Remedial Investigation/Feasibility Study Report

Former Fiesta Beverages Facility
966 89th Avenue
Oakland, California
ACDEH Fuel Leak Site # RO0000314

September 8, 2006
BEI Job No. 203004

Prepared for:

Mr. Ted Walbey
Fiesta Beverages
7150 Island Queen Dr.
Sparks, NV 89436

Prepared by:

Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395
(510) 521-3773

Fiesta Beverages
7150 Island Queen Dr.
Sparks, NV 89436

10/4/06, 2006

Mr. Barney Chan
Alameda County Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Perjury Statement
Former Fiesta Beverages Facility
966 89th Avenue
Oakland, California
ACDEH Fuel Leak Site # RO0000314

Dear Mr Chan,

"I declare under penalty of perjury, that the information and / or recommendations contained in the attached proposal or report is true and correct to the best of my knowledge."

Ted Walbey, Owner

Limitations

Services performed by Blymyer Engineers, Inc. have been provided in accordance with generally accepted professional practices for the nature and conditions of similar work completed in the same or similar localities, at the time the work was performed. The scope of work for the project was conducted within the limitations prescribed by our client. This report is not meant to represent a legal opinion. No other warranty, expressed or implied, is made. This report was prepared for the sole use of our client, Fiesta Beverages.

Blymyer Engineers, Inc.

By:_____
Mark E. Detterman, PG, CEG
Senior Geologist

And:_____
Michael S. Lewis, REA
Vice President, Technical Services

Table of Contents

Tables

Figures

Appendices

1.0 Introduction

1.1 Background

In August 1990, one 500-gallon and one 1,000-gallon gasoline underground storage tanks (USTs) were removed from the subject site (Figures 1 and 2). Soil and groundwater were reported to be impacted from releases from one or both USTs. Overexcavation of the former UST basins occurred in January 1991. The excavations were reported to have reached approximately 15 feet by 8 feet by 14 feet deep and 12 feet by 7 feet by 14 feet deep, respectively, on January 14, 1991. Beginning in April 1991, aeration of the soil occurred onsite. In April 1993, 74.28 tons of soil was transported to the REMCO recycling facility.

In June 1993, groundwater monitoring wells MW-1, MW-2, and MW-3 were installed by Tank Protect Engineering (*Preliminary Site Assessment Report*, December 15, 1993). In general, the wells encountered black to grey to light brown clay to a depth of approximately 15 feet below ground surface (bgs). At 15 feet bgs, the three bores encountered 0.5- to 2.0-foot-thick clayey sand. Below this unit, a light brown to grey clay was present to a depth of 18 to 21 feet bgs. Underneath this unit, 1- to 3-foot-thick sand was encountered in bores MW-1 and MW-2, while clayey silt was encountered in bore MW-3. Below approximately 21 feet bgs, green-grey or black clay was encountered to the full explored depth of 26.5 feet bgs in bore MW-1 and to 25 feet bgs in bores MW-2 and MW-3. Saturated soil was encountered below a depth of approximately 13 feet bgs (in clay overlaying the uppermost sand unit). The wells were installed with a screened interval between 10 and 25 feet bgs. Groundwater from the three wells was sampled six times between August 1993 and December 1998.

In November 1999, after obtaining appropriate permits, All Cal Property Services, Inc. (All Cal) installed four Geoprobe® soil bores (SB-1 through SB-4, Figure 2) downgradient (north-northwest) from the former location of the two USTs (*Offsite Groundwater Investigation*, December 20, 1999). The bores were installed in the public right-of-way across 89th Avenue from the subject site, in an unpaved portion of the roadway. Soil bores SB-1 and SB-2 were logged to a depth of 16 feet bgs. Silty clay was encountered to a depth of approximately 13 to 14 feet bgs. Below that depth, soil consisted of clayey silt that alternated between moist and saturated for several vertical feet. Bore SB-1 also encountered poorly graded sand at 16 feet bgs. Hydrocarbon odors were present in both

bores at a depth of approximately 6 feet bgs and green discolored soil was present at 10 feet bgs in bore SB-1. Discolored soil and gasoline odors were noted in both bores throughout the clayey silt, while brownish colored clay was present in both bores just above the silt. The groundwater interface appears to have been encountered at an approximate depth of 16 feet bgs in the sand. Sheen was noted at that depth in SB-1. Groundwater samples were obtained from bores SB-1 and SB-2 after pushing the Geoprobe® system to a total depth of 18 feet bgs. Soil bores SB-3 and SB-4 were directly pushed to a total depth of 18 feet bgs in order to obtain grab groundwater samples. Groundwater samples from bores SB-1 and SB-2 contained elevated concentrations of Total Petroleum Hydrocarbons as Gasoline (TPH-G), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Significantly lower concentrations of TPH-G and total xylenes were encountered in the groundwater sample from soil bore SB-3, while all analytes were nondetectable in groundwater collected from soil bore SB-4. No soil samples were submitted for laboratory analysis from the four Geoprobe® bores.

After the review of the January 2001 groundwater monitoring report, the Alameda County Department of Environmental Health (ACDEH) approved the application of a 7% solution of hydrogen peroxide to the wells in an attempt to remediate dissolved constituents. On March 7, 2001, the solution was applied by All Cal and on April 25, 2001, a groundwater monitoring event was conducted to determine if a reduction in dissolved constituents had occurred (*Application of Hydrogen Peroxide into Wells and Second Quarter 2001 Groundwater Monitoring Event*, May 10, 2001). Based on the analytical data, a reduction was seen in wells MW-1 and MW-2, with some reductions also seen in well MW-3. This sampling event and subsequent interpretation were complicated by the presumed mismarking of samples from wells MW-1 and MW-3. No further work at the site is known to have occurred between April 2001 and the March 2003 groundwater monitoring event. Blymyer Engineers was retained in mid-January 2003 to resume groundwater monitoring, to redevelop well MW-1, and to review appropriate future actions for the site at that time.

A review of the groundwater analytical data collected prior to and after the application of a 7% solution of hydrogen peroxide (March 2001) suggest that a rebound of contaminant concentrations in groundwater appears to have occurred since that time (see Tables I through V). If this assumption is correct, the data appear to indicate that the peroxide application did suppress groundwater

concentrations for some period of time; however, it also appears to indicate that the residual contaminant concentrations in soil are an adequate source for the continued degradation of vicinity groundwater. It is likely that the extent of soil removal from the UST basins at the time of the removal of the USTs (August 1990) and at the time of overexcavation (January 1991) was laterally limited due to the immediate proximity of the buildings to the southeast (See Tables VI, VII, and VIII).

On January 16, 2003, a new case manager, Mr. Amir Gholami, was assigned by the ACDEH. On September 17, 2003, a workplan for a Geoprobe® investigation of the site was submitted to the ACDEH by Blymyer Engineers. The intent was to attempt to determine the lateral and vertical extent of impacted soil and groundwater in order to better target the residual contamination in future remedial actions to be determined. Due to the lack of a response from the ACDEH, on February 17, 2004, Blymyer Engineers issued a *Letter of Intent to Proceed: Geoprobe® Investigation.*

The *Fourth Quarter 2003 Groundwater Monitoring Event* report, dated January 6, 2004, recommended that analysis for fuel oxygenates by EPA Method 8260B be eliminated from the analytical program. It was reasoned that the data generated to date had been very consistent, and further quantification would not significantly add to the level of understanding at the site. Additionally, the concentration of methyl *tert*-butyl ether (MTBE) can be monitored using EPA Method 8021B for no additional cost and the resultant concentration of MTBE can be used as a proxy for the approximate concentration of the remaining fuel oxygenates. Based on the lack of response from the ACDEH, it has been presumed that this was found reasonable and acceptable.

On March 15, 2004, Blymyer Engineers issued a letter entitled *Recommendation for Reduction of Groundwater Monitoring* that provided additional rationale for decreasing the groundwater sampling interval from quarterly to semi-annually. It argued that generation of quarterly analytical data would not significantly improve the level of understanding of impacts to the subsurface at the site, and recommended a reduction of the sampling interval to semi-annual. Based on the lack of response from the ACDEH, it has been presumed that this was found reasonable and acceptable.

On December 14, 2004, Blymyer Engineers issued to the ACDEH the *Report on a Geoprobe® Subsurface Investigation* which documented the installation of nine Geoprobe® soil bores (GP-1 through GP-9, Figure 2) at the site. The work further refined the known lateral and vertical extent of

soil impacted by the petroleum release at the site. Grab groundwater samples in the upgradient and the eastern cross-gradient directions defined all petroleum compounds in groundwater to concentrations below the San Francisco Bay Regional Water Quality Control Board (RWQCB) Environmental Screening Levels (ESLs). Grab groundwater samples in the downgradient and western cross-gradient directions were unable to define most petroleum compounds to concentrations below the RWQCB ESLs. The installation of additional permanent groundwater monitoring wells was recommended as appropriate at the site in order to allow for groundwater sampling from a "repeatedly accessible location". It was reasoned that data generated from these locations will assist in determining appropriate remedial actions, and in monitoring remedial progress.

On July 6, 2005, the new case manager for the ACDEH, Mr. Barney Chan, issued the letter *Fuel Leak Case RO0000314* commenting on the December 14, 2004 report. The ACDEH determined that the collection of additional data was needed to progress the site towards closure. The letter requested a workplan to clear well MW-1 of several feet of sediment due to the potential for groundwater gradient biasing, requested further definition of the groundwater and soil plumes through the installation of additional wells and soil bores, requested a conduit study, and requested a Feasibility Study and Remedial Action Plan.

