such as benzene, toluene, ethylbenzene, xylenes (BTEX), and methyl tert-butyl ether (MtBE). A report by Aqua Science Engineers, Inc. (ASE), dated November 14, 2000, indicates that 2,550 pounds of an oxygen releasing compound (ORC®) slurry was injected into borings along the northern and eastern side of the former USTs in June 1997. The ORC® apparently increased the dissolved oxygen (DO) concentrations in the five nearby monitoring wells for approximately one year. Contaminant concentrations decreased slightly in well MW-5 during that period. ORC® socks were installed in wells MW-4 and MW-5 in August 1998 after the DO concentrations declined. The ORC® socks were removed in September 2000 after proving ineffective at reducing petroleum hydrocarbon concentrations in the groundwater.

A Tier 2 Risk-Based Corrective Action (RBCA) analysis was performed for the Site by Mr. Christopher Palmer in August 1997. The RBCA was conducted to develop site-specific threshold levels for petroleum hydrocarbon contaminants in soil and groundwater (SSTLs are listed in **Table 3**). The RBCA was reviewed and commented on by Alameda County. Alameda County approved the RBCA in a letter dated October 21, 1997.

On February 28, 2001 WAC collected soil samples from along the product line leading to the fuel dispensers adjacent to High Street. All of the soil samples yielded detectable concentrations of petroleum hydrocarbons. Total petroleum hydrocarbons as gasoline (TPH-g) was detected at concentrations ranging from 71 milligrams per kilogram (mg/kg) to 3,600 mg/kg. WAC subsequently prepared a *Site Investigation Workplan* dated March 26, 2001 to conduct a soil and groundwater investigation around the fuel dispensers. Alameda County approved the workplan and requested that the USTs and contaminated soils be removed and properly disposed of.

Six soil borings were drilled and sampled by WAC in late April 2001. Sampling results from the borings yielded TPH-g concentrations in soil up to 4,000 mg/kg and in groundwater up to 78,000 micrograms per liter (µg/L), confirming that petroleum hydrocarbons had impacted soil and groundwater. The dispenser pumps, product lines, and four steel gasoline USTs were excavated and removed from the Site by WAC in May 2001. The USTs were inspected and appeared to be in good condition. However, soil samples from the base and the sides of the UST excavation yielded TPH-g concentrations up to 1,700 mg/kg on the west sidewall of the excavation at 8 fbg. WAC excavated additional contaminated soil from the Site in a number of separate phases between May 9 and September 27, 2001. Approximately 3,700 tons of petroleum hydrocarbon contaminated soil was removed and disposed at B&J Class II Landfill in Vacaville, California. The over-excavation area is shown on **Figure 2**.

Following Site restoration and re-opening of the Express Gas & Mart, little additional activity occurred until March 2003, when WAC installed four new monitoring wells to obtain further data on the extent of the MtBE contamination in groundwater. Monitoring well construction information is summarized in **Table 1**. WAC also resumed quarterly groundwater monitoring in April 2003, which had not been done since the September 2000 sampling reported by ASE. The April 2003 analytical data indicated that MtBE was above the SSTL of 8,400 µg/L in wells MW-5 and MW-7.

Based on the April 2003 groundwater sampling results, WAC recommended corrective action to remediate the subsurface contamination at the Site to below the SSTLs. WAC prepared a *Feasibility Study/Corrective Action Plan* dated July 28, 2003 and an *Addendum to Corrective Action Plan* dated September 10, 2003. Alameda County approved the installation of an OS system in a letter dated February 18, 2004.

An OS system consisting of ten ozone-sparge wells and a control panel was installed at the Site and began operating on April 14, 2004. Prior to the start up, four monitoring wells (MW-5, MW-7, MW-8, and MW-9) were purged and sampled to determine baseline concentrations in groundwater prior to operating the OS system. Except for brief periods of mechanical failure, the system has operated at the Site since April 14, 2004. The Site's eight monitoring wells were sampled on October 1, 2004. The OS system was checked at least twice per month this quarter.

SCOPE OF WORK

The scope of work performed during this quarter included the following tasks:

- Maintained the California State Water Resources Control Board Geographical Environmental Information Management System (GeoTracker) database;
- Properly disposed of two 55-gallon drums of monitoring well purge water stored onsite;
- Performed routine inspections and maintenance on the ozone sparge system;
- Measured static water levels in eight monitoring wells;
- Purged and sampled groundwater from eight monitoring wells;
- Collected field measurements from eight monitoring wells including water level, DO concentrations, temperature, pH, and SC;
- Analyzed the groundwater samples for: TPH-g, BTEX, MtBE, DIPE, EtBE, tAME, tBA, methanol, ethanol, EDB, and DCA (see ***Laboratory Analyses*** section of this report for chemical names and analytical methods used); and,
- Prepared this *Quarterly Groundwater Monitoring Report.*

OZONE-SPARGE SYSTEM

OS System Description

The design and layout of the OS remediation system were initially described in WAC's *Feasibility Study/Corrective Action Plan* dated July 28, 2003 and *Addendum to Corrective Action Plan* dated September 10, 2003. A C-Sparger™ OS system purchased from Kerfoot Technology, Inc. operates 10 sparge points. OS points SP-1 through SP-10 were installed by Resonant Sonic International (RSI, C-57 license number 802334) on March 24-26, 2004. The well locations are shown on **Figure 2**. The well borings were advanced by a sonic drill rig to a maximum depth of 37 fbg using 7-inch diameter casing. A California Professional Engineer supervised the drilling. Sparge point construction details are summarized in **Table 1**. Initial startup of the system occurred on April 14, 2004.

The above ground components of the OS remediation system are mounted inside a locked, metal cabinet (the control panel). A slatted chain-link fence topped with barbed wire provides additional protection for the control panel. The equipment housed in the control panel includes an ozone generator, small air compressor, ozone leak detector, programmable timer, electrical wiring and circuits, pressure gauge, run-time clock, cooling fans, and a manifold with

electromagnetically-actuated solenoids for distributing the pressurized air/ozone mixture to individual sparge points. The control panel was installed near the north corner of the Express Gas & Mart mini-mart as shown on **Figure 2**. The ozone generator creates ozone by ionizing oxygen in either ambient air or with the aid of an optional oxygen concentrator. An oxygen concentrator was installed on this system to boost the amount of ozone delivered.

The operating schedule is controlled by an electronic timer. The OS points are operated one at a time for a programmed number of minutes. The timer cycles through all ten sparge points and then has a "rest" period to allow the compressor to cool. After the rest period, a new cycle starts. This process is repeated several times each day. The OS system can deliver ozone at a flow rate of approximately 3 cubic feet per minute (cfm) and a pressure of 50 pounds per square inch (psi). This delivery pressure is usually sufficient to overcome the hydraulic head and other resistive forces at the sparge point. With the oxygen concentrator installed, approximately 5 grams of ozone per hour can be injected into the subsurface.

The working portion of an OS point is a 30-inch length of 2-inch diameter, porous PVC casing (diffuser) placed at the bottom of each sparge well. The sparge point section is analogous to a well screen, but has much finer openings (pores). A ¾-inch diameter poly-vinyl chloride (PVC) riser extends from the sparge point up to within 12 inches of ground surface. Fine-grained sand (#60) was placed in the annular space of the borehole around each of the sparge points. The tiny pores of the sparge point and the fine-grained filter pack create microbubbles that promote ozone diffusion. A 2-foot thick bentonite seal was placed above the sand filter pack and hydrated prior to grouting the remainder of the annulus with Portland type I/II neat cement. A traffic-rated vault set slightly above grade protects the top of each riser pipe at the surface. Teflon™ stainless steel and PVC fittings are used within the well vaults to connect the riser pipe to its supply line. An in-line check-valve within each vault prevents back flow out of the sparge point.

OS System Operation and Maintenance

WAC staff visited the Site seven times from August 1 through October 1, 2004, to ensure that the OS system was running normally and to monitor the operating pressures. On September 1 it was observed that the sparge line to OS point SP-8 was cracked. The OS system was subsequently shut down. The following day the sparge line to SP-8 was replaced and all of the sparge line connections were checked for leakage with an ozone meter. The OS system was restarted on September 2. On September 8 the system was not operating and the ozone sensor indicator light was on when the WAC technician arrived onsite. The technician determined that the pressure to SP-5 was higher than normal and had tripped a pressure relief valve. When the pressure relief valve was tripped it released ozone to the outside of the control box. The ozone was then drawn into the control box by the cooling fans, tripping the ozone sensor and shutting the system down. To prevent the ozone indicator from being tripped, the run time for SP-5 was reduced to two

minutes (to prevent the pressure from building up) and the ozone sensor sensitivity was adjusted from 7.5 ppm to 10 ppm. On September 22 the Express Gas & Mart operator observed the OS system had shut down. With instruction over the phone by WAC staff, the operator restarted the system. The system has operated properly since then. A table summarizing the operating pressures of each OS point is included in **Appendix A**.

FIELD PROCEDURES

Groundwater Level Measurements

WAC staff measured the static water level in eight monitoring wells prior to purging and sampling them. Water levels were obtained using an electronic water level indicator and recorded on monitoring well sampling logs included in **Appendix B**. Prior to taking the measurements, the wells were uncapped and water levels were allowed to equilibrate with atmospheric pressure for at least 30 minutes. Water level measurements were referenced to the surveyed top of the well casings. The depth-to-water measurements were used to calculate the standing water volume and the amount of water to be purged prior to collecting a sample. The depth to water and surveyed wellhead elevations are also used to determine the static groundwater elevations and flow direction.

WAC staff purged and sampled the monitoring wells on October 1, 2004. At least three well casing volumes were purged from each well before collecting groundwater samples. Wells were purged using clean disposable polyethylene bailers. The DO concentration, pH, temperature, and SC of the groundwater were intermittently monitored with portable instrumentation during purging. The DO concentration was measured in-situ immediately after uncapping the well, after purging one casing volume, and after sampling the well. Field measurements were recorded on the monitoring well sampling logs.

The water level indicator and the instrument probes were decontaminated after each use by washing in an Alconox® detergent solution followed by a tap water rinse. Well purge water was placed into sealed 55-gallon steel drums and stored onsite temporarily. On September 17, 2004, two 55-gallon drums of purge water were transported offsite and disposed of at InStrat, Inc. in Rio Vista, California. A copy of the disposal manifest is included in **Appendix C**.

Groundwater Purging and Sampling

Upon completion of purging activities, groundwater samples were collected from each monitoring well using disposable bailers. The groundwater samples were decanted from the bailers into laboratory-supplied, 40-ml volatile organic analysis (VOA) vials pre-preserved with hydrochloric acid. Care was taken to ensure that the vials were completely filled to avoid

headspace volatilization of dissolved petroleum hydrocarbons. Each sample vial was labeled with the well ID, project number, and date collected. Labeled samples were stored in an ice chest cooled with ice until submission to a California Department of Health Services (DHS) certified laboratory for analysis. The groundwater samples were submitted under chain-of-custody control to McCampbell Analytical Inc. of Pacheco, California (DHS certification number 1644). The samples were analyzed for TPH-g using EPA Method 8015C (modified), for BTEX and MtBE using EPA Method 8021B, and for MtBE, di-isopropyl ether (DIPE), ethyl tert-butyl ether (EtBE), tert-amyl methyl ether (tAME), tert-butyl alcohol (tBA), methanol, ethanol, 1,2-dibromoethane (ethylene dibromide or EDB), and 1,2-dichloroethane (DCA) using EPA Method 8260B. Discussions in this report cite MtBE concentrations determined by EPA Method 8260B, which is considered a more accurate analysis than Method 8021B.

DATA EVALUATION

Groundwater Levels and Elevations

Water level data for the monitoring wells is summarized in **Table 2**. The surveyed top-of-casing (TOC) elevations and the depth to water measurements were used to calculate groundwater elevations in the monitoring wells. Excluding well MW-7, the depth to water ranged from 8.25 feet below the TOC in MW-10 to 9.41 feet below the TOC in MW-3. Groundwater levels in well MW-7 have apparently been depressed from 5 to 13 feet below historical averages by the operation of the OS system.

Groundwater elevations in the monitoring wells this quarter varied from 118.94 feet amsl in well MW-10 to 123.99 feet amsl in MW-6. Excluding well MW-7, groundwater elevations decreased an average of 1.15 feet since July 8, 2004. Groundwater elevations are shown on **Figure 3**. The groundwater gradient was calculated using static water elevations in wells MW-3, MW-8, and MW-9. On October 1, 2004 the groundwater flow direction was S31°W with a gradient of 0.024 feet per foot (ft/ft). On July 8, 2004 the groundwater flow direction was S23°W with a gradient of 0.032 ft/ft.

The groundwater flow and gradient this quarter are within the range of past monitoring events with the exception of well MW-7. Two weeks after starting up the OS system, the groundwater elevation in well MW-7 decreased approximately 13.5 feet. Well MW-7 is located approximately four feet north of sparge well SP-1. Water levels in well MW-7 increased approximately 5.5 feet between June 10 and July 8, 2004. Water elevations in this well were consistently 7 to 10 feet lower than measurements recorded prior to the installation of the OS system. The reason for the decrease is not clear. Graphs of groundwater elevations in the monitoring wells are presented on **Figure 4**.