Blymyer Engineers submitted the *Workplan for Remedial Investigation / Feasibility Study*, on October 10, 2005. The Workplan detailed the procedures for the collection of Remediation by Natural Attenuation (RNA) analytical parameters from existing wells as an initial phase of a Remedial Investigation / Feasibility Study (RI/FS), as well as the installation of four additional groundwater monitoring wells, and the destruction and reinstallation of groundwater monitoring well MW-1. On November 18, 2005, the ACDEH issued the letter *Fuel Leak Case RO0000314* commenting on the Workplan. The ACDEH requested the following:

- The addition of two wells at specified locations for further plume characterization,
- Use of a maximum of 10 feet of screen in the wells,
- Confirmation of the presence of MTBE by EPA Method 8260 if MTBE concentrations rose significantly, and

- Collection of the RNA parameters.

The ACDEH requested confirmation that the additional wells would be added by December 19, 2005, and that a RI/FS report would be submitted by February 19, 2006. Confirmation that the additional wells would be included was provided by telephone in December 2005; however, permitting issues delayed installation of the wells.

1.2 Site Conditions

The subject site consists of two buildings (960 and 966 89th Avenue) on the southeast side of 89th Avenue in the city of Oakland, Alameda County, California (Figures 1 and 2). The site is situated in an industrial district of the city, and is bounded on the north by 89th Avenue, on the west and east by small warehouses and industrial buildings, and on the south by an older residential community. Across 89th Avenue are additional small warehouses and industrial facilities. The site is currently leased by two occupants, Best Equipment (966 89th Avenue), a custom builder of towing equipment, and an importer of Chinese food goods (960 89th Avenue), a warehouser. The current study area is located at the front of both addresses, in and just outside the area normally reserved as sidewalk. The investigation area is paved with asphalt, except the interior of the buildings, which consist of slab-on-grade concrete.

Based on existing evidence and the comments of Ted Walbey of Fiesta Beverages, the former UST system was a suction system with a single dispenser located approximately 5 feet inside the roll-up door closest to the former tank system. A vent line remains fastened to the northern wall of the building at 966 89th Avenue.

1.3 Proposed Scope of Work

The following proposed scope of work for the subsurface investigation was contained in the original RI/FS workplan:

- Collect additional groundwater analytical parameters from existing wells, including the field-monitored parameters dissolved oxygen (DO), Oxidation Reduction Potential (ORP), ferrous iron as well as laboratory analysis of groundwater samples for Carbon Dioxide by Standard Method 5310B; Nitrate and Sulfate by Standard Method E300.1; and Methane by Method RSK 174. The existing suite of contaminant analytes was not otherwise changed.

- Secure all required permits.
- Revise the site-specific health and safety plan.
- Locate utilities and conduct conduit survey.
- Install four groundwater monitoring wells (MW-4 through MW-7), destroy one well (MW-1), and reinstall one well (MW-1R).
- Develop and sample new monitoring wells.
- Submit one or more soil samples for laboratory analysis at a California-certified analytical laboratory based upon the highest PID reading, or lacking an elevated PID reading, the soil sample from the groundwater interface would be submitted.
- Analyze soil and groundwater samples for analysis of TPH-G using modified EPA Method 8015; and for BTEX, and MTBE by EPA Method 8021B.
- Request that the analytical results be provided in EDF format for uploading to the state's GeoTracker database.
- Survey the vertical elevation of the top-of-casing of all permanent wells relative to mean sea level in conformance with GeoTracker requirements. Depth to groundwater would be measured in each well using an oil-water interface probe and would be used to calculate the groundwater flow direction and gradient.
- Generate a RI/FS report to document the results of the remedial investigation. Assuming that no additional investigatory work was recommended, the report would also include a feasibility study evaluating at least three remedial alternatives for soil and groundwater based on technical and economic feasibility to achieve ESL goals. One remedial alternative would be recommended in the feasibility study.

1.4 Required Changes to the Proposed Scope of Work

As previously noted, two additional wells (MW-8 and MW-9), for a total of six new wells, were requested by the ACDEH in the November 18, 2005 letter.

2.0 Environmental Setting

2.1 Regional Geology and Hydrogeology

The site is located in the gently sloping East Bay Plain of the San Francisco Bay Area, approximately 1.5 miles feet east of San Leandro Bay in the Alameda - Oakland Estuary at an approximate elevation of 18 feet National Geodetic Vertical Datum.

The San Francisco Bay Area is a region dominated by northwest trending topography, located in the Coast Range Province of California. The topography of the region reflects activity of a major fault system that includes the San Andreas Fault Zone on the west side of San Francisco Bay and the Hayward Fault at the base of the Berkeley Hills on the east side of the Bay, which defines the base of the Berkeley Hills. Rock types in the region range from Jurassic and Cretaceous aged sedimentary, volcanic, metamorphic, and plutonic basement, to Quaternary alluvium (Norris and Webb, *Geology of California*, 1990).

The property has been mapped (R.W. Graymer, *Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California*, Miscellaneous Field Studies MF-2342, 2000) to be just on the northerly edge of an abandoned stream levee deposit north of the current location of San Leandro Creek. The levee was formed when San Leandro Creek had a more northerly discharge point into the Estuary. The area north across 89th Avenue was mapped to lie in a low basin between adjacent stream levees (Arroyo Viejo to the north and the older San Leandro Creek levee to the south), at the distal end of the stream levees as they discharged into the Estuary. Both deposits are Holocene in age. The levee deposits are characterized by Graymer as "Loose, moderately-sorted to well-sorted sandy or clayey silt grading to sandy or silty clay. These deposits are porous and permeable and provide conduits for transport of ground water. Levee deposits border stream channels, usually both banks, and slope away to flatter floodplains and basins." (pg. 7, op. cite.). These units were derived from the adjacent Jurassic and Cretaceous rocks of the nearby East Bay hills.

The regional groundwater flow direction is generally towards the Estuary. A small tributary, situated between Arroyo Viejo and San Leandro Creek, appears to drain the area of cultural infrastructure developed over the lower basinal deposits discussed above. Based on the documented

groundwater flow direction to the northwest at the site, this smaller tributary likely exerts some localized influence on the direction of groundwater flow at the site.

2.2 Climate

The East Bay Plain exhibits a Mediterranean-type climate with cool, wet winters and warmer, dry summers. Mean annual precipitation in Oakland is 25.19 inches. Mean monthly rainfall is 6.09 inches in January and 0.01 inches in July. Mean maximum temperatures are 55.5 degrees Fahrenheit (°F) in January and 78.2°F in September; mean minimum temperatures are 39.3°F in January and 53.8°F in September; the average minimum temperature was 47.2°F and the average maximum temperature was 68.7°F (Western Regional Climate Center; January 1899 to July 1958; www.wrcc.dri.edu).

2.3 Regional Setting and Use of Generic RWQCB ESL

The site is located on the eastern edge of an industrial area that is not known to use near surface groundwater as a drinking water source; however, as delineated in the *Groundwater Basin Plan Amendments* (RWQCB, August 2004), deeper portions of the area are considered to be a current or a probable source of drinking water. Because use of the near surface groundwater as a drinking water source is judged relatively unlikely, Blymyer Engineers has provided comparisons to non-drinking water ESL goals contained in Table B or D of the February 2005 RWQCB, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater.* However, ESL goals for drinking water sources are additionally provided to enable further comparisons.

3.0 Remedial Investigation Data Collection

3.1 Installation of Groundwater Monitoring Wells

Blymyer Engineers submitted a *Drilling Permit Application* to the Alameda County Public Works Agency (ACPWA) to obtain a drilling permit for the abandonment of well MW-1 and installation of wells MW-1R and MW-4 through MW-9. Additionally a *Traffic Control Permit*, a *Minor Encroachment Permit* (ENMI06152), and an *Excavation Permit* (X0600512), were obtained from the City of Oakland. Copies of the permits are enclosed in Appendix A. Utilities were cleared under Underground Service Alert (USA) Ticket Number 114600. A private locator service provided additional onsite clearance services.

On May 8 and 9, 2006, Blymyer Engineers mobilized to the site to abandon well MW-1 under Drilling Permit Number W2006-0276, and to install four of seven permanent groundwater monitoring wells (MW-1R, and MW-4 through MW-6; Figure 2) under Drilling Permit Numbers W2006-0269 through W2006-0275. Groundwater monitoring well MW-1 was abandoned, and wells MW-1R, and MW-4 through MW-6 were installed by ResonantSonic International (C57 – 802334) using a limited access AMS 9630 PowerProbe drill rig, with Geoprobe and hollow-stem auger capabilities. On June 2, 2006, Blymyer Engineers remobilized to the site to install the remaining wells (MW-7 through MW-9; Figure 2) with a ResonantSonic International CME-75 Hollow-Stem Augur drilling rig. All wells were installed or abandoned under the direction of a Blymyer Engineers geologist.

Well MW-1R was installed approximately 13 feet northeast from the location of well MW-1 due to lateral utility constraints and a concern that the failure of the well may have been induced by proximity of the wall of the former tank excavation to the well.

Well MW-1 was permanently abandoned on May 8, 2006. The well was overdrilled to a depth of 27 feet bgs and removed, and the borehole was backfilled with cement grout with <5% bentonite using a tremie pipe. Wells MW-1R and MW-4 through MW-6 were installed in the shallow water-bearing zone at a total depth of 20 to 22 feet bgs on May 8 and 9, 2006. Wells MW-7 through MW-9 were installed in the shallow water-bearing zone at a total depth of 20 to 22 feet bgs on June 2, 2006. The total depth of the well was dependant upon the depth at which groundwater was first encountered; the soil bores for wells MW-1R, MW-4, MW-7, and MW-9 encountered thicker sections of clayey

soils prior to encountering groundwater, or were judged slower to recharge, and are consequently slightly deeper wells. Soil samples were continuously collected using the Geoprobe sampling technique in wells MW-1R and MW-4 through MW-6, prior to enlarging the borehole with 8-inch outside-diameter hollow stem augers. In these four wells, the 1.25-inch diameter acetate sleeves were recovered in 4-foot long intervals and were field screened with a PID and for lithological description. Because wells MW-7, MW-8, and MW-9 were installed with a standard drive hollow-stem auger drilling rig, the soil bores were sampled at a minimum of 5-foot depth intervals. The soil sample exhibiting the highest PID reading, or the soil sample collected from the interval above the depth that groundwater was first encountered, was submitted for laboratory analysis. One additional soil sample from wells MW-1R and MW-6 was also submitted for laboratory analysis for vertical delineation purposes. All soil samples were collected in general conformance with previously forwarded Blymyer Engineers Standard Operating Procedures (SOPs). Soil descriptions and PID results are shown in the bore logs, included in Appendix B.

The soil bores were converted to 2-inch-diameter groundwater monitoring wells using Schedule 40 PVC casing, with a 10-foot section of factory-slotted 0.010-inch screen in the wells. The annulus between the borehole wall and the PVC casing was filled with Number 2/12 filter sand from the bottom of the borehole to 1 foot above the screened interval. One to two feet of bentonite pellets were then placed in the annulus and hydrated to form a surface seal. The remaining annular space was filled with concrete grout with <5% bentonite and traffic-bearing manholes were set in concrete over the top of each monitoring well. The well casings were sealed with expandable plug caps and secured with padlocks. The monitoring well installation was performed in general conformance with previously forwarded Blymyer Engineers SOPs. Well construction activities were witnessed by an ACPWA field inspector on May 8, 2006. Well construction details are shown on the bore logs, included in Appendix B.

All soil cuttings generated during monitoring well installation were placed in DOT-approved, 55-gallon, open-top drums, which were labeled and left on-site pending disposal. All decontamination fluids generated during monitoring well installations were also placed in DOT-approved, 55-gallon, open-top drums, which were labeled and left on-site pending disposal.

3.2 Monitoring Well Development and Sampling Procedures

A minimum of 60 hours was allowed to lapse after well installation prior to initiation of well development in order to allow the grout and concrete to properly set. On June 2 and 5, 2006, Blaine Tech Services, Inc., (Blaine) mobilized to the site to develop the groundwater monitoring wells. Per standard protocol, the wells were developed until either the groundwater appeared to be clear of sediment, or until a maximum of 10 well volumes of groundwater had been removed. In each well, the removal of 10 well volumes of groundwater was required. The monitoring wells were developed in general conformance with previously forwarded Blaine SOPs.

After waiting a minimum of 72 hours after well development to allow the aquifer to recover from development, the new and existing monitoring wells were sampled. On June 12 and 13, 2006, Blaine mobilized to the site to monitor and sample the groundwater monitoring wells. After checking for the presence of free-phase product (FPP) and measuring the depth to groundwater using an oil-water interface probe, a groundwater sample was obtained from all monitoring wells. The monitoring wells were purged of a minimum of three well volumes prior to sampling. Groundwater sample collection procedures were performed in general conformance with previously forwarded Blaine SOPs. The Blaine *Well Development Data Sheets*, *Well Gauging Data*, and *Well Monitoring Data Sheets* for well development and sampling are included in Appendix C. Depth to water measurements are summarized in Table I.

All development and purge water was placed in DOT-approved, 55-gallon, closed-top drums, which were labeled and left on-site pending disposal.

3.3 Soil and Groundwater Sample Analytical Methods

Soil and groundwater samples were submitted to McCampbell Analytical, Inc. (McCampbell), a California-certified laboratory located in Pacheco, California. All samples were analyzed for TPH-G using modified EPA Method 8015; BTEX, and MTBE by EPA Method 8021B; Carbon Dioxide by Standard Method 5310B; Sulfate and Nitrate by Standard Method E300.1; and Methane by Method RSK 174. The groundwater sample with the highest detected concentration of MTBE by EPA Method 8021B was selected for reanalysis by EPA Method 8260B for all fuel oxygenates. This analytical method includes the fuel oxygenates *tert*-Butyl Alcohol [TBA], Di-isopropyl Ether

[DIPE], Ethyl *tert*-Butyl Ether [ETBE], and Methyl *tert*-Amyl Ether [TAME], the lead scavengers 1,2-Dibromoethane (EDB) and 1,2-Dichloroethane (1,2-DCA), as well as ethanol and methanol.

The soil and groundwater analytical results for TPH-G, BTEX, and MTBE are summarized in Tables II, III, V, and VII. The laboratory analytical reports for all soil and groundwater analyses are included in Appendix D.

3.4 Well Surveying

On June 21, 2006, CSS Environmental, Inc. (CSS) surveyed the TOC elevations and horizontal coordinates for the new monitoring wells (MW-1R, and MW-4 through MW-9). CSS used previously existing marks on the top of each well casing as the reference point for the survey. The *Monitoring Well Survey Results* from CSS are included in Appendix E.

3.5 Conduit Survey

On April 21, 2006, a conduit survey was conducted at the site partly to clear underground utilities for proposed borehole locations for drilling. The results are depicted on Figure 3. In general, the depths of these utilities will be no deeper than 8 - 10 feet bgs. The East Bay Municipal Utility District (EBMUD) field representative reported that the water main running beneath 89th Avenue is constructed of Transite and that the backfill was most likely native soil. This decreases the potential that this utility is a conduit. The sanitary sewer is expected to be the deepest buried utility. Consequently, the manhole for the sewer main was removed and the pipe invert depth was measured to be approximately 8 feet bgs. With groundwater as shallow as 12 feet bgs, it is therefore assumed, that the utility corridors will not act as significant conduits for groundwater movement and therefore contaminant migration.

4.0 Data Interpretation

4.1 Site Geology and Hydrogeology

The soil lithology encountered during the current investigation did not vary significantly with that encountered during the Geoprobe investigation conducted in September 2004, or the prior two subsurface investigations at the site, conducted by others (op. cite.). In general, beneath surface paving, soil in the site vicinity is predominately composed of silty clay to a depth of approximately 12 to 16 feet bgs. Beneath these approximate depths, either clayey silt or wet sandy clay to clayey sand was encountered. If clayey silt was encountered, it was generally interbedded with silty clay. If the sandy clay to clayey sand was present, it was generally interbedded with clayey silt. In at least three soil bores, at an approximate depth of 19.5 to 20 ft bgs, a silty clay unit was encountered to the full depth of exploration (up to 22 feet in soil bore MW-9). Two cross-sections have been generated from the data and are depicted in Figures 4 and 5.

Depth to groundwater ranged from 14.5 to 15.5 feet bgs, and was generally dependant upon the upper boundary between the surficial clay and the slightly more granular water-bearing units at depth. Consistent with previous investigations, groundwater field stabilized at higher elevations depending on the length of time the bore was allowed to remain open, and thus appears to be semi-confined. Groundwater in most Geoprobe bores was encountered between the depths of 12.0 to 13.0 feet bgs; however, groundwater was also encountered in three Geoprobe bores at approximately 14.5 to 15.5 feet bgs. Soil type again appeared to have influenced the deeper first-encounter depth for these three soil bores (a thicker clay section). Both investigations prior to the Geoprobe investigation encountered groundwater at 15 to 16 feet bgs.

In general the silty clay unit was dark brown to black to a depth of approximately 8 to 11 feet bgs. A light olive brown, dark brown, or dark grey coloration was present beneath this approximate depth. Soil from all bores except MW-1R returned non-detectable organic vapors when checked with a PID. A sharp decrease in PID response was observed in soil below groundwater in this bore. For detailed lithologic descriptions, please refer to the soil bore logs included in Appendix B. For a copy of all previous bore and well logs, and well construction details, please refer to Appendix F.

4.2 Discussion of Soil Sample Analytical Results

Except for soil from MW-1R, all soil samples from up- and downgradient wells yielded nondetectable concentrations of TPH-G, BTEX, and MTBE. In soil from MW-1R, TPH-G was present at a concentration of 450 mg/Kg at a depth of 7 feet bgs, but decreased to 60 mg/Kg at a depth of 13.5 feet bgs, just above the first occurrence of groundwater at approximately 14.5 feet bgs (Table VII). PID responses correlate well these concentrations, and drop sharply below groundwater. The laboratory included a note for these samples that indicated that the hydrocarbon identified was unmodified or weakly modified gasoline, and also contained an unrecognized pattern. At these same depths in well MW-1R, benzene was present at 4.8 and 0.34 mg/Kg; toluene at 18 and 1.8 mg/Kg; ethylbenzene at 8.2 and 0.73 mg/Kg; and total xylenes at 45 and 3.3 mg/Kg. MTBE was not detected; however, the detection limit was slightly elevated in the soil sample from 7 feet bgs. As noted during the previous investigation, the concentration of total xylenes is higher than the concentration of benzene, and suggests the preferential degradation of benzene over total xylenes in soil.

The installation of the soil bores for the groundwater monitoring wells has allowed further refinement of the known lateral and vertical extent of soil impacted by the petroleum release. The concentration of fuel hydrocarbons in relatively shallow soil (approximately 6 to 12 feet bgs interval), and in relatively deep soil (approximately 12 to 16 feet bgs interval) has been defined in all directions as demonstrated for TPH-G and benzene in Figures 6 through 9.

A notable decrease in analyte concentrations in soil is apparent with an increasing depth interval. The principal area where fuel hydrocarbons appear to exceed generic *drinking water* ESL goals for soil deeper than approximately 12 feet bgs is in the vicinity of the former UST basin (MW-1R, but also likely MW-1, MW-3, and perhaps downgradient location GP-6). Generic *non-drinking* water ESL goals were not exceeded for any compound beneath approximately 12 feet bgs, except perhaps at GP-6. As noted in the previous investigation, higher concentrations of TPH-G appear to be relatively isolated, and may represent locations near a source (MW-1, MW-1R, GP-5, and GP-2; the latter based on PID results only). The presence of slightly higher concentrations at GP-6 and GP-8 are judged likely to indicate lateral migration of fuel hydrocarbons, for GP-8 possibly through very thin, more porous, bedding units within the upper clay unit in the vadose zone (Table VII).