Quarterly Groundwater Monitoring Results

The only petroleum hydrocarbons detected in Site wells this quarter were TPH-g, ethylbenzene, xylenes, and MtBE. Groundwater analytical results are summarized in **Table 3**. The laboratory analytical reports are included in **Appendix D**.

MtBE was detected in each Site monitoring well this quarter except MW-6. MtBE concentrations ranged from 1.7 µg/L in both MW-1 and MW-5 to 2,300 µg/L in well MW-7. MtBE concentrations in the monitoring wells on October 1, 2004 are shown on **Figure 5**. Since startup of the OS system, petroleum hydrocarbon concentrations in wells MW-5, MW-7, and MW-9 have decreased considerably. The MtBE concentration in well MW-5 decreased from 20,000 µg/L on April 14 to 1.7 µg/L this quarter. MtBE concentrations decreased from 21,000 µg/L to 2,300 µg/L in well MW-7 and from 58 µg/L to 2.1 µg/L in well MW-9. Graphs of MtBE concentrations in wells MW-5 and MW-7 are shown on **Figure 6**. Concentrations in wells MW-1 and MW-3 have decreased approximately two orders of magnitude since the OS system began operation. Since April 29, 2004, MtBE concentrations in well MW-1 decreased from 260 µg/L to 1.7 µg/L and in well MW-3 from 140 µg/L to 4.0 µg/L. Well MW-8 has seen an increase in MtBE concentration since April 14, rising from 260 µg/L to a record high of 450 µg/L on October 1. To date, MtBE concentrations in well MW-10 (downgradient) appear to be unaffected by the OS system. The MtBE concentration in well MW-10 was 1,500 µg/L (within the historical range) this quarter. Graphs of MtBE concentrations in the less impacted wells (MW-1, MW-3, MW-8, MW-9, and MW-10) are shown on **Figure 7**.

BTEX constituents were not detected in any of the Site monitoring wells except MW-7 this quarter. Ethylbenzene and xylenes were the only BTEX constituents detected in well MW-7, with concentrations of 0.63 µg/L and 6.0 µg/L, respectively. Baseline samples collected on April 14 indicated that wells MW-5 and MW-7 contained benzene above the SSTL of 34 µg/L, and that well MW-7 contained toluene, ethylbenzene, and xylenes above their respective SSTLs. Since the startup of the OS system no Site wells have yielded BTEX constituents at concentrations above the SSTLs. A graph of benzene concentrations versus time in wells MW-5 and MW-7 is shown on **Figure 8**.

Only two wells yielded detectable concentrations of TPH-g this quarter. Well MW-7 yielded 85 µg/L of TPH-g and well MW-10 yielded 67 µg/L. Before the installation of the OS system, wells MW-5, MW-7, and MW-10 consistently yielded detectable TPH-g concentrations. The baseline TPH-g concentration in well MW-5 was 6,600 µg/L, but TPH-g has not been detected in this well since then. The baseline TPH-g concentration in well MW-7 was 8,900 µg/L and has decreased two orders of magnitude since April 14. TPH-g concentrations in well MW-10 (downgradient) appear to be unaffected so far. The TPH-g concentration in well MW-10 was 67 µg/L (within the historical range) this quarter.

Baseline DO concentrations were measured in wells MW-1, MW-3, MW-5, MW-7, MW-8, and MW-9 on April 14, 2004. The average baseline DO concentration was approximately 0.21 milligrams per liter (mg/L). The average DO concentration in these wells on October 1 was approximately 5.11 mg/L. The DO concentrations in Site wells this quarter ranged from 0.12 mg/L in well MW-8 to 12.67 mg/L in well MW-5. Prior to the installation of the OS system the highest recorded DO concentration was 2.75 mg/L in offsite well MW-10. DO concentrations in wells MW-1, MW-3, MW-5, MW-7, and MW-9 have increased noticeably since the OS system began operation. DO concentrations in the monitoring wells are summarized on **Table 4**.

GeoTracker Requirements

All chemical analysis data are submitted electronically to the GeoTracker database as required by AB2886 (Water Code Sections 13195-13198). Electronic analytical reports (EDF files) are prepared and formatted by the laboratory and submitted by WAC. Along with chemical analyses, well latitudes, longitudes (GEO_XY files), and elevations (GEO_Z files) are submitted to the database. Submittal of a well status and usage report (GEO_WELL file) is required for each monitoring event. Current maps (GEO_MAP files) are also submitted when site features are added or changed.

CONCLUSIONS

The OS system began operation on April 14, 2004 and, with the exception of a few minor repairs, has run continuously.

On October 1, 2004 the direction of groundwater flow was southwesterly with a gradient of 0.024 ft/ft. This is consistent with previous measurements. The groundwater elevation in well MW-7 was apparently affected (lowered) by the OS system. The reason for the decrease is unclear.

MtBE and benzene are the principal constituents of concern in shallow groundwater at the Site. The MtBE and benzene concentrations in wells MW-5 and MW-7 have decreased significantly since the OS system began operation. This coincides with a substantial increase in DO concentrations in these wells. No wells at this Site have yielded hydrocarbon concentrations above the SSTLs since May 26, 2004. Benzene was not detected in any wells this quarter. The MtBE concentrations in wells MW-1, MW-3, MW-5, and MW-9 were at record lows this quarter. The MtBE concentration in well MW-7 increased slightly from a record low last quarter. Petroleum hydrocarbon concentrations in wells MW-8 and MW-10 appear to be unaffected so far by the OS system.

DO concentrations have increased substantially in wells MW-3, MW-5, MW-7, and MW-9 since the OS system began operating. The increased DO concentrations are an indication that these wells are within the zone of influence of the OS system. Increased DO concentrations will help stimulate biodegradation of hydrocarbons by microorganisms.

RECOMMENDATIONS

We recommend shutting off the OS system prior to the next quarterly monitoring event (in January and April 2005). If the hydrocarbon concentrations in all monitoring wells are still below the SSTLs in April 2005 without the OS system operating, we recommend petitioning Alameda County and the San Francisco Bay Regional Water Quality Control Board for Site closure.

TABLES

Table 1
Monitoring and Ozone-sparge Well Construction Information
2951 High Street
Oakland, California

Well ID	Date Installed	Casing Diameter (inches)	Total Depth (fbg)	Screened Interval (fbg)	Water-Bearing Unit	Top of Casing Elevation (feet amsl)	Northing (feet)	Easting (feet)
MW-1	2/95	2	25	N/A	N/A	131.64	2,112,552.39	6,070,038.16
MW-3	2/95	2	25	N/A	N/A	131.05	2,112,539.60	6,070,048.55
MW-5	12/9/96	2	30	5-30	N/A	131.99	2,112,582.04	6,070,083.59
MW-6	1/7/97	2	30	5-30	N/A	132.58	2,112,662.53	6,070,113.49
MW-7	3/24/03	2	25	15-25	gravelly sandy silt	130.93	2,112,533.18	6,070,106.31
MW-8	3/24/03	2	25	15-25	gravelly sandy silt	131.15	2,112,527.86	6,070,153.72
MW-9	3/25/03	2	25	15-25	silty gravelly sand	130.00	2,112,484.75	6,070,065.55
MW-10	4/4/03	2	25	15-25	sandy silt	127.19	2,112,393.29	6,069,984.72
SP-1	3/25/04	3/4	37	30.5-33	clayey sand	130.39	2,112,529.17	6,070,105.65
SP-2	3/25/04	3/4	31	26.5-29	sandy clay	130.07	2,112,534.87	6,070,118.37
SP-3	3/24/04	3/4	32	28.5-31	gravelly sandy clay	130.66	2,112,541.87	6,070,131.76
SP-4	3/25/04	3/4	33	14.5-17	gravelly sandy clay	130.51	2,112,541.66	6,070,102.66
SP-5	3/26/04	3/4	30	20-22.5	clayey gravelly sand	130.55	2,112,553.75	6,070,115.66
SP-6	3/26/04	3/4	30	21.5-24	clayey sandy gravel	130.88	2,112,564.81	6,070,106.43
SP-7	3/26/04	3/4	30	25.5-28	gravelly sand	131.20	2,112,575.20	6,070,106.74
SP-8	3/26/04	3/4	31	28.5-31	gravelly sandy clay	130.98	2,112,569.95	6,070,091.53
SP-9	3/25/04	3/4	33	25-27.5	clayey sand	130.85	2,112,562.57	6,070,080.59
SP-10	3/26/04	3/4	30	21.5-24	gravelly clay	131.23	2,112,578.47	6,070,085.11

Notes:

MW denotes monitoring wells. SP denotes sparge wells.

fbg = feet below grade; amsl = above mean sea level; N/A = data not available.

Monitoring wells surveyed by Virgil Chavez Land Surveying on April 15, 2003.

Ozone-sparge wells surveyed by Virgil Chavez Land Surveying on April 22, 2004.

MW-1, MW-3, MW-5, and MW-6 were installed by Aqua Science Engineers, Inc.

MW-7, MW-8, MW-9, MW-10, and SP-1 through SP-10 were installed by W.A. Craig, Inc.

Table 2
Groundwater Levels and Elevations in Monitoring Wells
2951 High Street
Oakland, California

Well ID	Date	TOC Elevation	DTW	Groundwater Elevation
MW-1	04/04/03	131.64	5.07	126.57
	07/16/03		7.32	124.32
	10/28/03		9.16	122.48
	01/13/04		4.03	127.61
	04/14/04		5.37	126.27
	04/29/04		5.55	126.09
	05/13/04		6.24	125.40
	05/26/04		6.61	125.03
	06/10/04		7.08	124.56
	07/08/04		7.49	124.15
	10/01/04		8.38	123.26
MW-3	04/04/03	131.05	5.86	125.19
	07/16/03		7.86	123.19
	10/28/03		9.43	121.62
	01/13/04		5.76	125.29
	04/14/04		6.72	124.33
	04/29/04		6.81	124.24
	05/13/04		7.62	123.43
	05/26/04		7.80	123.25
	06/10/04		8.17	122.88
	07/08/04		8.34	122.71
	10/01/04		9.41	121.64
MW-5	04/04/03	131.99	6.94	125.05
	07/16/03		8.17	123.82
	10/28/03		9.43	122.56
	01/13/04		6.27	125.72
	04/14/04		6.79	125.20
	04/29/04		7.35	124.64
	05/13/04		7.71	124.28
	05/26/04		7.66	124.33
	06/10/04		8.11	123.88
	07/08/04		8.38	123.61
	10/01/04		8.83	123.16
MW-6	04/04/03	132.58	5.13	127.45
	07/16/03		7.99	124.59
	10/28/03		9.18	123.40
	01/13/04		5.97	126.61
	04/29/04		7.05	125.53
	07/08/04		8.01	124.57
	10/01/04		8.59	123.99
MW-7	04/04/03	130.93	7.06	123.87
	07/16/03		8.11	122.82
	10/28/03		9.25	121.68
	01/13/04		6.80	124.13
	04/14/04		7.30	123.63
	04/29/04	*	20.80	110.13
	05/13/04	*	17.51	113.42
	05/26/04	*	18.79	112.14
	06/10/04	*	19.41	111.52
	07/08/04	*	13.92	117.01
	10/01/04	*	19.61	111.32

Table 2
Groundwater Levels and Elevations in Monitoring Wells
2951 High Street
Oakland, California

Well ID	Date	TOC Elevation	DTW	Groundwater Elevation
MW-8	04/04/03	131.15	6.60	124.55
	07/16/03		7.79	123.36
	10/28/03		8.83	122.32
	01/13/04		6.02	125.13
	04/14/04		6.90	124.25
	04/29/04		7.25	123.90
	05/13/04		7.52	123.63
	05/26/04		7.71	123.44
	06/10/04		7.89	123.26
	07/08/04		7.45	123.70
	10/01/04		8.46	122.69
MW-9	04/04/03	130.00	7.35	122.65
	07/16/03		8.50	121.50
	10/28/03		9.56	120.44
	01/13/04		6.83	123.17
	04/14/04		7.61	122.39
	04/29/04		8.23	121.77
	05/13/04		8.25	121.75
	05/26/04		8.44	121.56
	06/10/04		8.71	121.29
	07/08/04		8.68	121.32
	10/01/04		9.29	120.71
MW-10	04/23/03	127.19	7.06	120.13
	07/16/03		7.72	119.47
	10/28/03		8.61	118.58
	01/13/04		6.15	121.04
	04/29/04		7.09	120.10
	07/08/04		7.84	119.35
	10/01/04		8.25	118.94

Notes:
Elevations are in feet above mean sea level.
TOC, Top of casing. DTW, Depth to water in feet below TOC.
* Water level in MW-7 is apparently affected by ozone sparging.