In the previous Geoprobe investigation (*Report on a Geoprobe Subsurface Investigation,* November 18, 2004), use of leaded fuel was investigated. The removal of the UST in 1990, shortly after the increased use of MTBE in gasoline fuel (beginning around 1986), and the lack of detectable MTBE in soil had indicated that the use of lead should be evaluated in the analytical program. Three soil samples, selected based on elevated PID responses or position just above groundwater, were submitted to the laboratory. Total lead was detectable in samples and ranged from 10 to 12 mg/Kg, below all regulatory thresholds of concern (Table VIII). Total Organic Carbon (TOC) from uncontaminated upgradient soil sample GP-3-15.5 yielded a relatively elevated concentration of 1,500 mg/Kg. This most likely indicates that soil has a higher adsorptive capacity for petroleum compounds.

Analytical results for the recently collected soil samples are summarized in Table VII. Copies of the analytical reports are included in Appendix D.

4.3 Discussion of Groundwater Analytical Results

TPH-G and BTEX were nondetectable in groundwater collected from upgradient well MW-5, in cross gradient wells MW-4 and MW-6, and in downgradient wells MW-7, MW-8, and MW-9. MTBE was detected in only wells MW-1R, MW-2, MW-4, and MW-9. The concentration of TPH-G in groundwater MW-1R, relocated approximately 13 feet northeastwards from MW-1, decreased significantly from previous groundwater samples collected from well MW-1. TPH-G was present in groundwater from well MW-1R at a concentration of 90 μg/L, benzene at 24 μg/L, total xylenes at 1.9 μg/L, and MTBE at 7.0 μg/L. The concentration in well MW-2 was very similar to the previous groundwater sample during the previous sampling event in June 2005, while concentrations decreased in well MW-3 from the previous sampling event. Only the concentration of benzene in groundwater collected from well MW-2 exceeded the generic *non-drinking water* RWQCB ESL of 46 μg/L, whereas the concentration of benzene in wells MW-1R, MW-2, and MW-3 exceeded the generic *drinking water source* ESL (Table II). MTBE also exceeded the *non-drinking water* ESL in all wells it was detected in; however, in no wells did it exceed the *non-drinking water* ESL or the drinking water Maximum Contaminant Level (MCL). The laboratory included a note for all samples with detectable results that indicated that the hydrocarbon identified was unmodified or weakly modified gasoline. The majority of groundwater samples did not return detectable concentrations of fuel hydrocarbons. When detected, the concentration of TPH-G ranged from 90 to 150 μg/L,

benzene from 3.1 to 59 μg/L; toluene from 1.8 to 3 μg/L; ethylbenzene was present only in well MW-2 at a concentration of 3.4 μg/L; total xylenes was present only in well MW-2 at a concentration of 2.7 μg/L; and MTBE was present in four wells ranging from a concentration of 5.6 to 11 μg/L.

The presence of MTBE in groundwater from well MW-2 was confirmed by analysis by EPA Method 8260, which returned a concentration of 7.6 μg/L MTBE. Additionally, TAME and TBA were detected at a concentration of 4.5 and 6.5 μg/L, respectively. No other fuel oxygenate, lead scavenger, ethanol or methanol was detected by this alternate method. TAME does not have a RWQCB ESL value; however, the ESLs (*drinking water* and *non-drinking water*, respectively) for TBA are 12 and 18,000 μg/L and for MTBE are 5 and 1,800 μg/L. The MCL for MTBE is 13 μg/L.

The previous Geoprobe investigation (op. cite.) documented a general but not precise correlation between higher grab groundwater contaminant concentrations and bore locations with higher soil contaminant concentrations. This is not an unusual correlation, and indicates that the elevated grab groundwater sample concentrations are not typical of actual groundwater concentrations (Table VI). While a reliable "quick and dirty" exploration technique which allows rapid delineation of a contaminant plume in soil and groundwater, the technique yields groundwater data which must be discounted when more reliable groundwater data is subsequently collected. Further evidence for this is that the ratio of xylene to benzene concentrations observed in the grab groundwater samples are very similar to the ratio seen in soil at the site, but are not similar to the ratio in groundwater collected according to standard purge and sample techniques (Table II).

Plots of TPH-G or benzene and groundwater elevation vs. time have been generated for wells MW-1 and MW-3 (Figures 10 through 13). In well MW-1 there is a good correlation between a rise in groundwater elevation and a decrease in the concentration of both TPH-G and benzene. In well MW-3 there is a generally good correlation between a rise in groundwater elevation and a rise in the concentration of both TPH-G and benzene. Consequently there appears to be both recontamination of groundwater upon rise up into contaminated soil as well as drainage from soil to groundwater as groundwater drops in elevation at the site and in the different wells.

Groundwater isoconcentration maps for TPH-G, benzene, and MTBE were also generated (Figures 14 through 16). Installation of wells MW-4 through MW-9 has delineated the known lateral and downgradient extent of groundwater impacted by TPH-G and benzene, while the extent of MTBE

impact has been delineated to 5.6 μg/L, just over the *drinking water* ESL (5.0 μg/L), but under the MCL (13 μg/L) and the *non-drinking water* ESL for groundwater (1,800 μg/L). Analytical results for the recently collected groundwater samples are summarized in Tables II and III. A copy of the analytical report is included in Appendix D.

4.4 Intrinsic Bioremediation Groundwater Sample Analytical Results

Tables IV and V present the analytical results of the RNA indicator parameters. Microbial use of petroleum hydrocarbons as a food source is affected by the concentration of a number of chemical compounds dissolved in groundwater at a site. RNA monitoring parameters were established by research conducted by the Air Force Center for Environmental Excellence. The research results were used to develop a technical protocol for documenting RNA in groundwater at petroleum hydrocarbon release sites (Wiedemeier, Wilson, Kampbell, Miller and Hansen, 1995, *Technical Protocol for Implementing the Intrinsic Remediation with Long Term Monitoring for Natural Attenuation of Fuel Contamination Dissolved in Groundwater, Volumes I and II*, U.S. Air Force Center for Environmental Excellence, Brooks Air Force Base, Texas). The protocol focuses on documenting both aerobic and anaerobic degradation processes whereby indigenous subsurface bacteria use various dissolved electron acceptors to degrade dissolved petroleum hydrocarbons. A copy of the results of groundwater intrinsic bioremediation analyses is included in Appendix D.

In the order of preference, the following electron acceptors and metabolic by-products are used and generated, respectively, by the subsurface microbes to degrade petroleum hydrocarbons: oxygen to carbon dioxide, nitrate to nitrogen, manganese (Mn^{4+} to Mn^{2+}), ferric iron (Fe^{3+}) to ferrous iron (Fe^{2+}), sulfate to hydrogen sulfide, and carbon dioxide to methane. With the exception of oxygen, use of all other electron acceptor pathways indicates anaerobic degradation. Investigation of each of these electron acceptor pathways, with the exception of the manganese pathway, was conducted at the site as part of the evaluation of RNA chemical parameters.

Microbial use of petroleum hydrocarbons as a food source is principally affected by the concentration of dissolved oxygen (DO) in the groundwater present at a site; it is the preferred electron acceptor for the biodegradation of hydrocarbons. Both pre-purge and post-purge values were recorded during this event. DO was present in pre-purge groundwater in concentrations ranging from 0.37 milligrams per liter (mg/L) in well MW-8 to 3.10 mg/L in the groundwater

sample from well MW-6. Other than decreased concentrations of DO, trends in post-purge DO concentrations were generally not present. Except for wells MW-6 and MW-9, the post-purge concentration of DO was tightly spaced, ranging from 0.27 to 0.37 mg/L. Wells MW-6 and MW-9 contained 0.81 and 1.87 mg/L, respectively. In general, it appears that oxygen is an RNA-limiting reaction in the vicinity of the site.

ORP is another measure of the supply and use of oxygen at a site. The higher the reading in millivolts (mV), the more oxygenated the subsurface environment is, and the lower the readings, the more anaerobic or reducing the subsurface environment is. This is the second time these data have been collected at the site. The pre- and post-purge ORP values are very similar and suggest an oxygenated subsurface environment; however, the exceptionally close similarity between these two measurements in each well suggests that the ORP values are suspect. As a consequence, the data has been discounted for the current groundwater monitoring event.

One of the by-products of microbial hydrocarbon degradation is the conversion of oxygen to carbon dioxide. The range of carbon dioxide concentrations was also fairly tight during the current groundwater monitoring event; however carbon dioxide in downgradient well MW-8 was slightly elevated, and may indicate some microbial activity upgradient of the well.

Should oxygen be in insufficient supply in groundwater, the next preferred electron acceptor is nitrate, which creates denitrifying conditions. In denitrifying conditions, nitrate concentrations decrease in the contaminant plume over background nitrate concentrations. This is the general trend at the site, with distinctly lower nitrate concentrations in wells MW-1R, MW-2, and MW-3 in comparison to the remainder of the wells.

Following the continuing trend of electron acceptors at the site, ferrous iron concentrations were evaluated at the site. Ferrous iron concentrations are expected to rise as subsurface microbes convert ferric iron to ferrous iron. While ferric iron concentrations were not quantified, ferrous iron concentrations displayed no observable trend. The highest concentration was detected in well MW-7, containing a post-purge concentration of 0.2 mg/L. All other wells contained no detectable concentrations of post-purge ferrous iron and in most cases no detectable pre-purge ferrous iron concentration. The nondetectable ferrous iron concentration at the site vicinity suggests contaminant concentrations at the site do not allow the microbes to convert a significant portion of ferric iron to ferrous iron.

Continuing the trend of electron acceptors at the site, sulfate concentrations were also evaluated as part of the evaluation of RNA chemical parameters. If utilized by the microbes, sulfate concentrations, like nitrate concentrations, decrease in the contaminant plume over background sulfate concentrations. Sulfate concentrations ranged between 33 and 51 mg/L. While plume core well MW-3 did contain the lowest concentration of sulfate, sulfate concentrations were also tightly ranged and no overall trend was observable. Conversion of the sulfate to hydrogen sulfide can influence the pH of the groundwater (lower pH values with higher hydrogen sulfide concentrations). This was not observed at the site.