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-1	02/23/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/26/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	08/23/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	270	<5	<5	<5	<50	<5,000	<500	<5	<5
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	420	<10	<10	<10	<100	<10,000	<1,000	<10	<10
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	1,200	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	01/13/04	58	0.85	<0.5	3.1	8.4	380	<0.5	<0.5	<0.5	<5.0	<50	<5	<0.5	<0.5
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	260	<5	<5	<5	<50	<5,000	<500	<5	<5
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	341	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
MW-3	02/23/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	05/26/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	08/23/95	<50	<0.5	<0.5	<0.5	<0.5	NT	NT	NT	NT	NT	NT	NT	NT	NT
	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	1,600	<25	<25	<25	<250	<25,000	<2,500	<25	<25
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	1,200	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	1,400	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	01/13/04	<200	<2	<2	<2	<2	790	<2	<2	<2	<20	<200	<20	<2	<2
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	140	<5	<5	<5	<50	<5,000	<500	<5	<5
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	24.3	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	4.0	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
MW-5	12/13/96	3,600	**180**	**350**	81	**510**	430	NT	NT	NT	NT	NT	NT	NT	NT
	03/27/97	120,000	**28,000**	**16,000**	**2,600**	**10,000**	**64,000**	NT	NT	NT	NT	NT	NT	NT	NT
**	06/27/97	6,300	**10,000**	**2,400**	**290**	**4,500**	**43,000**	NT	NT	NT	NT	NT	NT	NT	NT
	09/22/97	<50,000	7.9	3.3	0.6	3.3	**30,000**	NT	NT	NT	NT	NT	NT	NT	NT
	12/06/97	<5,000	33	12	<5	7.3	**33,000**	NT	NT	NT	NT	NT	NT	NT	NT
	03/23/98	29,000	**150**	160	130	320	**34,000**	NT	NT	NT	NT	NT	NT	NT	NT
	06/10/98	53,000	**7,000**	**2,400**	**540**	**3,400**	**67,000**	NT	NT	NT	NT	NT	NT	NT	NT
	07/23/98	36,000	**1,000**	**270**	<120	**740**	**51,000**	NT	NT	NT	NT	NT	NT	NT	NT
***	09/16/98	56,000	**3,400**	**1,300**	**430**	**1,800**	**84,000**	NT	NT	NT	NT	NT	NT	NT	NT
	11/23/98	63,000	**5,700**	**2,900**	**500**	**2,200**	**87,000**	NT	NT	NT	NT	NT	NT	NT	NT
	03/05/99	42,000	<250	<250	<250	<250	**38,000**	NT	NT	NT	NT	NT	NT	NT	NT
	06/17/99	37,000	**510**	85	5.6	89	**61,000**	NT	NT	NT	NT	NT	NT	NT	NT
	09/15/99	54,000	**8,500**	**1,800**	**420**	**2,400**	**55,000**	NT	NT	NT	NT	NT	NT	NT	NT
	12/09/99	34,000	**1,600**	230	130	**570**	**33,000**	NT	NT	NT	NT	NT	NT	NT	NT
	03/06/00	21,000	**7,800**	**870**	**440**	**2,100**	**30,000**	NT	NT	NT	NT	NT	NT	NT	NT

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-5 (cont.)	06/07/00	<50,000	**11,000**	**890**	**570**	**3,000**	**68,000**	NT	NT	NT	NT	NT	NT	NT	NT
	09/18/00	40,000	**4,900**	<250	<250	**1,700**	**46,000**	NT	NT	NT	NT	NT	NT	NT	NT
	04/04/03	1,800	**560**	<5.0	<5.0	30	**19,000**	<330	<330	<330	<3,300	<330,000	<33,000	<330	<330
	07/16/03	2,800	**1,000**	<5	10	80	**16,000**	<200	<200	<200	<2,000	<200,000	<20,000	<200	<200
	10/28/03	740	**290**	<5.0	<5.0	7.2	**14,000**	<170	<170	<170	<1,700	<170,000	<17,000	<170	<170
	01/13/04	<500	**48**	<5	<5	<5	2,000	<5	<5	<5	<50	<500	<50	<5	<5
	04/14/04	6,600	**2,700**	<50	<50	260	**20,000**	<500	<500	<500	<5,000	<500,000	<50,000	<500	<500
*	04/29/04	<500	6.3	<5	<5	7.8	**11,000**	<250	<250	<250	<2,500	<250,000	<25,000	<250	<250
	05/13/04	<50	<0.5	<0.5	<0.5	<0.5	3,000	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	05/26/04	<50	<0.5	<0.5	<0.5	<0.5	460	<10	<10	<10	<100	<10,000	<1,000	<10	<10
	06/10/04	<50	<0.5	<0.5	<0.5	<0.5	38	<0.5	<0.5	<0.5	<5.0	<50	<5.0	<0.5	<0.5
	07/08/04	<50	1.5	<0.5	<0.5	<1.0	9.6	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
MW-6	01/13/97	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	03/27/97	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	06/27/97	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	09/22/97	<50	<0.5	<0.5	<0.5	<0.5	24	NT	NT	NT	NT	NT	NT	NT	NT
	12/06/97	94	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	03/23/98	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	06/10/98	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	07/23/98	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	09/16/98	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	03/05/99	55	<0.5	0.92	0.5	1.3	<5	NT	NT	NT	NT	NT	NT	NT	NT
	06/17/99	<50	<0.5	<0.5	<0.5	<0.5	8.0	NT	NT	NT	NT	NT	NT	NT	NT
	09/15/99	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	12/09/99	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	03/06/00	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	06/07/00	<50	<0.5	<0.5	<0.5	<0.5	<5	NT	NT	NT	NT	NT	NT	NT	NT
	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	0.54	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	01/13/04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<50	<5	<0.5	<0.5
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	<0.5	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	<0.5

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-7	04/04/03	1,400	**54**	27	15	180	**26,000**	<500	<500	<500	<5,000	<500,000	<50,000	<500	<500
	07/16/03	18,000	**1,100**	**630**	**1,100**	**2,000**	**13,000**	<200	<200	<200	<2,000	<200,000	<20,000	<200	<200
	10/28/03	10,000	**750**	**370**	**750**	**1,000**	**17,000**	<500	<500	<500	<5,000	<500,000	<50,000	<500	<500
	01/13/04	7,200	**430**	150	**560**	**550**	**22,000**	<50	<50	<50	<500	<5000	<500	<50	<50
	04/14/04	8,900	**520**	**360**	**640**	**1,100**	**21,000**	<500	<500	<500	<5,000	<500,000	<50,000	<500	<500
*	04/29/04	<500	<5	<5	<5	12	**12,000**	<250	<250	<250	<2,500	<250,000	<25,000	<250	<250
	05/13/04	660	<5.0	28	25	120	**10,000**	<170	<170	<170	<1,700	<170,000	<17,000	<170	<170
	05/26/04	380	<2.5	15	15	79	7,600	<200	<200	<200	<2,000	<200,000	<20,000	<200	<200
	06/10/04	<1,000	<10	<10	<10	<10	4,900	<10	<10	<10	300	<10,000	<100	<10	<10
	07/08/04	67	<0.5	<0.5	1.3	10	1,040	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	85	<0.5	<0.5	0.63	6.0	2,300	<50	<50	<50	<500	<50,000	<5,000	<50	<50
MW-8	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	230	<5	<5	<5	<50	<5,000	<500	<5	<5
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	340	<5	<5	<5	<50	<5,000	<500	<5	<5
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	250	<5.0	<5.0	<5.0	<50	<5,000	<500	<5	<5.0
	01/13/04	<50	<0.5	<0.5	<0.5	<0.5	140	<0.5	<0.5	<0.5	<5.0	<50	<5	<0.5	<0.5
	04/14/04	<50	<0.5	<0.5	<0.5	<0.5	260	<5	<5	<5	<50	<5,000	<500	<5	<5
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	130	<5	<5	<5	<50	<5,000	<500	<5	<5
	05/13/04	<50	<0.5	<0.5	<0.5	<0.5	110	<2.5	<2.5	<2.5	<25	<2,500	<250	<2.5	<2.5
	05/26/04	<50	<0.5	<0.5	<0.5	<0.5	150	<2.5	<2.5	<2.5	<25	<2,500	<250	<2.5	<2.5
	06/10/04	<50	<0.5	<0.5	<0.5	<0.5	290	<0.5	<0.5	<0.5	<5.0	<50	<5.0	<0.5	<0.5
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	395	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	450	<10	<10	<10	<100	<10,000	<5.0	<0.5	<0.5
MW-9	04/04/03	<50	<0.5	<0.5	<0.5	<0.5	85	<1.5	<1.5	<1.5	<12	<1,200	<120	<1.5	2
	07/16/03	<50	<0.5	<0.5	<0.5	<0.5	170	<2.5	<2.5	3	27	<2,500	<250	<2.5	<2.5
	10/28/03	<50	<0.5	<0.5	<0.5	<0.5	230	<5.0	<5.0	<5.0	57	<5,000	<500	<5.0	<5.0
	01/13/04	<50	<0.5	<0.5	<0.5	<0.5	55	<0.5	<0.5	0.72	5.8	<50	<5	<0.5	1
	04/14/04	<50	<0.5	<0.5	<0.5	<0.5	58	<1	<1	<1	<10	<1,000	<100	<1	<1
*	04/29/04	<50	<0.5	<0.5	<0.5	<0.5	4.7	<0.5	<0.5	<0.5	<5	<500	<50	<0.5	0.63
	05/13/04	<50	<0.5	<0.5	<0.5	<0.5	5.9	<0.5	<0.5	<0.5	<5.0	<50	<5.0	<0.5	0.66
	05/26/04	<50	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	0.53
	06/10/04	<50	<0.5	<0.5	<0.5	<0.5	14	<0.5	<0.5	<0.5	<5.0	<50	<5.0	<0.5	0.60
	07/08/04	<50	<0.5	<0.5	<0.5	<1.0	7.3	<0.5	<1	<1	<10	NT	<100	<1.0	<0.5
	10/01/04	<50	<0.5	<0.5	<0.5	<0.5	2.1	<0.5	<0.5	<0.5	<5.0	<500	<50	<0.5	<0.5

Table 3
Analytical Results for Groundwater Samples
2951 High Street
Oakland, California

Well ID	Date	TPH-g	benzene	toluene	ethyl-benzene	xylenes	MtBE	DIPE	EtBE	tAME	tBA	methanol	ethanol	EDB	DCA
MW-10	04/23/03	79	<0.5	<0.5	<0.5	<0.5	1,900	<25	<25	58	<250	<25,000	<2,500	<25	<25
	07/16/03	73	20	<0.5	<0.5	<0.5	1,100	<20	<20	39	<200	<20,000	<2,000	<20	<20
	10/28/03	76	<0.5	<0.5	<0.5	<0.5	1,900	<50	<50	<50	<500	<50,000	<5,000	<50	<50
	01/13/04	<500	<5	<5	<5	<5	2,300	<5	<5	72	<50	<500	<50	<5	<5
*	04/29/04	54	<0.5	<0.5	<0.5	<0.5	1,000	<17	<17	24	<170	<17,000	<1,700	<17	<17
	07/08/04	76	<0.5	<0.5	<0.5	<1.0	1,650	<0.5	<1	37	211	NT	<100	<1.0	<0.5
	10/01/04	67	<0.5	<0.5	<0.5	<0.5	1,500	<50	<50	<50	<500	<50,000	<5,000	<50	<50
SSTL		**NE**	**34**	**270**	**180**	**470**	**8,400**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**

Notes:

SSTLs are site-specific target levels developed for the site by Aqua Science Engineers, Inc. in 1997. **Bold** concentrations exceed the SSTL.

Concentrations are micrograms per liter (ug/L). NE, SSTL not established for this compound. NT, analyte not tested.

Data prior to April 2003 are from *Groundwater Monitoring Report for September 2000 Sampling* by Aqua Science Engineers, Inc. dated 11/14/2000.

* First sampling event after the OS system was started up on April 14, 2004.

** Oxygen Release Compound (ORC) was injected into borings on the south side of MW-5 in late June 1997.

*** ORC socks were placed in MW-5 in August 1998 and removed in September 2000.

TPH-g total petroleum hydrocarbons as gasoline

MtBE methyl tert-butyl ether

DIPE di-isopropyl ether

EtBE ethyl tert-butyl ether

tAME tert-amyl methyl ether

tBA tert-butyl alcohol

EDB ethylene dibromide (1,2-dibromoethane)

DCA 1,2-dichloroethane

Table 4
Field Measurements of Dissolved Oxygen and Temperature
2951 High Street
Oakland, California

Well ID	Date	DO (mg/L)	Temperature (Celsius)	% Oxygen Saturation
MW-1	04/04/03	0.64	18.5	6.7%
	07/16/03	0.82	18.5	8.6%
	10/28/03	0.51	19.3	5.5%
	01/13/04	0.17	19.3	1.8%
	04/14/04	0.23	18.4	2.4%
*	04/29/04	0.56	18.1	5.9%
	05/13/04	0.70	18.4	7.4%
	05/26/04	0.40	18.5	4.2%
	06/10/04	1.42	18.5	15.0%
	07/08/04	0.71	18.7	7.5%
	10/01/04	1.97	19.5	21.2%
MW-3	04/04/03	0.78	18.8	8.3%
	07/16/03	2.13	18.8	22.6%
	10/28/03	0.67	19.1	7.2%
	01/13/04	0.25	19.3	2.7%
	04/14/04	0.17	18.6	1.8%
*	04/29/04	6.52	18.0	68.1%
	05/13/04	5.87	18.5	61.9%
	05/26/04	2.76	18.5	29.1%
	06/10/04	6.12	18.5	64.5%
	07/08/04	0.76	18.7	8.0%
	10/01/04	3.45	19.3	37.0%
MW-5	04/04/03	0.70	19.2	7.5%
	07/16/03	NA	NA	NA
	10/28/03	0.83	19.70	9.0%
	01/13/04	0.57	19.80	6.2%
	04/14/04	0.32	19.70	3.5%
*	04/29/04	9.83	19.50	105.8%
	05/13/04	10.89	19.50	117.2%
	05/26/04	10.50	19.50	113.0%
	06/10/04	14.14	19.50	152.1%
	07/08/04	11.46	19.40	123.0%
	10/01/04	12.67	19.50	136.3%
MW-6	04/04/03	NA	NA	NA
	07/16/03	0.54	19.1	5.8%
	10/28/03	1.26	19.3	13.5%
	01/13/04	0.27	19.4	2.9%
*	04/29/04	1.37	18.7	14.5%
	07/08/04	0.31	19.8	3.4%
	10/01/04	0.27	19.3	2.9%

Table 4
Field Measurements of Dissolved Oxygen and Temperature
2951 High Street
Oakland, California

Well ID	Date	DO (mg/L)	Temperature (Celsius)	% Oxygen Saturation
MW-7	04/04/03	0.97	20.1	10.6%
	07/16/03	0.69	19.8	7.5%
	10/28/03	0.49	20.5	5.4%
	01/13/04	0.14	20.5	1.5%
	04/14/04	0.17	20.2	1.9%
*	04/29/04	7.34	20.0	79.8%
	05/13/04	10.60	19.9	115.0%
	05/26/04	13.73	19.9	148.9%
	06/10/04	13.16	19.9	142.7%
	07/08/04	10.50	20.0	114.1%
	10/01/04	9.12	20.6	100.4%
MW-8	04/04/03	1.50	20.8	16.6%
	07/16/03	0.78	20.5	8.6%
	10/28/03	0.41	21.3	4.6%
	01/13/04	0.58	21.4	6.5%
	04/14/04	0.20	20.6	2.2%
*	04/29/04	1.10	20.1	12.0%
	05/13/04	1.15	20.4	12.6%
	05/26/04	0.64	20.5	7.0%
	06/10/04	0.22	20.5	2.4%
	07/08/04	0.22	20.5	2.4%
	10/01/04	0.12	21.3	1.3%
MW-9	04/04/03	1.30	20.4	14.2%
	07/16/03	0.82	20.1	8.9%
	10/28/03	0.41	20.4	4.5%
	01/13/04	0.11	20.5	1.2%
	04/14/04	0.14	20.2	1.5%
*	04/29/04	10.02	20.2	109.3%
	05/13/04	10.91	20.0	118.6%
	05/26/04	6.16	19.9	66.8%
	06/10/04	5.84	19.9	63.3%
	07/08/04	3.99	19.9	43.3%
	10/01/04	3.30	20.3	36.1%
MW-10	04/23/03	2.75	19.1	29.3%
	07/16/03	1.00	19.2	10.7%
	10/28/03	0.55	19.6	5.9%
	01/13/04	0.13	19.7	1.4%
*	04/29/04	0.19	18.7	2.0%
	07/08/04	0.19	19	2.0%
	10/01/04	0.14	19.4	1.5%

Notes:

DO, Dissolved oxygen concentration in milligrams per liter.

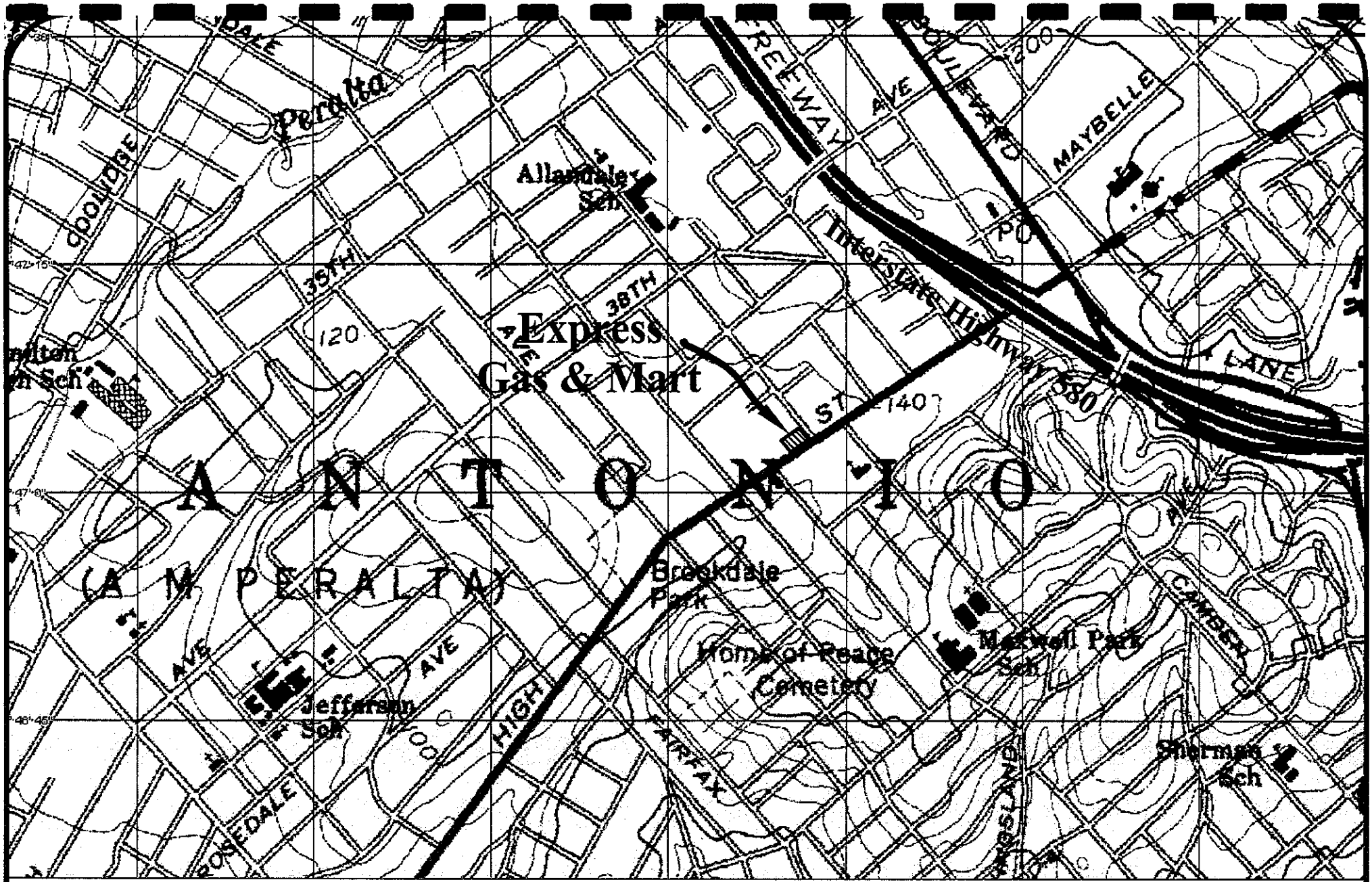
Formula for calculating % saturation = C/(-0.1883*T+12.967), where

C is the DO concentration in mg/L and T is the temperature in degrees Celsius.

* First sampling event after the OS system was started up on April 14, 2004.

N/A No data available.

FIGURES



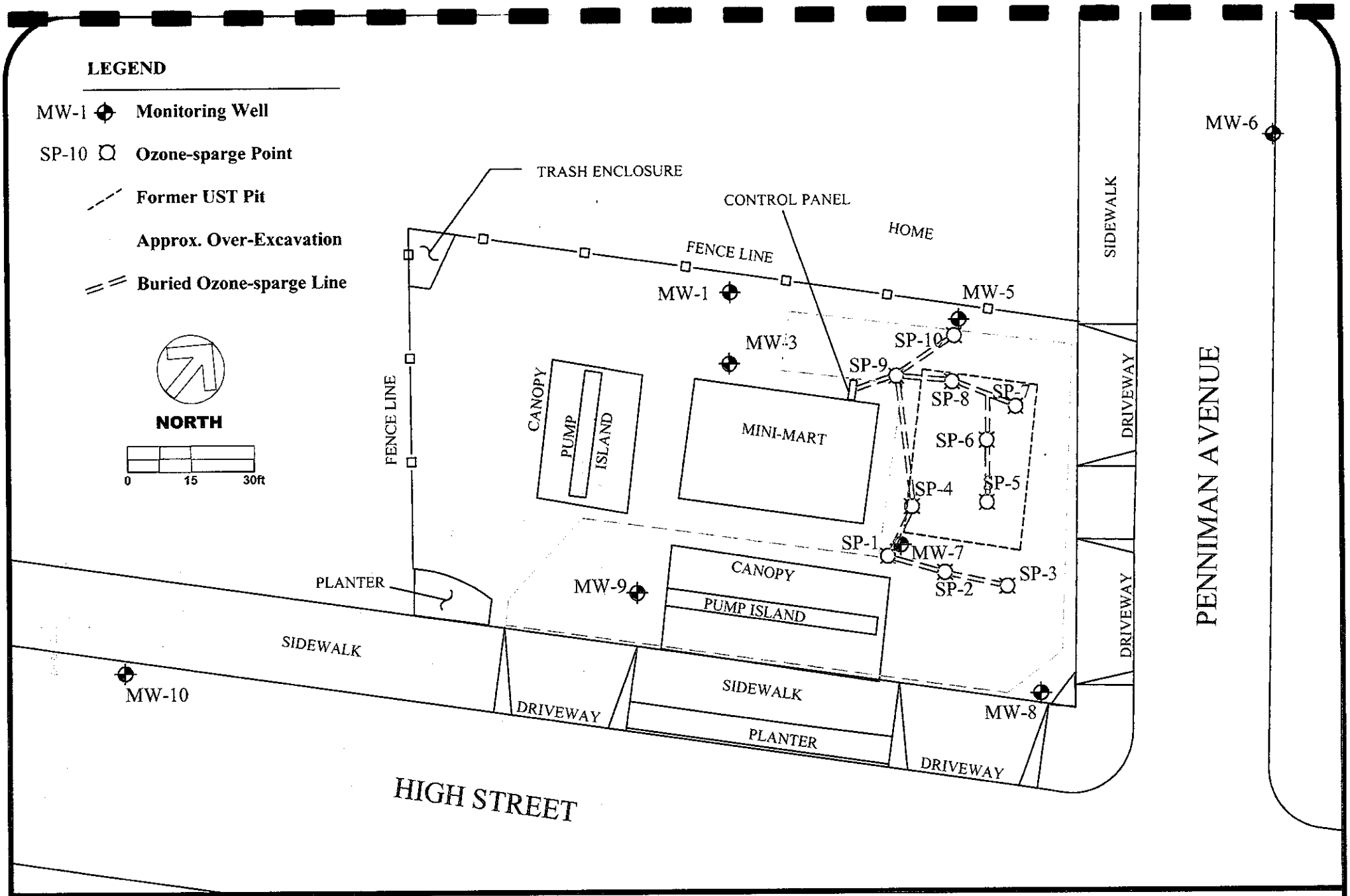
W.A. Craig, Inc.
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