Further along the trend of electron acceptors, the conversion of carbon dioxide to methane was investigated at the site. The presence of methane in groundwater can be attributed to fermentation of natural organic matter as well as petroleum hydrocarbons. However, if utilized by the microbes, methane would increase relative to carbon dioxide. This is the trend observed at the site. Wells MW-1R, MW-2, and MW-3 contained significantly higher concentrations of methane relative to the remaining wells (24, 45, and 55 μg/L respectively, vs. <0.5 to 1.5 μg/L).

A comparison to the RNA parameters collected from well MW-1 during the previous monitoring event indicates that groundwater from well MW-1 contained elevated carbon dioxide, significantly lower nitrate and sulfate, and significantly higher methane concentrations, all are indicative of elevated microbial degradation in groundwater collected from this well. A review of the RNA parameters obtained from well MW-2 and MW-3 during the previous RNA sampling event also indicated that these two wells were significantly less impacted than well MW-1.

For the site as a whole the limited area of hydrocarbon degradation suggested by the RNA data, collectively with the laboratory notes indicating relatively unmodified gasoline range hydrocarbons are present in soil and groundwater samples, and the continued recontamination of groundwater documented by graphs depicted on Figures 10 through 13, appear to document a site that is undergoing anaerobic microbial degradation, is RNA is oxygen limited, has reached stability with the surrounding area, and will not progress significantly further without remedial efforts.

4.5 Groundwater Elevations and Gradient

Recently surveyed top-of-casing (TOC) elevations were used to construct a groundwater gradient map (Figure 17). Groundwater depths during this monitoring event ranged between 8.25 to 8.75 feet below the top of the casings. Depth to groundwater decreased an average of 0.82 feet from the

previous event in June 2005; however, this can be misleading. The depth to groundwater in well MW-2 decreased by 1.26 feet, while in well MW-3 it decreased by 0.38 feet. Because well MW-1 was destroyed and all other wells were recently installed no other wells could provide a historic water level comparison. Groundwater appears to flow to the west-northwest during this event. This direction is generally consistent with historic trends. Except for the First Quarter of 2003, previous sampling reports available for review indicate that the historic groundwater flow direction has been to the northwest to north-northwest. During the First Quarter of 2003, an unusual eastward directed gradient was documented, and during the December 2004 semi-annual event, groundwater appeared to be flowing towards the south, although during the latter event it was surmised that potential infiltration of surface water into well MW-2 may have been the cause due to a poor surface seal. This has since been corrected by replacing the locking expansion cap. The average groundwater gradient was calculated to be 0.008 feet/foot for the current monitoring event.

5.0 Remedial Investigation Conclusions

The following conclusions can be made from the data generated at the site:

- Groundwater monitoring well MW-1 was destroyed and replaced by well MW-1R due to continued inflow of well pack sand at an approximate depth of 10 feet bgs, after several attempts to rehabilitate the well.

- Seven wells were installed, including replacement well MW-1R, in the vicinity of the site to further delineate the extent of soil and groundwater impacts at the site. Well MW-1R was installed approximately 13 feet northeast from the location of well MW-1 due to lateral utility constraints and a concern that the failure of MW-1 may have been induced by proximity of the wall of the former tank excavation to the well.

- The data collected has achieved vertical delineation, as well as upgradient, lateral, and downgradient delineation of all hydrocarbon compounds in soil and groundwater, with the exception of MTBE in groundwater. MTBE was delineated to below the MCL and the *non-drinking water* ESL goal for the compound.

- Due to depth of burial the utility corridors do not appear to be acting as significant conduits for groundwater movement and therefore contaminant migration. The sewer lateral for 966 89th Avenue, while not precisely located, likely runs towards the sewer main just to the east of the UST excavations. Continued water supply through this conduit could have had the potential to mobilize fuel hydrocarbons in the vadose zone. The presence of slightly higher concentrations in soil at GP-8 may possibly indicate lateral migration of fuel hydrocarbons, perhaps initially along this conduit, and then through very thin, more porous, bedding units within the upper clay unit in the vadose zone. It is also possible that the homogenized native backfill reported to have been likely used in the EBMUD Transite main acted as a partial barrier to further significant migration of hydrocarbons.

- The extent of soil that exceeds the generic *non-drinking water or drinking water* RWQCB ESL goals for petroleum hydrocarbons was defined. Because the site is in an area that is not known to extensively use groundwater as a drinking water source, the numeric goals were predominately compared to *non-drinking water* ESL goals. Higher concentrations of TPH-G

appear to be relatively isolated near the former source (MW-1, MW-1R, GP-5, and GP-2; the latter based on PID results only). The presence of slightly higher concentrations at GP-6 or GP-8 likely indicate lateral migration through the clay units in the vadose zone in very thin, more porous, bedding units.

- The lateral extent of soil with concentrations of benzene over the generic RWQCB ESL for areas of *non-drinking water* sources is more extensive, but has been delineated.

- A notable decrease in analyte concentrations in soil is apparent with increasing depth. Generic *non-drinking water* ESL goals were not exceeded for any compound beneath approximately 12 feet bgs.

- All fuel hydrocarbon compounds in groundwater, including MTBE, were delineated to concentrations below the generic *non-drinking water* RWQCB ESLs. MTBE in groundwater was delineated downgradient to a concentration of 5.6 µg/L, slightly over the drinking water ESL of 5.0 µg/L for MTBE, but below the MCL, and generic *non-drinking water* RWQCB ESL goal for the compound.

- High grab groundwater concentrations are considered non-representative of actual groundwater concentrations based on contaminant concentrations contained in groundwater samples collected from developed wells, and based on the ratio of total xylenes to benzene that is typical of that observed in soil, but not of groundwater samples collected from developed wells.

- The distribution of nitrate, methane and dissolved oxygen indicate that the TPH-G groundwater plume is undergoing anaerobic degradation. Specifically, the elevated concentrations of nitrate observed in perimeter wells MW-4 through MW-9, in comparison to the concentration of nitrate in plume core wells MW-1/1R, MW-2 and MW-3, where the concentration is reduced to essentially one-half of its perimeter levels, and the correspondingly high methane concentrations in the plume core area suggest that active anaerobic degradation is occurring. The source of nitrate is likely leaking sewer lines located along 89th Avenue.

- For the site as a whole, the limited area of hydrocarbon degradation suggested by the RNA

data, collectively with the laboratory notes indicating relatively unmodified gasoline range hydrocarbons are present in soil and groundwater samples, and the continued recontamination of groundwater documented by graphs depicted on Figures 10 through 13, appear to document a release that is undergoing anaerobic microbial degradation, is RNA is oxygen limited, has reached stability with the surrounding area, and will not progress significantly further without remedial efforts.

- Previous analysis of soil samples with elevated TPH-G concentrations for total lead yielded low concentrations, significantly below all RWQCB ESLs.

- Previous analysis of soil for TOC from an uncontaminated upgradient soil sample from Geoprobe bore GP-3 yielded a relatively elevated concentration of 1,500 mg/Kg. This most likely indicates that soil has a higher adsorptive capacity for petroleum compounds.

6.0 Feasibility Study - Site Conceptual Model

This feasibility study has been developed with consideration to the site as an active business and no current plan exists for site demolition or redevelopment. As such, any feasible remedial options will be required to consider the constraints of the existing site infrastructure. The subsurface has been impacted by the release of the gasoline hydrocarbon products, as determined by analysis. As shown by laboratory analysis, the primary chemicals of concern at the site include BTEX and fuel additives. These have been found in soil and groundwater beneath the site.

A concise description of the nature and extent of hydrocarbon impacts at the site was presented in the RI portion of this report. Subsurface soils consist predominantly of low permeability clay and silt to depths of approximately 14 to 16 feet bgs. More permeable layers of silty sand and sand are dispersed throughout the fine-grained soils. Geologic cross-sections that show the relationship of soil types through the site are presented in Figures 4 and 5.

An immiscible sheen was noted in soil samples from historic borehole SB-1 installed in November 1999. No residual hydrocarbon product was noted in soil or groundwater during the installation of the Geoprobe soil bores in September 2004, or the recently installed monitoring wells MW-1R, MW-4 through MW-9, or during the recent groundwater sampling events. This would indicate that no residual hydrocarbon free product exists or is of very limited extent. Any residual hydrocarbon product likely only exists in a limited area, probably near the former UST release(s), as indicated by soil sample GP5-11 that detected TPH-G at 540 mg/Kg and sample MW1R-7 that detected TPH-G at 450 mg/Kg (See Figures 6 through 9). PID readings from the recent investigations indicate that residual hydrocarbons exist in vadose soil that remain from the original release(s), or that occur as smear zone hydrocarbons associated with the seasonal rise and fall of groundwater beneath the site (particularly within confines of UST excavation).

Groundwater flow beneath the site has historically been to the west and northwest, with the current groundwater gradient at 0.008 ft/ft. Based on the measured values of TPH-G detected in exploration grab groundwater and monitoring well samples, the region of elevated TPH-G occurs in the area delineated in Figures 14 and 15, with the plume core situated near destroyed well MW-1. The hydrocarbon plume apparently does not extend to the limits of the recently installed monitoring wells.

The distribution of nitrate, methane and dissolved oxygen indicate that the TPH-G groundwater plume is undergoing anaerobic degradation. Specifically, the elevated concentrations of nitrate are observed in perimeter wells MW-4 through MW-9, in comparison to the concentration of nitrate in plume core wells MW-1/1R, MW-2 and MW-3, where the concentration is reduced to essentially one-half of its perimeter levels, and the correspondingly high methane concentrations in the plume core area suggest that active anaerobic degradation is occurring. The source of nitrate is likely leaking sewer lines located along 89th Avenue.

Available data suggests that the hydrocarbon release impacted soil primarily through lateral migration within the vadose zone (likely along thin slightly more permeable sedimentary layers) and in the saturated zone by the movement of groundwater (i.e. associated with the current and past distribution of the TPH-G groundwater plume). Any residual hydrocarbon product in soil likely exists in a limited area, probably near the former UST release(s). Because TPH-G concentrations in groundwater do not extend to the location of the recently installed groundwater monitoring wells, and active (albeit slow) anaerobic biodegradation of the plume core appears to be occurring and is acting to reduce TPH-G concentrations, the objective of this remediation effort will be to reduce any free hydrocarbon product in soil or groundwater, reduce hydrocarbon concentrations in groundwater to the appropriate generic ESL goal, and reduce TPH-G concentrations to appropriate ESL goals in subsurface soils beneath the site.

7.0 Evaluation of Remedial Alternatives

As requested by the ACDEH, Blymyer explored the feasibility of possible remedial technologies that may be implemented to remediate the site. The objectives of the FS are to identify the portion of the site that requires remediation, and evaluate remedial alternatives that are technically and economically appropriate for the site. Remedial alternatives are evaluated on three criteria: effectiveness, technical implementability, and cost. Potential remedial alternatives are formulated for consideration based on site-specific conditions and their recognized applicability and success at similar projects, elsewhere. Existing site conditions will have a significant impact on technology selection.

The goals of remediation are:

1. Reduce levels of contamination to limit further spread of contaminants.
2. Restore site conditions, such that any potential health or ecological risk will not impede future land use.
3. Restore groundwater quality to background and/or beneficial use.

7.1 Treatability of Contaminants

The chemicals of concern within the hydrocarbon plume are known to be volatile and biodegradable. Therefore, application of field tested and proven remedial technologies will be largely dependent on site conditions and economics. Existing site conditions that are important to remedial design and implementation are:

- shallow groundwater,
- low permeability soils, and
- structural controls (that is, building foundations and walls, location of utilities and pavements).

7.2 Description of Alternatives

Remediation alternatives for soil smear zones and the groundwater plume to be evaluated for the site are described below. These alternatives were selected for consideration based on a number of factors, including:

- their recognized applicability on similar projects,
- potential for straight-forward implementation,
- availability of treatment equipment,
- minimal site structural requirements,
- anticipated acceptance by ACDEH, and
- limited long-term operation and maintenance so as not to encumber the site's present operations.

The remedial options evaluated for the site are rated based on the potential remedial technology effectiveness, implementability and cost. The rating factors have been defined as follows:

- **Effectiveness** is a rating of the remedial technology's ability to reach cleanup goals within a desired time frame. However, the ability to predict actual clean-up time to either risk-based, regulatory mandated, or Maximum Contaminant Level (MCL) target levels is only a judgment based on applying like or similar remedial technologies at other environmentally impaired properties similar to the site.

- **Implementability** is a rating of the degree of difficulty required to construct and maintain the remedial technology. This factor also includes administrative burdens, such as permitting or operational fees.

- **Cost** is a financial estimate for the design, implementation, future maintenance, and shutdown of the remedial technology. As it is not possible to predict actual clean-up times, the cost estimates presented in this study are for system design, construction, system start-up and shutdown, and only one-year of operation and maintenance.

The following discussion provides some details for the remedial alternatives, as they would be applied at the site. A summary for the rating of evaluated remedial technologies, including combinations, is presented in Table X. A cost estimate summary for each remedial technology or a combination is presented in Appendix G.

To achieve potential remedial goals for the site, the following remedial methods were considered:

- Monitored Natural Attenuation (MNA)
- Groundwater Pump and Treat
- Enhanced Insitu Bioremediation (EIB)
- Air Sparging-Vapor Recovery (ASVR)
- Dual (soil vapor and groundwater) Phase Extraction and Treatment
- InSitu Chemical Oxidation (ISCO)

7.2.1 Monitored Natural Attenuation

Monitored Natural Attenuation (MNA) is a default remedial option that relies on natural processes to reduce subsurface contaminant concentrations to regulatory acceptable levels. At present, TPH-G and constituent compounds exist in the subsurface above generic RWQCB ESLs, and as such by implication, current conditions pose an environmental health risk. However, as presented in the Site Conceptual Model, evidence exists to suggest that MNA is occurring via anaerobic biodegradation, at a minimum. A graph of the current actual rate of natural biodegradation of benzene in groundwater collected from well MW-1 is depicted in Figure 18. The benzene data from October 1996 to June 1995 for well MW-1 were "best fit" within an exponential equation using the Microsoft Excel computer program to obtain an estimate of the natural attenuation or degradation rate, k. While the reduction does not provide an excellent fit to a first order decay curve due to scatter in the actual data, the rate of degradation (k) follows the trend of the actual data and returns a value of 0.0008 parts per billion per day (ppb/d). The k-value and an estimate of the initial benzene concentration in groundwater are placed in a first order decay equation and then for different times, estimates for the natural attenuation of benzene are projected into the future (Figure 19). The

resulting modeled natural attenuation for benzene indicates that a non-drinking water goal (46 μg/L) may be reached by early 2011, and a drinking water goal (1 μg/L) may be reached by 2024.

To validate the MNA option as a viable remedial strategy, a site-specific Tier II or III health risk analysis would be required to quantify the degree of health risk, and field studies would be required to confirm MNA. Such studies would include collecting field data to quantify site-specific soil permeabilities, analysis of site bacteria and the factors that sponsor their growth.

Groundwater monitoring would be performed on a quarterly basis to confirm the stability of groundwater flow conditions and plume geometry. This option is easy to implement, and remediation occurs due to natural attenuation processes.

7.2.2 Soil Treatment Methods

As indicated in Section 6, onsite remediation of the soil will best be accomplished when coupled with treatment of hydrocarbon impacted groundwater. While limited residual hydrocarbons impacts to soil may exist, their distribution and concentration do not warrant active remediation at this time. After a period of applied groundwater remediation, should site conditions indicate that hydrocarbons are entering groundwater at a rate that exceeds its mass removal, then targeted soil excavation may be warranted. Therefore, the remedial alternatives considered in this FS for residual soil impacts are addressed in the following groundwater treatment section.

7.2.3 Groundwater Treatment Methods

The following discussion presents brief descriptions of proven groundwater remedial technologies. These options are considered in the FS for their overall technical applicability:

Option 1 – Groundwater Pump and Treat: Groundwater extraction and treatment through activated carbon filters is a proven technology for the removal of hydrocarbon impacted groundwater; and generally considered the default groundwater treatment technology. Groundwater extraction has the benefit of actively restricting the movement of contamination due to creation of "cones of depression" within the groundwater flow field.

However, for the site, due to the relatively thin water-bearing zone (silty fine-grained sands) and the predominance of low permeability soil between 6 and approximately 15 feet bgs, a relatively high

number of groundwater extraction wells would likely be required to capture the plume. These subsurface conditions increase the required infrastructure elements, construction costs, and operation and maintenance costs. This technology is not considered time or cost effective for this site.

Option 2 - Enhanced Insitu Bioremediation (EIB): Petroleum hydrocarbon compounds are recognized to degrade favorably and rapidly under aerobic (oxygen rich) conditions. To stimulate aerobic bacterial activity and increase the rate of biodegradation within the hydrocarbon plume, non-toxic inorganic chemicals (bio-nutrients) are added to the groundwater that release oxygen, nitrogen and phosphate, such as oxygen release compound (ORC) and bio-nutrient compounds (typically, NPK fertilizer). At sites where stagnant hydrocarbon plumes are present, one or more of the essential bio-nutrient elements is commonly depleted, and natural attenuation of the hydrocarbon plume due to microbial activity ceases. By determining a site's "bio-needs," the missing elements can be injected into the hydrocarbon plume to boost bioactivity.

At the site, dissolved oxygen in groundwater is depleted to less than 1 mg/L, and based on available information, the lack of dissolved oxygen is the limiting factor retarding current biological activity. For EIB the supply of bio-nutrients is assessed prior to and during remediation. During the course of remediation, if nutrient concentrations are found to be inadequate, then further nutrient addition is performed.

An advantage of the EIB approach is that only minor structural effort is needed. That is, only limited concrete cutting for borehole injection points is necessary and no plumbing/piping or aboveground treatment facility construction is required. The effectiveness of EIB can be measured by off-gas analysis (carbon dioxide concentration) by soil vapor sampling and/or measurement of dissolved oxygen in groundwater. These data are compared against predicted first-order biological reaction kinetics to assess overall cleanup effectiveness.

Option 3 - Air Sparging-Vapor Recovery (ASVR): This approach uses compressed air injected into the saturated zone. The air bubbles disperse and travel upward through the saturated zone and remove volatile hydrocarbon compounds (VHCs) from the groundwater through chemical partitioning (stripping). Stripping involves the mass transfer of VHCs from the aqueous phase to the vapor (air) phase. Air laden with VHCs is collected by a soil venting system under negative pressure. Where groundwater TPH-G concentrations are high, sparge vapors may exceed the lower

explosive limit (LEL) for some of the volatile compounds. Air flows for sparging are generally high.

The difficulty in implementing this technology at the site is extremely shallow groundwater conditions, low permeability soils, and the potential hazard of collecting explosive level sparge vapors within utility conduits and beneath the building. In addition, available space to construct a treatment plant and other structural limits restrict this option.

Option 4 - Dual Phase Extraction: Dual phase extraction (DPE) is a proven technology that combines soil venting with groundwater extraction. A perforated pipe (suction pipe) would be placed in specially constructed airtight DPE wells finished approximately 3 to 10 feet below the groundwater surface. A vacuum, typically 10 to 15 inches of mercury, is then applied to the tube.

Suction lifts water and soil vapor simultaneously through the suction pipes into a piping network to a treatment plant. Using this technique, groundwater extraction rates and soil venting effectiveness are greatly enhanced due to the drawdown effect of groundwater pumping and the uplift of the water table from the soil venting vapor suction. These opposing forces within the same well screen enhance dewatering and vapor stripping in the vicinity of the well.