Site Location Map

Express Gas & Mart
2951 High Street
Oakland, California

NORTH

Project #: 3936	Figure: 1
Date: 10/1/04	
Scale: as shown	

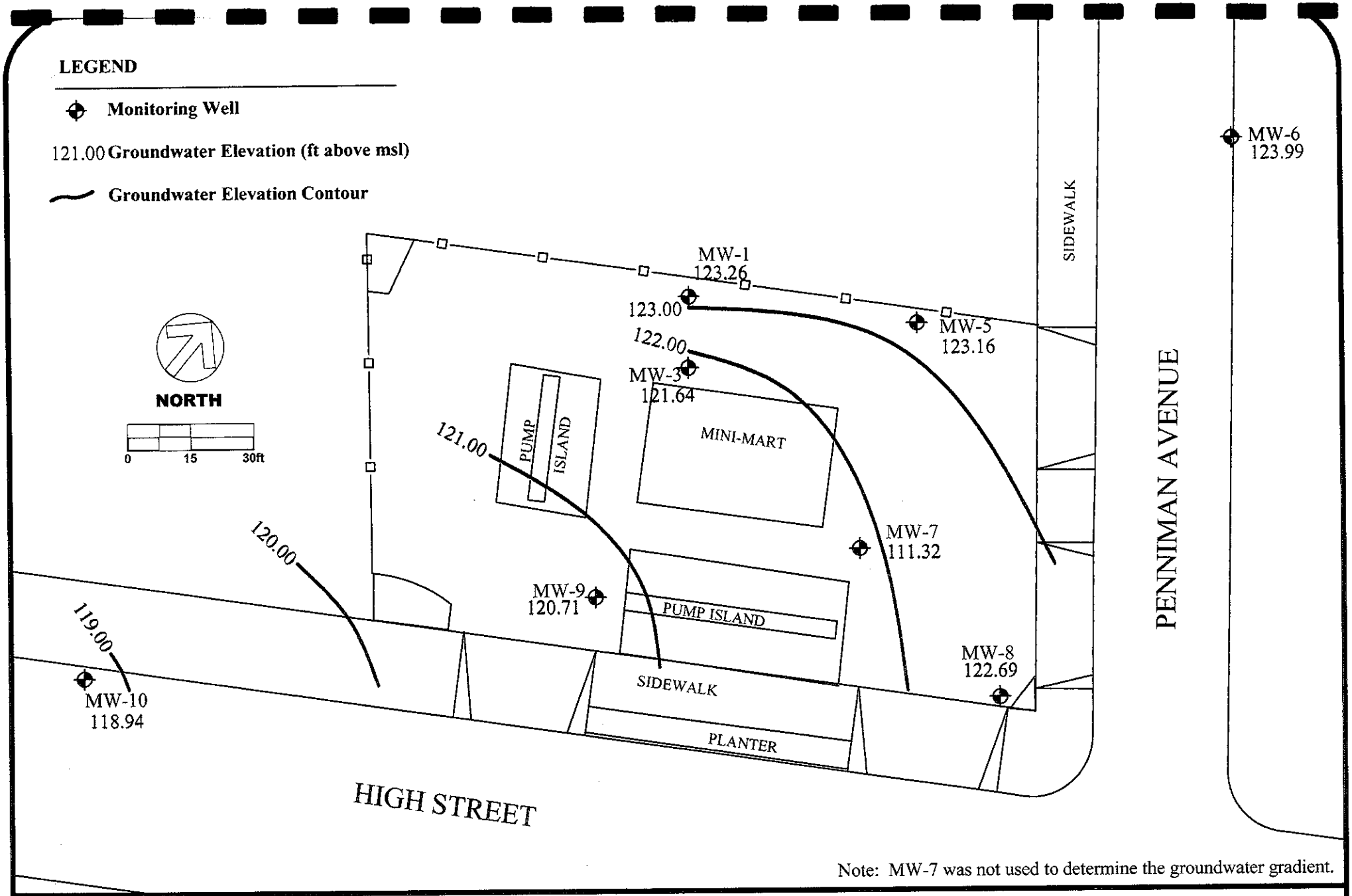


W.A. Craig, Inc.
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

Site Features

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 3936	Figure: 2
Date: 10/1/04	
Scale: 1"=30'	



Note: MW-7 was not used to determine the groundwater gradient.

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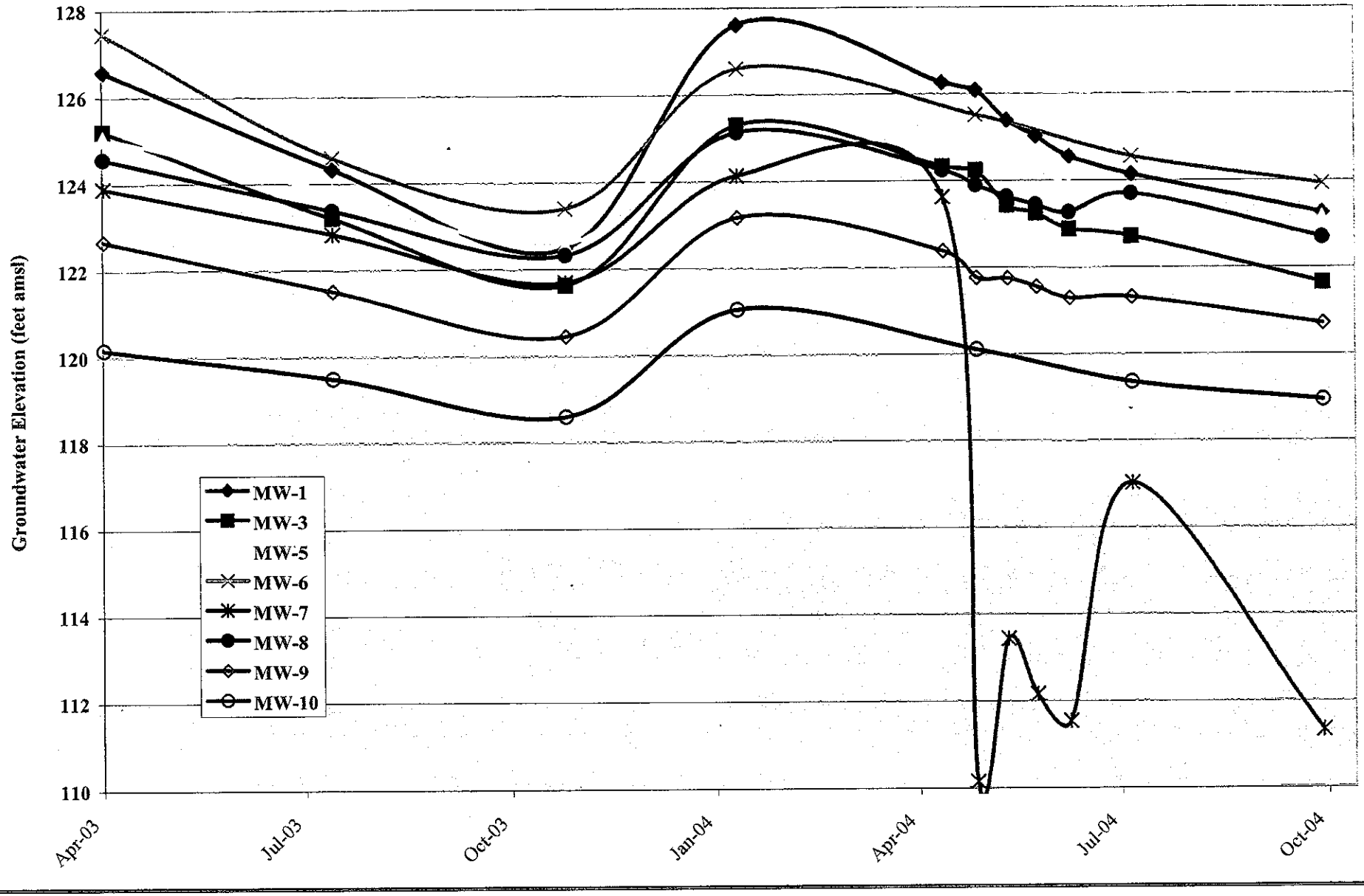
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

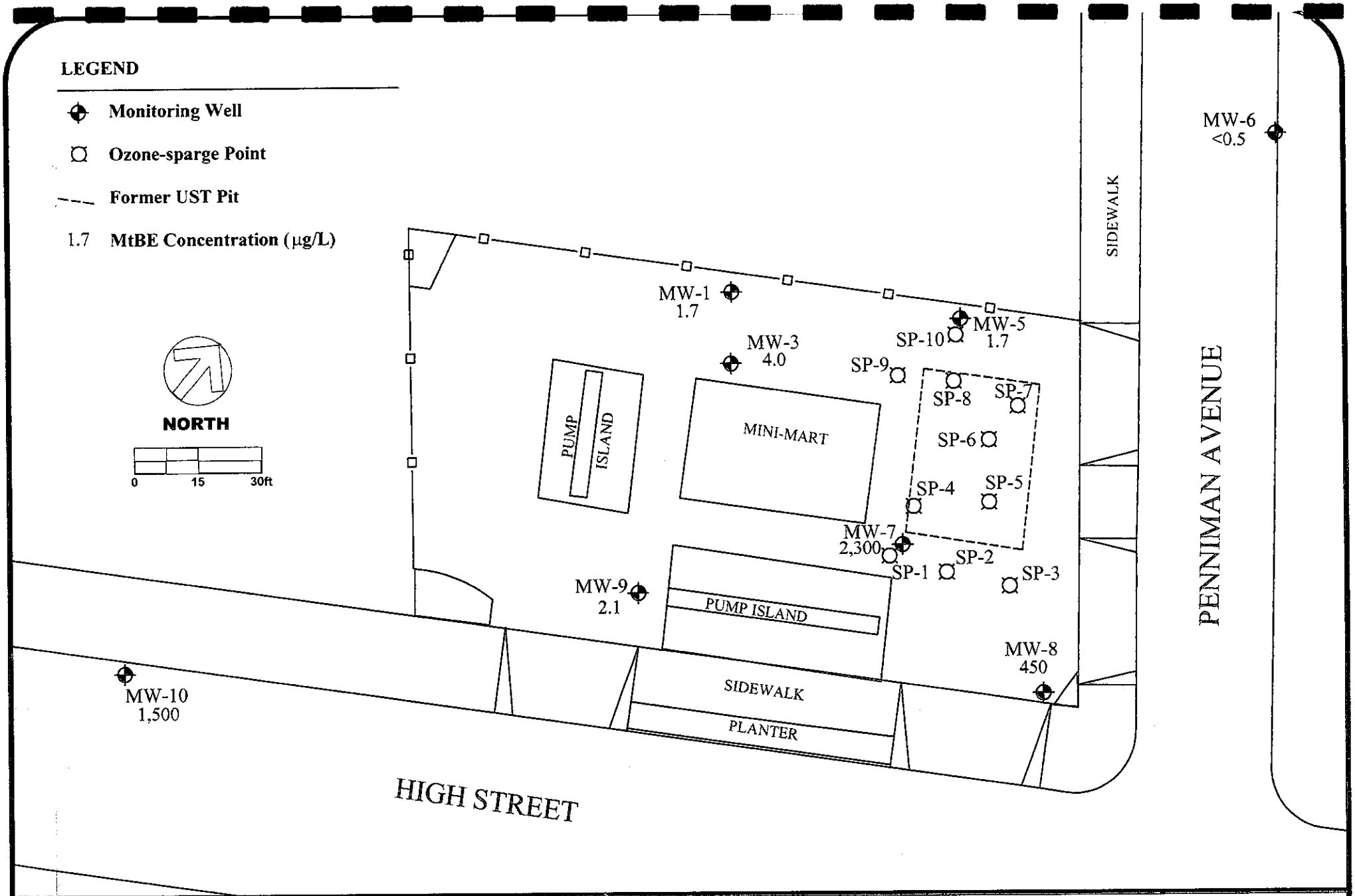
Groundwater Elevations on October 1, 2004

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 3936	Figure: 3
Date: 10/1/04	
Scale: 1"=30'	

Figure 4
Monitoring Well Hydrograph
2951 High Street, Oakland, California





W.A. Craig, Inc.
6940 Tremont Road LIC# 455752
Dixon, California 95620-9603
PH# (707) 693-2929 Fax# (707) 693-2922

MtBE Concentrations in Groundwater on October 1, 2004

Express Gas & Mart
2951 High Street
Oakland, California

Project #: 3936	Figure: 5
Date: 10/1/04	
Scale: 1"=30'	

Figure 6

MtBE Concentrations versus time in Wells MW-5 and MW-7
2951 High Street, Oakland, California