The difficulty in implementing this technology at the site, are similar to options 1 and 3, low permeability soils and limited zone of influence of the extraction wells. These subsurface conditions increase the required infrastructure elements, construction costs, and operation and maintenance costs. This technology is not considered time or cost effective for this site.

Option 5 – InSitu Chemical Oxidation (ISCO): The previous injection of hydrogen peroxide showed that TPH-G impacted groundwater at the site can be chemically oxidized with positive results. The efficiency of the oxidation process is high but short lived, and this leads to rapid destruction of the hydrocarbon compounds. Further, hydrogen peroxide breaks down to liberate free oxygen, which can later be used by bacteria.

Chemical oxidants are readily available and several local vendors are capable of providing injection services using direct-push technology with injection rates of up to 20 gpm. The injection of a strong oxidant is potentially hazardous and would require the use of appropriate personal protective equipment by field personnel. Administrative burden is relatively low, with only soil boring permits

required to inject the chemical oxidant. Also, by modifying the well head of existing monitoring wells MW-1R, MW-2 and MW-3, ISCO could be readily performed in the area of the former USTs.

The limiting factor in chemical oxidant injection is the ability to disperse the oxidant within the impacted soil or water bearing zone. However, this option may be useful as a targeted approach to reduce TPH-G levels in the area of elevated residual soil impacts near the former USTs. A recently developed product known as "RegenOx" has been shown to provide all the chemical oxidation attributes of typical oxidants (hydrogen peroxide, potassium permanganate or persulfate), but is much safer to handle; the application of such a product in the former UST area would likely have a positive impact to hasten site remediation.

General Requirements: For options 1 and 4, extracted groundwater would be treated and discharged to the local storm drain system if capacity is available under authority of a National Pollutant Discharge Elimination System (NPDES) permit or to a publicly owned treatment works (POTW). Typical groundwater extraction treatment equipment would include downhole pumps and motor controls, water level switches, holding tanks, particulate filters, and activated carbon filters. Significant pavement trenching would also be required to plumb the systems together.

For options 3 and 4, typical soil vapor extraction equipment would include compressed air and vacuum blowers, water/vapor separator, water transfer pump, and process controls to allow for safe unattended operation. Extracted soil vapors would be treated using a thermal or catalytic oxidizer or activated carbon filters under permit from the Bay Area Air Quality Management District (BAAQMD). Both groundwater extraction and soil vapor extraction systems are best implemented in a trial and enhancement approach whereby the progress of site remediation is assessed periodically and system enhancements made.

7.3 Groundwater Treatment Recommendations

7.3.1 Selected Remedial Option

At present, site conditions do not support the MNA option, however, this option may be viable and acceptable to regulators should a site-specific risk assessment be performed. Given present site conditions, EIB (Option 2) in conjunction with limited ISCO (Option 5) is potentially the most suitable remedial technology for this site (Enhanced Insitu Remediation). The bio-assessment data

indicates that at present DO and bio-nutrient concentrations beneath the site are below optimum levels to promote aerobic bacterial metabolism. Therefore increasing the DO concentrations at the site should increase bacterial activity and biomass, and thereby increase the rate of hydrocarbon degradation. DO can be readily added to the subsurface using readily available non-toxic chemicals. A combination of RegenOx (near former USTs) and ORC injection may be the best approach to provide a rapid boost to DO levels and provide a sustainable supply of oxygen in the subsurface.

The application of a chemical oxidant is known to disinfect (kill-off) bacterial populations; as such the cost estimate for the combined EIB / ISCO approach includes post-injection testing of groundwater from select monitoring wells for aerobic bacteria plate counts and speciation for hydrocarbon degraders. If post-injection monitoring indicates a "sterile zone" then, portions of the subsurface may be bio-augmented with a bacterial culture to populate soil and groundwater with hydrocarbon degrading bacteria. The cost of bacterial monitoring and bio-augmentation are factored into the EIB / ISCO cost estimate.

Calculations presented in Table IX and injection points presented in Figure 20 provide a preliminary conceptual design for the EIB / ISCO approach. The injection points are located on 10-foot centers and with an estimated contaminant groundwater velocity of approximately 4.5 feet per year, significant remedial progress could be made in about 2 years following initiation of an EIB program. The mass of TPH-G within the groundwater plume is estimated at about 11.3 pounds.

RegenOx and ORC can be readily placed using conventional drilling and injection methods. The chemicals that release DO have a limited period of activity (ORC usually lasts for 6 to 9 months) and due to DO consumption by bacteria, two to three applications of DO may be needed to maintain subsurface DO concentrations and increase subsurface biomass to its maximum possible levels. The time between DO applications should be dictated by field measurements of DO and hydrocarbon levels monitored in the plume core monitoring wells.

7.3.2. Reasons for Discounting Other Options

Options 1, 3, and 4, although practical, are not considered feasible, due to the low permeability soil beneath the site. When fine grained, low permeability materials similar to site soil conditions are placed under physical stress by pumping or vacuum extraction, preferential fluid pathways are commonly observed to develop. The creation of preferential pathways results in a limited volume of

the subsurface being affected by the remedial actions. The subsurface volume not under the influence of the imposed remedial stress will release bound contaminants by the very slow chemical diffusion process.

However, the biggest impediment to these options is the ability to obtain space to construct a treatment system that would not adversely impact the daily business activities of the current occupant. Furthermore, these options will require more extensive permitting, and construction of costly infrastructure, including well installations, trenching, treatment plant construction and operation and maintenance.

8.0 Conclusions and Recommendations

The following conclusions can be made from the data generated during the Remedial Investigation / Feasibility Study at the site:

- Recent installation of Geoprobe soil bores and groundwater monitoring wells has effectively defined the lateral extent of petroleum hydrocarbon compounds beneath the site. These investigations also indicate that no FPP or very limited residual FPP exists at the site.

- Current site conditions indicate that anaerobic biodegradation is occurring and reducing the hydrocarbon mass. As such, MNA may be a viable remedial option should a site-specific risk assessment indicate that current condition do not pose a significant health risk.

- A combination of Options 2 and 5 (EIB / ISCO, or Enhanced Insitu Remediation) is the recommended remedial approach. The addition of RegenOx and ORC at selected locations would destroy any limited free product that may remain in the vicinity of the former UST excavation, and would increase dissolved oxygen levels in the subsurface and appreciably increase the rate of biodegradation.

- Blymyer Engineers recommends that a Corrective Action Plan for groundwater remediation via a combination of EIB and ISCO be developed and submitted to ACDEH for approval. Upon your approval a copy of this report will be forwarded to:

Mr. Barney Chan
Alameda County Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Tables

Table I, Summary of Groundwater Elevation Measurements BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California				
Well ID	Date	TOC Elevation (feet)	Depth to Water (feet)	Water Surface Elevation (feet)
MW-1	8/6/1993	18.72	8.96	9.76
	1/12/1996		8.55	10.17
	4/16/1996		7.65	11.07
	7/15/1996		8.76	9.96
	10/16/1996		9.04	9.68
	12/15/1998		8.38	10.34
	1/18/2001		8.49	10.23
	4/25/2001		8.24	10.48
	3/17/03*		8.08	10.64
	6/23/2003		8.63	10.09
	9/18/2003		8.90	9.82
	12/15/2003		8.15	10.57
	6/15/2004		8.67	10.05
	12/15/2004		7.99	10.73
	6/29/2005		7.88	10.84
	5/8/2006	21.70	Destroyed	Destroyed

Table I, Summary of Groundwater Elevation Measurements BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California				
Well ID	Date	TOC Elevation (feet)	Depth to Water (feet)	Water Surface Elevation (feet)
MW-2	8/6/1993	18.44	8.68	9.76
	1/12/1996		8.24	10.20
	4/16/1996		7.41	11.03
	7/15/1996		8.45	9.99
	10/16/1996		8.73	9.71
	12/15/1998		8.05	10.39
	1/18/2001		8.24	10.20
	4/25/2001		7.88	10.56
	3/17/03*		7.08	11.36
	6/23/2003		8.90	9.54
	9/18/2003		8.61	9.83
	12/15/2003		7.97	10.47
	6/15/2004		8.42	10.02
	12/15/2004		8.00	10.44
	6/29/2005		9.51	8.93
	6/12/2006	21.45	8.25	13.20

Table I, Summary of Groundwater Elevation Measurements BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California				
Well ID	Date	TOC Elevation (feet)	Depth to Water (feet)	Water Surface Elevation (feet)
MW-3	8/6/1993	19.01	9.07	9.94
	1/12/1996		8.65	10.36
	4/16/1996		7.82	11.19
	7/15/1996		8.88	10.13
	10/16/1996		9.16	9.85
	12/15/1998		8.45	10.56
	1/18/2001		8.57	10.44
	4/25/2001		8.29	10.72
	3/17/03*		8.50	10.51
	6/23/2003		9.05	9.96
	9/18/2003		9.11	9.90
	12/15/2003		8.03	10.98
	6/15/2004		8.85	10.16
	12/15/2004		8.84	10.17
	6/29/2005		9.00	10.01
	6/12/2006	22.02	8.62	13.40

Table I, Summary of Groundwater Elevation Measurements BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California				
Well ID	Date	TOC Elevation (feet)	Depth to Water (feet)	Water Surface Elevation (feet)
MW-1R	6/12/2006	21.73	8.49	13.24
MW-4	6/12/2006	21.34	8.37	12.97
MW-5	6/12/2006	22.53	8.75	13.78
MW-6	6/12/2006	21.97	8.59	13.38
MW-7	6/12/2006	21.21	8.31	12.90
MW-8	6/12/2006	20.97	8.37	12.60
MW-9	6/12/2006	20.98	8.50	12.48

Notes:

TOC = Top of Casing

* = Initial data set collected under direction of Blymyer Engineers, Inc.