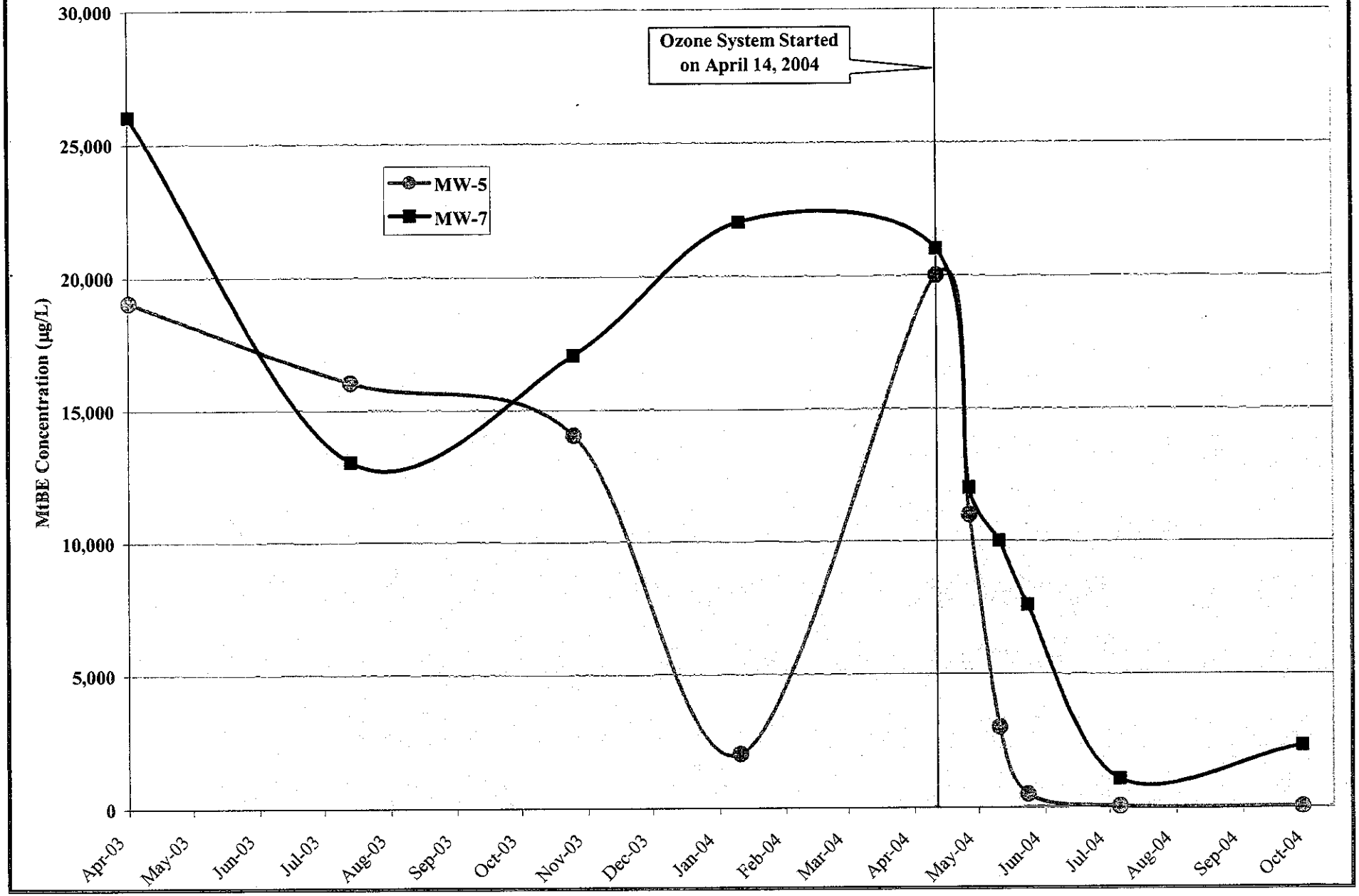


Figure 7

MtBE Concentrations versus time in Wells MW-1, MW-3, MW-8, MW-9, and MW-10
2951 High Street, Oakland, California

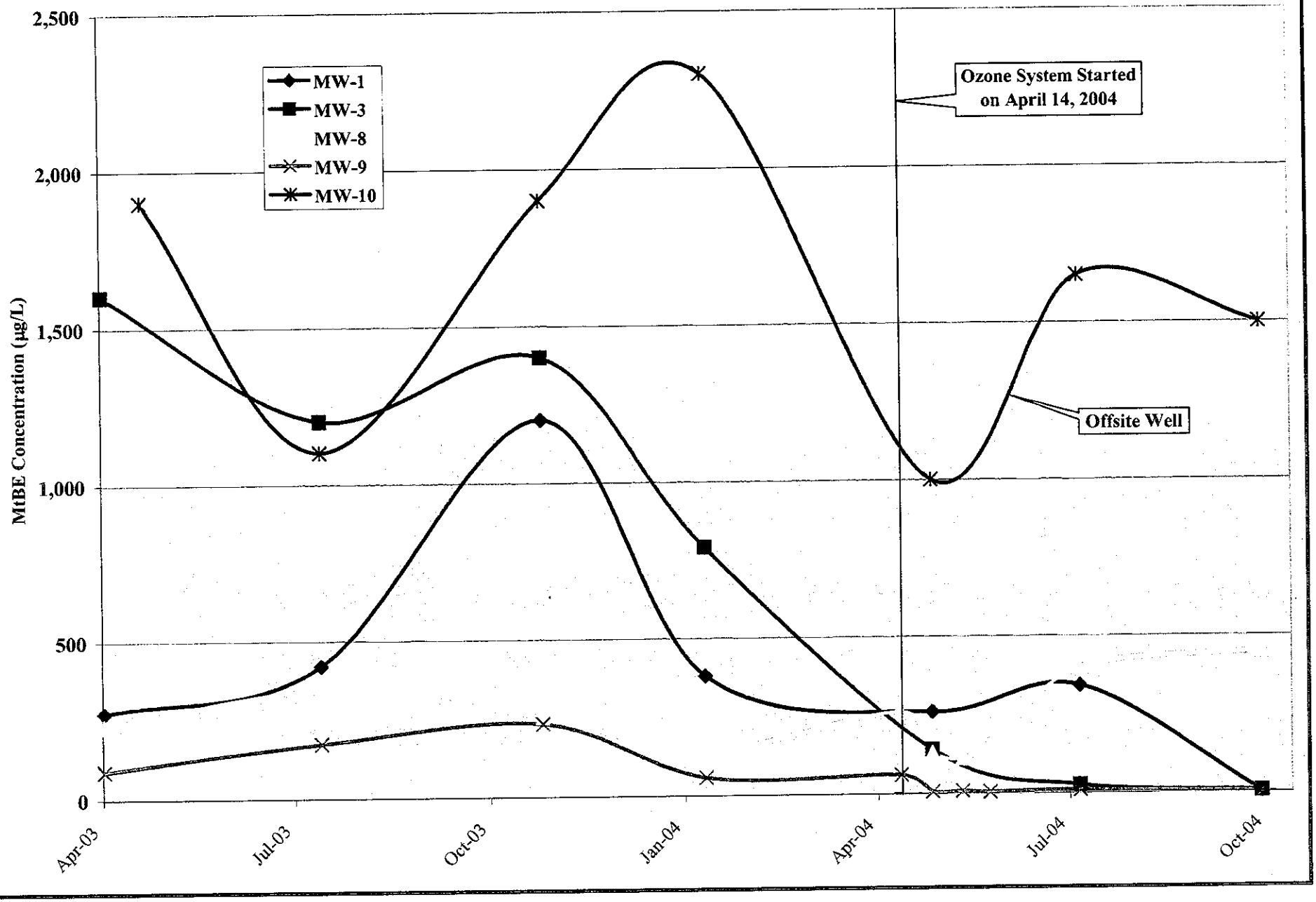
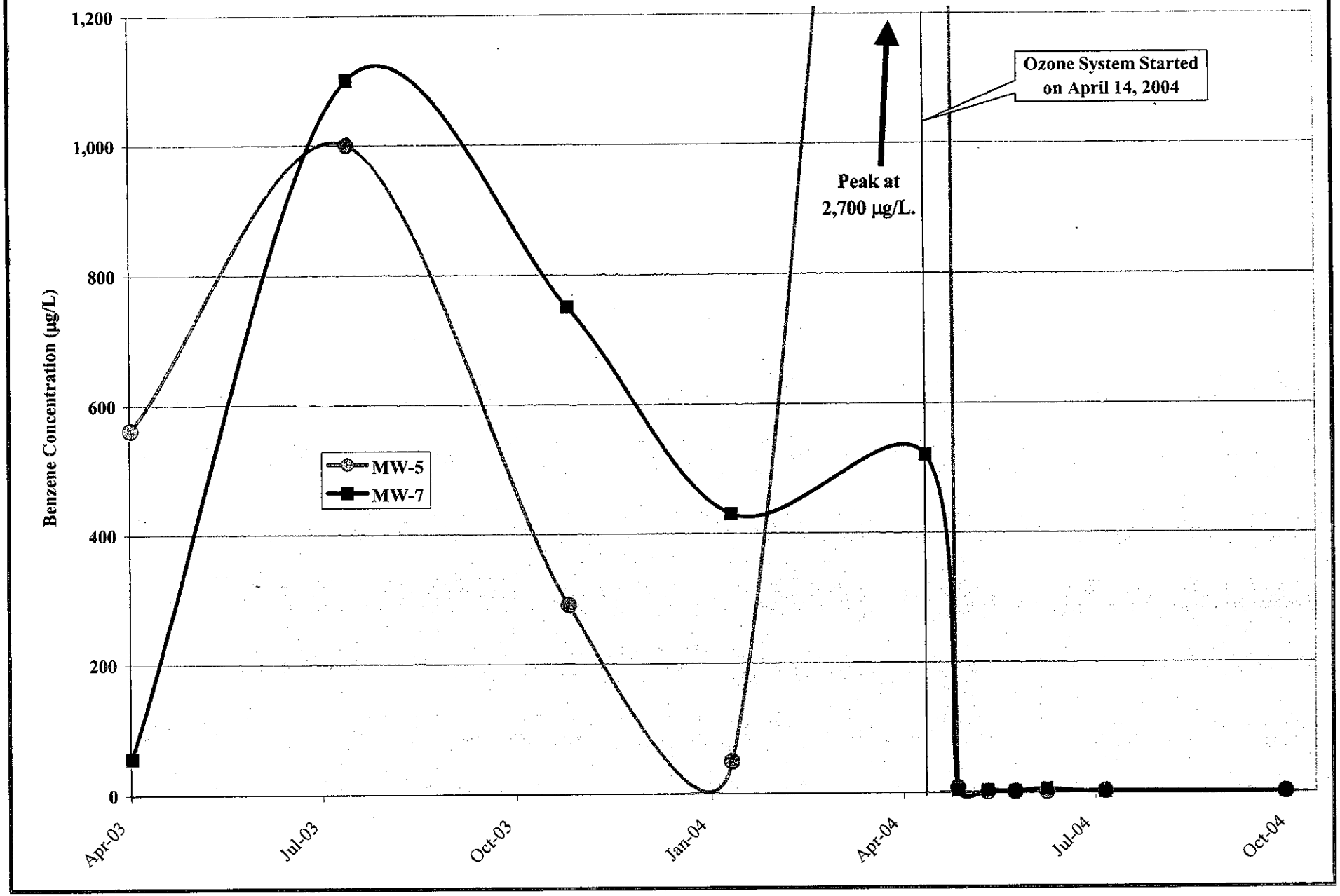


Figure 8

Benzene Concentrations versus time in Wells MW-5 and MW-7
2951 High Street, Oakland, California



APPENDIX A

Ozone Sparge Point Operating Pressures

Sparge Point	Date	Pressure (psi)	Average
SP-1	04/15/04	44	
	04/29/04	30	
	04/29/04	30	
	05/04/04	28	
	05/13/04	39	
	05/17/04	37	
	05/26/04	37	
	06/10/04	39	
	07/08/04	37.5	
	07/16/04	37	
	07/30/04	36	
	08/19/04	36.5	
	09/01/04	41	
	09/02/04	39	
	09/08/04	42	
	09/15/04	37	
	09/22/04	32	
	10/01/04	38	36.7
SP-2	04/15/04	44	
	04/29/04	24	
	04/29/04	37	
	05/04/04	36	
	05/13/04	40	
	05/17/04	40	
	05/26/04	39	
	06/10/04	38	
	07/08/04	40.5	
	07/16/04	38	
	07/30/04	38	
	08/19/04	38.5	
	09/01/04	42	
	09/02/04	39	
	09/08/04	43	
	09/15/04	37	
	09/22/04	36	
	10/01/04	37	38.2
SP-3	04/15/04	38	
	04/29/04	23	
	04/29/04	38	
	05/04/04	34	
	05/13/04	29	
	05/17/04	29	
	05/26/04	28	
	06/10/04	31.5	
	07/08/04	46	
	07/16/04	34	
	07/30/04	33	
	08/19/04	34	
	09/01/04	49	
	09/02/04	42	
	09/08/04	41	
	09/15/04	35	
	09/22/04	34	
	10/01/04	35	35.2

Sparge Point	Date	Pressure (psi)	Average
SP-4	04/15/04	28	
	04/29/04	17	
	04/29/04	24	
	05/04/04	27	
	05/13/04	25	
	05/17/04	25	
	05/26/04	26.5	
	06/10/04	26	
	07/08/04	33	
	07/16/04	26.5	
	07/30/04	26	
	08/19/04	29	
	09/01/04	28	
	09/02/04	32	
	09/08/04	37	
	09/15/04	29	
	09/22/04	34	
	10/01/04	26	27.7
SP-5	04/15/04	n/a	
	04/29/04	n/a	
	04/29/04	47	
	05/04/04	54	
	05/13/04	49	
	05/17/04	49	
	05/26/04	49	
	06/10/04	40	
	07/08/04	48	
	07/16/04	38	
	07/30/04	38	
	08/19/04	45	
	09/01/04	49	
	09/02/04	44	
	09/08/04	44	
	09/15/04	20	
	09/22/04	19	
	10/01/04	19	40.8
SP-6	04/15/04	30	
	04/29/04	17	
	04/29/04	22	
	05/04/04	24	
	05/13/04	24	
	05/17/04	24	
	05/26/04	24	
	06/10/04	22	
	07/08/04	26	
	07/16/04	23	
	07/30/04	27	
	08/19/04	28	
	09/01/04	31	
	09/02/04	30	
	09/08/04	32	
	09/15/04	13	
	09/22/04	37.5	
	10/01/04	41	26.4

Sparge Point	Date	Pressure (psi)	Average
SP-7	04/15/04	34	
	04/29/04	26	
	04/29/04	41	
	05/04/04	40	
	05/13/04	33	
	05/17/04	33	
	05/26/04	38	
	06/10/04	36	
	07/08/04	36	
	07/16/04	36	
	07/30/04	n/a	
	08/19/04	44	
	09/01/04	44	
	09/02/04	42.5	
	09/08/04	42.5	
	09/15/04	44.5	
	09/22/04	45	
	10/01/04	47	39.0
SP-8	04/15/04	50	
	04/29/04	26	
	04/29/04	42	
	05/04/04	43	
	05/13/04	40	
	05/17/04	41	
	05/26/04	39	
	06/10/04	39	
	07/08/04	46	
	07/16/04	41	
	07/30/04	n/a	
	08/19/04	40	
	09/01/04	0	
	09/02/04	42	
	09/08/04	43	
	09/15/04	41	
	09/22/04	36	
	10/01/04	37	38.0
SP-9	04/15/04	40	
	04/29/04	26	
	04/29/04	36	
	05/04/04	40	
	05/13/04	40	
	05/17/04	42.5	
	05/26/04	46	
	06/10/04	40	
	07/08/04	47	
	07/16/04	44.5	
	07/30/04	n/a	
	08/19/04	42	
	09/01/04	48	
	09/02/04	37	
	09/08/04	48	
	09/15/04	46	
	09/22/04	41	
	10/01/04	44	41.6

Sparge Point	Date	Pressure (psi)	Average
SP-10	04/15/04	46	
	04/29/04	23	
	04/29/04	38	
	05/04/04	37	
	05/13/04	36	
	05/17/04	37	
	05/26/04	35.5	
	06/10/04	31	
	07/08/04	44	
	07/16/04	36	
	07/30/04	n/a	
	08/19/04	34	
	09/01/04	44	
	09/02/04	38	
	09/08/04	42	
	09/15/04	36	
	09/22/04	36	
	10/01/04	36	37.0

Date	Sparge Point	Pressure (psi)	Average
04/15/04	SP-1	44	
	SP-2	44	
	SP-3	38	
	SP-4	28	
	SP-5	n/a	
	SP-6	30	
	SP-7	34	
	SP-8	50	
	SP-9	40	
	SP-10	46	39.3
04/29/04	SP-1	30	
	SP-2	24	
	SP-3	23	
	SP-4	17	
	SP-5	n/a	
	SP-6	17	
	SP-7	26	
	SP-8	26	
	SP-9	26	
	SP-10	23	23.6
04/29/04	SP-1	30	
	SP-2	37	
	SP-3	38	
	SP-4	24	
	SP-5	47	
	SP-6	22	
	SP-7	41	
	SP-8	42	
	SP-9	36	
	SP-10	38	35.5
05/04/04	SP-1	28	
	SP-2	36	
	SP-3	34	
	SP-4	27	
	SP-5	54	
	SP-6	24	
	SP-7	40	
	SP-8	43	
	SP-9	40	
	SP-10	37	36.3
05/13/04	SP-1	39	
	SP-2	40	
	SP-3	29	
	SP-4	25	
	SP-5	49	
	SP-6	24	
	SP-7	33	
	SP-8	40	
	SP-9	40	
	SP-10	36	35.5

Date	Sparge Point	Pressure (psi)	Average
05/17/04	SP-1	37	
	SP-2	40	
	SP-3	29	
	SP-4	25	
	SP-5	49	
	SP-6	24	
	SP-7	33	
	SP-8	41	
	SP-9	42.5	
	SP-10	37	35.8
05/26/04	SP-1	37	
	SP-2	39	
	SP-3	28	
	SP-4	26.5	
	SP-5	49	
	SP-6	24	
	SP-7	38	
	SP-8	39	
	SP-9	46	
	SP-10	35.5	36.2
06/10/04	SP-1	39	
	SP-2	38	
	SP-3	31.5	
	SP-4	26	
	SP-5	40	
	SP-6	22	
	SP-7	36	
	SP-8	39	
	SP-9	40	
	SP-10	31	34.3
07/08/04	SP-1	37.5	
	SP-2	40.5	
	SP-3	46	
	SP-4	33	
	SP-5	48	
	SP-6	26	
	SP-7	36	
	SP-8	46	
	SP-9	47	
	SP-10	44	40.4
07/16/04	SP-1	37	
	SP-2	38	
	SP-3	34	
	SP-4	26.5	
	SP-5	38	
	SP-6	23	
	SP-7	36	
	SP-8	41	
	SP-9	44.5	
	SP-10	36	35.4

Date	Sparge Point	Pressure (psi)	Average
07/30/04	SP-1	36	
	SP-2	38	
	SP-3	33	
	SP-4	26	
	SP-5	38	
	SP-6	27	
	SP-7	n/a	
	SP-8	n/a	
	SP-9	n/a	
	SP-10	n/a	33.0
08/19/04	SP-1	36.5	
	SP-2	38.5	
	SP-3	34	
	SP-4	29	
	SP-5	45	
	SP-6	28	
	SP-7	44	
	SP-8	40	
	SP-9	42	
	SP-10	34	37.1
09/01/04	SP-1	41	
	SP-2	42	
	SP-3	49	
	SP-4	28	
	SP-5	49	
	SP-6	31	
	SP-7	44	
	SP-8	0	
	SP-9	48	
	SP-10	44	37.6
09/02/04	SP-1	39	
	SP-2	39	
	SP-3	42	
	SP-4	32	
	SP-5	44	
	SP-6	30	
	SP-7	42.5	
	SP-8	42	
	SP-9	37	
	SP-10	38	38.6
09/08/04	SP-1	42	
	SP-2	43	
	SP-3	41	
	SP-4	32	
	SP-5	44	
	SP-6	32	
	SP-7	42.5	
	SP-8	43	
	SP-9	48	
	SP-10	42	41.0

Date	Sparge Point	Pressure (psi)	Average
09/15/04	SP-1	37	
	SP-2	37	
	SP-3	35	
	SP-4	29	
	SP-5	20	
	SP-6	13	
	SP-7	44.5	
	SP-8	41	
	SP-9	46	
	SP-10	36	33.9
09/22/04	SP-1	32	
	SP-2	36	
	SP-3	34	
	SP-4	34	
	SP-5	19	
	SP-6	37.5	
	SP-7	45	
	SP-8	36	
	SP-9	41	
	SP-10	36	35.1
10/01/04	SP-1	38	
	SP-2	37	
	SP-3	35	
	SP-4	26	
	SP-5	19	
	SP-6	41	
	SP-7	47	
	SP-8	37	
	SP-9	44	
	SP-10	36	36.0

APPENDIX B

Monitoring Well Sampling Logs

MONITORING WELL SAMPLING LOG

SITE NAME/LOCATION: High St. JOB #: 3936

DATE: 10-1-09 SAMPLER'S INITIALS: CM

WELL ID: MW-3 WELL DIAMETER (in): 2

WELL DEPTH (ft): 25 DEPTH TO WATER (ft): 9.41 WATER COLUMN Ht (ft): 15.59

STANDING WATER VOLUME (gal): 2.59 3 VOLUMES (gal): 7.76

To obtain standing volume in gallons, multiply the water column height by 0.17 for 2-inch well or 0.66 for a 4-inch well.

PURGE METHOD: bailer SAMPLING METHOD: bailer

D.O. Initially: 3.45 / 19.3°C

PURGE MEASUREMENTS

Time	Gallons Purged	Temp (C)	pH	SC (uS)	Turbidity (NTU)	DO (mg/L)	Comments
	2	22.1	6.46	541		3.58/19.3	
	4	20.9	6.42	569			
	6	20.8	6.41	565			
	7	20.7	6.40	561			
	8	20.7	6.38	563			
10:45		19.2				3.03	D.O After Purge and Sample

WELL ID: MW-1 WELL DIAMETER (in): 2

WELL DEPTH (ft): 25 DEPTH TO WATER (ft): 8.38 WATER COLUMN Ht (ft): 16.62

STANDING WATER VOLUME (gal): 2.75 3 VOLUMES (gal): 8.3

To obtain standing volume in gallons, multiply the water column height by 0.17 for 2-inch well or 0.66 for a 4-inch well.

PURGE METHOD: bailer SAMPLING METHOD: bailer

D.O. Initially: 1.97 / 19.5

PURGE MEASUREMENTS

Time	Gallons Purged	Temp (C)	pH	SC (uS)	Turbidity (NTU)	DO (mg/L)	Comments
	2	23.9	6.00	570		2.08/19.5	
	4	22.3	6.09	567			
	6	22.1	6.09	572			
	8	21.8	6.09	575			
11:05							
		19.5				2.0	D.O After Purge and Sample

MONITORING WELL SAMPLING LOG

SITE NAME/LOCATION: Alyn St. JOB #: 3936

DATE: 10-1-04 SAMPLER'S INITIALS: CM

WELL ID: MW-6 WELL DIAMETER (in): 2

WELL DEPTH (ft): 30 DEPTH TO WATER (ft): 8.59 WATER COLUMN Ht (ft): 21.41

STANDING WATER VOLUME (gal): 3.55 3 VOLUMES (gal): ~~10.6~~ 10.7

To obtain standing volume in gallons, multiply the water column height by 0.17 for 2-inch well or 0.66 for a 4-inch well.

PURGE METHOD: bailer SAMPLING METHOD: bailer

D.O. Initially: 12.7 / 19.3

PURGE MEASUREMENTS

Time	Gallons Purged	Temp (C)	pH	SC (uS)	Turbidity (NTU)	DO (mg/L)	Comments
	2	22.5	7.08	505		12.4 / 19.3	
	4	21.9	6.89	507			
	6	21.1	6.62	508			water in well box
	8	21.1	6.61	509			NO NOS
	10	21.0	6.58	515			
0900		19.3				8.15	D.O After Purge and Sample

WELL ID: MW-5 WELL DIAMETER (in): 2

WELL DEPTH (ft): 30 DEPTH TO WATER (ft): 8.83 WATER COLUMN Ht (ft): 21.17

STANDING WATER VOLUME (gal): 3.51 3 VOLUMES (gal): 10.5

To obtain standing volume in gallons, multiply the water column height by 0.17 for 2-inch well or 0.66 for a 4-inch well.

PURGE METHOD: bailer SAMPLING METHOD: bailer

D.O. Initially: 12.67 / 19.5

PURGE MEASUREMENTS

Time	Gallons Purged	Temp (C)	pH	SC (uS)	Turbidity (NTU)	DO (mg/L)	Comments
	3	23.8	7.91	1303			
	5	22.0	7.98	1116			
	7	21.6	8.15	1052			
	9	21.5	8.18	1044			
	11	21.4	8.23	1031			
0922		19.9				15.35	D.O After Purge and Sample

MONITORING WELL SAMPLING LOG

SITE NAME/LOCATION: High St. JOB #: 3936

DATE: 10-1-04 SAMPLER'S INITIALS: CM

WELL ID: MW-7 WELL DIAMETER (in): 2

WELL DEPTH (ft): 25 DEPTH TO WATER (ft): 19.61 WATER COLUMN Ht (ft): 5.39

STANDING WATER VOLUME (gal): .89 3 VOLUMES (gal): 2.7

To obtain standing volume in gallons, multiply the water column height by 0.17 for 2-inch well or 0.66 for a 4-inch well.

PURGE METHOD: bailer SAMPLING METHOD: bailer

D.O. Initially: 9.12/20.6

PURGE MEASUREMENTS

Time	Gallons Purged	Temp (C)	pH	SC (uS)	Turbidity (NTU)	DO (mg/L)	Comments
	.75	22.0	7.38	380		9.83/20.6	
	1.5	22.1	7.26	371			
	2.25	22.1	7.23	369			
	3	22.1	7.25	365			
11:48		20.6				9.77	D.O After Purge and Sample

WELL ID: MW-8 WELL DIAMETER (in): 2

WELL DEPTH (ft): 25 DEPTH TO WATER (ft): 8.46 WATER COLUMN Ht (ft): 16.54

STANDING WATER VOLUME (gal): 2.74 3 VOLUMES (gal): 8.2

To obtain standing volume in gallons, multiply the water column height by 0.17 for 2-inch well or 0.66 for a 4-inch well.

PURGE METHOD: bailer SAMPLING METHOD: bailer

D.O. Initially: 0.12/21.3

PURGE MEASUREMENTS

Time	Gallons Purged	Temp (C)	pH	SC (uS)	Turbidity (NTU)	DO (mg/L)	Comments
	2	24.8	6.36	478		.67/21.2	
	4	23.1	6.32	461			
	6	22.9	6.36	458			
	8.5	22.7	6.38	453			
						.32/21.2	D.O After Purge and Sample

MONITORING WELL SAMPLING LOG

SITE NAME/LOCATION: High St JOB #: 3936

DATE: ~~10-1-04~~ 10-1-04 SAMPLER'S INITIALS: CM

WELL ID: MW- 10 WELL DIAMETER (in): 2

WELL DEPTH (ft): 25 DEPTH TO WATER (ft): 8.25 WATER COLUMN Ht (ft): 16.75

STANDING WATER VOLUME (gal): 2.78 3 VOLUMES (gal): 8.3

To obtain standing volume in gallons, multiply the water column height by 0.17 for 2-inch well or 0.66 for a 4-inch well.

PURGE METHOD: bailer SAMPLING METHOD: bailer

D.O. Initially: 4.14/19.1

PURGE MEASUREMENTS

Time	Gallons Purged	Temp (C)	pH	SC (uS)	Turbidity (NTU)	DO (mg/L)	Comments
	2	22.0	6.67	523		.18/19.3	
	~~4~~	~~21.5~~					
	4	21.6	6.59	502			
	6	21.6	6.59	569			
	8	21.7	6.57	578			
17.40						0.15/19.3	D.O After Purge and Sample

WELL ID: MW- 9 WELL DIAMETER (in): 2

WELL DEPTH (ft): 25 DEPTH TO WATER (ft): 9.29 WATER COLUMN Ht (ft): 15.71

STANDING WATER VOLUME (gal): 2.6 3 VOLUMES (gal): 7.8

To obtain standing volume in gallons, multiply the water column height by 0.17 for 2-inch well or 0.66 for a 4-inch well.

PURGE METHOD: bailer SAMPLING METHOD: bailer

D.O. Initially: 3.30/20.3

PURGE MEASUREMENTS

Time	Gallons Purged	Temp (C)	pH	SC (uS)	Turbidity (NTU)	DO (mg/L)	Comments
	3	22.7	6.70	842			
	5	21.7	6.81	827			
	7	21.7	6.83	823			
	8	21.7	6.85	811			
~~7.7~~						6.01	D.O After Purge and Sample

APPENDIX C

Purge Water Disposal Manifest

NON-HAZARDOUS WATER TRANSPORT FORM

GENERATOR

Name: _____
Address: 2401 High St
Oakland, Ca
Phone: _____

CUSTOMER

Name: W.A. Craig
Address: 6940 Thornton Rd
Dixon
Phone: _____

DESCRIPTION

Description of water: Monitoring well purge water
Volume: _____ Units: 2 Container(s): Drums

This non-hazardous waste water is monitoring well purge water, auger rinsate, sampling equipment rinsate, tank rinsate, combination thereof, or as described above. Described water may contain dissolved hydrocarbons. I certify that the above named material has been properly described and classified according to applicable regulations, and possesses no characteristics that would require its handling as a hazardous waste.

Generator/ Authorized Agent: Clayton Hood (Print) _____ (Sign) 9/17/04 (Date)

TRANSPORTER

Name: W.A. Craig
Address: _____
Phone: _____

Job No: _____
Pick-up Date: _____
Truck ID: _____
Driver: _____ (Sign) 9/17/04 (Date)

DISPOSAL FACILITY

Name: InStrat, Inc.
Address: 1105C Airport Way
Rio Vista CA

Quantity: 2 drums
Units: gal.
Disposal Method: GAC

Received by: B Farrell (Print) _____ (Sign) 9/17/04 (Date)

APPENDIX D

Laboratory Analytical Report for Groundwater Monitoring

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

W.A. Craig, Inc. 6940 Tremont Road Dixon, CA 95620	Client Project ID: #3936; High St.	Date Sampled: 10/01/04
		Date Received: 10/01/04
	Client Contact: Brian Milton	Date Reported: 10/08/04
	Client P.O.:	Date Completed: 10/08/04

WorkOrder: 0410011

October 08, 2004

Dear Brian:

Enclosed are:

1). the results of **8** analyzed samples from your **#3936; High St. 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.

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

W.A. Craig, Inc.	Client Project ID: #3936; High St.	Date Sampled: 10/01/04
6940 Tremont Road		Date Received: 10/01/04
Dixon, CA 95620	Client Contact: Brian Milton	Date Extracted: 10/04/04-10/05/04
	Client P.O.:	Date Analyzed: 10/04/04-10/05/04

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE*

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0410011

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-1	W	ND	ND	ND	ND	ND	ND	1	98.0
002A	MW-3	W	ND,i	ND	ND	ND	ND	ND	1	99.0
003A	MW-5	W	ND	ND	ND	ND	ND	ND	1	100
004A	MW-6	W	ND	ND	ND	ND	ND	ND	1	103
005A	MW-7	W	85,b,i	2200	ND	ND	0.63	6.0	1	114
006A	MW-8	W	ND	360	ND	ND	ND	ND	1	104
007A	MW-9	W	ND	ND	ND	ND	ND	ND	1	99.0
008A	MW-10	W	67,f	1200	ND	ND	ND	ND	1	115
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	50	5.0	0.5	0.5	0.5	0.5	1	µg/L
		S	NA	NA	NA	NA	NA	NA	1	mg/Kg

* 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

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

W.A. Craig, Inc. 6940 Tremont Road Dixon, CA 95620	Client Project ID: #3936; High St.	Date Sampled: 10/01/04
		Date Received: 10/01/04
	Client Contact: Brian Milton	Date Extracted: 10/02/04-10/04/04
	Client P.O.:	Date Analyzed: 10/02/04-10/04/04

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B | Analytical Method: SW8260B | Work Order: 0410011

Lab ID	0410011-001B	0410011-002B	0410011-003B	0410011-004B	Reporting Limit for DF =1	
Client ID	MW-1	MW-3	MW-5	MW-6		
Matrix	W	W	W	W		
DF	1	1	1	1	S	W
Compound	**Concentration**				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND	ND	ND	ND	NA	0.5
t-Butyl alcohol (TBA)	ND	ND	ND	ND	NA	5.0
1,2-Dibromoethane (EDB)	ND	ND	ND	ND	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND	ND	ND	ND	NA	0.5
Diisopropyl ether (DIPE)	ND	ND	ND	ND	NA	0.5
Ethanol	ND	ND	ND	ND	NA	50
Ethyl tert-butyl ether (ETBE)	ND	ND	ND	ND	NA	0.5
Methanol	ND	ND	ND	ND	NA	500
Methyl-t-butyl ether (MTBE)	1.7	4.0	1.7	ND	NA	0.5
Surrogate Recoveries (%)						
%SS1:	100	101	101	102		
Comments		i				

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

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

surrogate diluted out of range or surrogate coelutes with another peak.

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.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

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

W.A. Craig, Inc. 6940 Tremont Road Dixon, CA 95620	Client Project ID: #3936; High St.	Date Sampled: 10/01/04
		Date Received: 10/01/04
	Client Contact: Brian Milton	Date Extracted: 10/02/04-10/04/04
	Client P.O.:	Date Analyzed: 10/02/04-10/04/04

Oxygenated Volatile Organics + EDB and 1,2-DCA by P&T and GC/MS*

Extraction Method: SW5030B | Analytical Method: SW8260B | Work Order: 0410011

Lab ID	0410011-005B	0410011-006B	0410011-007B	0410011-008B	Reporting Limit for DF =1	
Client ID	MW-7	MW-8	MW-9	MW-10		
Matrix	W	W	W	W		
DF	100	20	1	100	S	W
Compound	**Concentration**				ug/kg	µg/L
tert-Amyl methyl ether (TAME)	ND<50	ND<10	ND	ND<50	NA	0.5
t-Butyl alcohol (TBA)	ND<500	ND<100	ND	ND<500	NA	5.0
1,2-Dibromoethane (EDB)	ND<50	ND<10	ND	ND<50	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND<50	ND<10	ND	ND<50	NA	0.5
Diisopropyl ether (DIPE)	ND<50	ND<10	ND	ND<50	NA	0.5
Ethanol	ND<5000	ND<1000	ND	ND<5000	NA	50
Ethyl tert-butyl ether (ETBE)	ND<50	ND<10	ND	ND<50	NA	0.5
Methanol	ND<50,000	ND<10,000	ND	ND<50,000	NA	500
Methyl-t-butyl ether (MTBE)	2300	450	2.1	1500	NA	0.5
Surrogate Recoveries (%)						
%SS1	99.0	99.0	100	101		
Comments	i					

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

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

surrogate diluted out of range or surrogate coelutes with another peak.

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.

DHS Certification No. 1644

Angela Rydelius, Lab Manager

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 SW8021B/8015Cm

Matrix: W WorkOrder: 0410011

EPA Method: SW8021B/8015Cm Extraction: SW5030B BatchID: 13430 Spiked Sample ID: 0410011-007A

Analyte	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
TPH(btex) £	ND	60	98.2	94.7	3.63	94.8	95.3	0.471	70	130
MTBE	ND	10	107	105	1.67	97.9	94.3	3.68	70	130
Benzene	ND	10	102	100	2.05	95.7	95.9	0.229	70	130
Toluene	ND	10	96.3	92.6	3.97	89.1	88.4	0.777	70	130
Ethylbenzene	ND	10	99.8	96.3	3.53	94.8	94.5	0.264	70	130
Xylenes	ND	30	86	85	1.17	85.3	85	0.391	70	130
%SS:	99.0	10	106	105	0.575	99.6	100	0.766	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

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

Matrix: W WorkOrder: 0410011

EPA Method: SW8260B Extraction: SW5030B BatchID: 13432 Spiked Sample ID: 0410011-004B

Analyte	Sample	Spiked	MS*	MSD*	MS-MSD*	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	Low	High
tert-Amyl methyl ether (TAME)	ND	10	87.9	86.2	1.91	78.3	81.7	4.34	70	130
t-Butyl alcohol (TBA)	ND	50	88.8	95	6.77	79.8	83.3	4.25	70	130
1,2-Dibromoethane (EDB)	ND	10	98.8	97.3	1.48	89.1	96	7.45	70	130
1,2-Dichloroethane (1,2-DCA)	ND	10	123	119	3.67	111	113	1.26	70	130
Diisopropyl ether (DIPE)	ND	10	125	126	0.660	123	123	0	70	130
Ethanol	ND	500	106	104	1.98	112	113	1.02	70	130
Ethyl tert-butyl ether (ETBE)	ND	10	106	109	3.17	102	107	4.61	70	130
Methanol	ND	2500	101	103	1.60	97.2	97.4	0.174	70	130
Methyl-t-butyl ether (MTBE)	ND	10	98.6	97.1	1.56	92.2	97.7	5.77	70	130
%SS1:	102	10	101	104	2.75	100	100	0	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

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

McCampbell Analytical, Inc.
110 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0410011 **ClientID: WAC**

Report to:
Brian Milton
W.A. Craig, Inc.
6940 Tremont Road
Dixon, CA 95620

TEL: 707-693-2929
FAX: 707-693-2922
ProjectNo: #3936; High St.
PO:

Bill to:
Christine
W.A. Craig, Inc.
6940 Tremont Road
Dixon, CA 95620

Requested TAT: 5 days
Date Received: **10/1/04**
Date Printed: **10/1/04**

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)														
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
0410011-001	MW-1	Water	10/1/04 11:05:00	☐	B	A	A												
0410011-002	MW-3	Water	10/1/04 10:45:00	☐	B	A													
0410011-003	MW-5	Water	10/1/04 10:22:00	☐	B	A													
0410011-004	MW-6	Water	10/1/04 10:00:00	☐	B	A													
0410011-005	MW-7	Water	10/1/04 11:48:00	☐	B	A													
0410011-006	MW-8	Water	10/1/04	☐	B	A													
0410011-007	MW-9	Water	10/1/04	☐	B	A													
0410011-008	MW-10	Water	10/1/04 12:40:00	☐	B	A													

Test Legend:

1	9-OXYS_W	2	G-MBTEX_W	3	PREDF REPORT	4		5	
6		7		8		9		10	
11		12		13		14		15	

Prepared by: Melissa Valles

Comments:

NOTE: Samples are discarded 60 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

McCAMPBELL ANALYTICAL, INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553-5560
Website: www.mccampbell.com Email: main@mccampbell.com
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: Brian McMahon	Bill To:
Company: W.A. Craig 6940 Trinidad Rd Dixon CA 95620	E-Mail:
Tele: (707) 693-2929	Fax: (707) 693-2922
Project #: 3936	Project Name: High St.
Project Location: 66th Oakland CA	
Sampler Signature:	

	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	BTEX & TPH as Gas (602/8020 + 8015)/MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010 / 8021	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8081	EPA 608 / 8082 PCB's ONLY	EPA 8140 / 8141	EPA 8150 / 8151	EPA 524.2 / 624 / 8260	EPA 525 / 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals (6010 / 6020)	LUFT 5 Metals (6010 / 6020)	Lead (200.8 / 200.9 / 6010)	Other	Comments
+1	MW-1		10/1/04	11:05	3	Voa	X					X	X			X	X															X	8260 Fuel Oxys + Pb scavengers	Filter Samples for Metals analysis: Yes / No
+2	MW-3			10:45																														
+	MW-5			10:22																														
+	MW-6			10:00																														
+2	MW-7			11:48																														
+	MW-8																																	
+	MW-9																																	
+	MW-10			12:40																														

Relinquished By:	Date:	Time:	Received By:
Cindy Mokri	10/1/04	1:48	
Relinquished By:	Date:	Time:	Received By:
Relinquished By:	Date:	Time:	Received By:

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

COMMENTS:

PRESERVATION	VOAS ✓	O&G	METALS pH<2	OTHER