NM = Not measured

[1] = Resurveyed on February 7, or June 22, 2006 by CSS Environmental Services, In

Elevations in feet above mean sea level

Table II, Summary of Groundwater Sample Hydrocarbon Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California							
Well ID	Sample Date	Modified EPA Method 8015 (µg/L)	EPA Method 8020 or 8021B (µg/L)				
		TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MCL		N/A	1	150	700	1,750	13
Drinking Water Source [1]		100	1	40	30	20	5
Non-Drinking Water Source [2]		500	46	130	290	100	1,800
MW-1	8/6/1993	**17,000**	**7.1**	**8.4**	**9.2**	**53**	NA
	1/12/1996	**12,000**	**1,900**	**840**	**370**	**1,100**	NA
	4/16/1996	**3,500**	**700**	**55**	**100**	**180**	NA
	7/15/1996	**11,000**	**2,300**	**450**	**350**	**910**	NA
	10/16/1996	**21,000**	**4,200**	**2,200**	**650**	**2,600**	NA
	12/15/1998	**10,000**	**1,800**	**520**	**270**	**1,100**	<350
	1/18/2001	**11,000** [a]	**2,000**	**320**	**320**	**1,100**	<120
	4/25/2001	**2,100** [a, c]	**270**	**46**	**59**	**130**	<5.0
	3/17/2003*	**2,200** [a]	**260**	**19**	**36**	**54**	NA [d]
	6/23/2003	**6,100** [a]	**930**	**53**	**99**	**200**	NA
	9/18/2003	**3,800** [a]	**660**	**13**	**24**	**34**	NA
	12/15/2003	**260** [a]	**19**	**1.1**	<0.5	**1.5**	NA
	6/15/2004	**5,200** [a]	**520**	**13**	**38**	**39**	<50
	12/15/2004	**2,400** [a]	**370**	**8.2**	**13**	**14**	<15
	6/29/2005	**5,500** [a]	**750**	**27**	**94**	**140**	<100
	5/8/2006	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed

Table II, Summary of Groundwater Sample Hydrocarbon Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California							
Well ID	Sample Date	Modified EPA Method 8015 (µg/L)	EPA Method 8020 or 8021B (µg/L)				
		TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MCL		N/A	1	150	700	1,750	13
Drinking Water Source [1]		100	1	40	30	20	5
Non-Drinking Water Source [2]		500	46	130	290	100	1,800
MW-2	8/6/1993	**2,700**	**1**	**2**	**2**	**8**	NA
	1/12/1996	**2,700**	**600**	**310**	**94**	**220**	NA
	4/16/1996	**190**	**39**	**11**	**10**	**14**	NA
	7/15/1996	**700**	**160**	**33**	**34**	**48**	NA
	10/16/1996	**190**	**48**	**8**	**10**	**13**	NA
	12/15/1998	**200**	**62**	**17**	**5**	**14**	**4.4 b**
	1/18/2001	**300** [a]	**74**	**26**	**7**	**21**	**7.3**
	4/25/2001	<50 [c]	**5**	**2**	**1**	**2**	<5.0
	3/17/2003*	**78** [a]	**26**	**3**	**2**	**4**	NA [d]
	6/23/2003	**160** [a]	**51**	**2**	**1**	**2**	**NA**
	9/18/2003	<50	**2**	**<0.5**	**<0.5**	**<0.5**	NA
	12/15/2003	<50	**12**	<0.5	**<0.5**	**<0.5**	NA
	6/15/2004	**95** [a]	**15**	**1.3**	**2**	**1**	<30
	12/15/2004	**<50**	**11**	**0.97**	**1**	**1**	**7.8**
	6/29/2005	**130**	**29**	**2**	**3**	**3**	**6.7**
	6/13/2006	**150** [a]	**59**	**3**	**3.4**	**2.7**	**11**

Table II, Summary of Groundwater Sample Hydrocarbon Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California							
Well ID	Sample Date	Modified EPA Method 8015 (µg/L)	EPA Method 8020 or 8021B (µg/L)				
		TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MCL		N/A	1	150	700	1,750	13
Drinking Water Source [1]		100	1	40	30	20	5
Non-Drinking Water Source [2]		500	46	130	290	100	1,800
MW-3	8/6/1993	**5,200**	**2.1**	**2.9**	**3.6**	**17**	NA
	1/12/1996	**4,500**	**280**	**180**	**120**	**470**	NA
	4/16/1996	**5,400**	**370**	**340**	**160**	**580**	NA
	7/15/1996	**1,800**	**200**	**220**	**66**	**250**	NA
	10/16/1996	**2,000**	**340**	**140**	**100**	**300**	NA
	12/15/1998	**1,400**	**200**	**39**	**72**	**150**	<22
	1/18/2001	**1,800** [a]	**240**	**41**	**86**	**120**	<10
	4/25/2001	**8,300** [a, c]	**300**	**330**	**200**	**1,100**	<20
	3/17/2003*	**2,100** [a]	**240**	**78**	**10**	**280**	NA [d]
	6/23/2003	<50	**2.5**	**0.6**	**0.69**	**1.4**	NA
	9/18/2003	<50	<0.5	<0.5	<0.5	<0.5	NA
	12/15/2003	**2,400**	**300**	**120**	**140**	**260**	NA
	6/15/2004	<50	**1.1**	<0.5	<0.5	<0.5	**6.2**
	12/15/2004	**1,600** [a]	**140**	**83**	**83**	**230**	<15
	6/29/2005	**230** [a]	**27**	**6.1**	**7.2**	**15**	<15
	6/13/2006	**68** [a]	**3.1**	**1.8**	<0.5	<0.5	<5.0

Table II, Summary of Groundwater Sample Hydrocarbon Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California							
Well ID	Sample Date	Modified EPA Method 8015 (µg/L)	EPA Method 8020 or 8021B (µg/L)				
		TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MCL		N/A	1	150	700	1,750	13
Drinking Water Source [1]		100	1	40	30	20	5
Non-Drinking Water Source [2]		500	46	130	290	100	1,800
MW-1R	6/13/2006	**90** [a]	**24**	<0.5	<0.5	**1.9**	**7.0**
MW-4	6/12/2006	<50	<0.5	<0.5	<0.5	<0.5	**5.7**
MW-5	6/12/2006	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-6	6/13/2006	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-7	6/12/2006	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-8	6/12/2006	<50	<0.5	<0.5	<0.5	<0.5	<5.0
MW-9	6/12/2006	<50	<0.5	<0.5	<0.5	<0.5	**5.6**

Notes:
ug/L = micrograms per liter
TPH = Total Petroleum Hydrocarbons
EPA = Environmental Protection Agency
MTBE = Methyl *tert*-Butyl Ether
[1] = From Table A; RWQCB Environmental Screening Levels (ESLs); Groundwater IS a Current or Potential Source of Drinking Water
[2] = From Table B; RWQCB Environmental Screening Levels (ESLs); Groundwater IS NOT a Current or Potential Source of Drinking Water
RWQCB = California Regional Water Quality Control Board, San Francisco Bay Region
ESL = Environmental Screening Level
N/A = Not applicable
NA = Not analyzed
RBSL = Risk Based Screening Level
<*x* = Analyte not detected at reporting limit *x*
* = Initial data set collected under direction of Blymyer Engineers, Inc.
[a] = Laboratory note indicates the unmodified or weakly modified gasoline is significant.
[b] = Confirmed with EPA Method 8260.
[c] = Groundwater samples for MW-1 and MW-3 suspected to have been switched (mismarked) in field. First collection of groundwater samples after application of Hydrogen Peroxide on March 7, 2001.
[d] = Analysis conducted by EPA Method 8260. See Table III.

Bold results indicate detectable analyte concentrations.
Note: Shaded cell indicates that detected concentration exceeds ESL

Table III, Summary of Groundwater Sample Fuel Oxygenate Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California										
Well ID	Sample Date	EPA Method 8260B (ug/L)								
		TAME	TBA	EBD	1,2-DCA	DIPE	Ethanol	ETBE	Methanol	MTBE
Drinking Water Source [1]		NV	12	0.05	0.5	NV	50,000	NV	NV	5
Non-Drinking Water Source [2]		NV	18,000	152	204	NV	50,000	NV	NV	1,800
MW-1	3/17/2003	**8.3**	<5.0	NA	NA	<0.50	NA	<0.50	NA	**10.0**
	6/23/2003	**6.4**	<25	NA	NA	<2.5	NA	<2.5	NA	**8.0**
	9/18/2003	**5.3**	<25	NA	NA	<2.5	NA	<2.5	NA	**8.5**
	12/15/03[3]	**9.0**	<5.0	NA	NA	<0.5	NA	<0.5	NA	**12.0**
MW-2	3/17/2003	**2.1**	**6.0**	NA	NA	<0.50	NA	<0.50	NA	**13.0**
	6/23/2003	**4.5**	<5.0	NA	NA	<0.50	NA	<0.50	NA	**11.0**
	9/18/2003	**0.7**	<25	NA	NA	<2.5	NA	<2.5	NA	**5.0**
	12/15/03[3]	**3.2**	**5.2**	NA	NA	<0.5	NA	<0.5	NA	**13.0**
	6/13/2006	**4.5**	**6.5**	<5.0	<5.0	<5.0	<50	<0.5	<500	**7.6**
MW-3	3/17/2003	**4.3**	**8.6**	NA	NA	<0.50	NA	<0.50	NA	**10.0**
	6/23/2003	**2.6**	<5.0	NA	NA	<0.50	NA	<0.50	NA	**5.6**
	9/18/2003	**3.6**	<25	NA	NA	<2.5	NA	<2.5	NA	**10.0**
	12/15/03[3]	**2.7**	<5.0	NA	NA	<0.5	NA	<0.5	NA	**13.0**
MW-4	6/12/2006	NA	NA	NA	NA	NA	NA	NA	NA	**6.1**

Table III, Summary of Groundwater Sample Fuel Oxygenate Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California										
Well ID	Sample Date	EPA Method 8260B (ug/L)								
		TAME	TBA	EBD	1,2-DCA	DIPE	Ethanol	ETBE	Methanol	MTBE
Drinking Water Source [1]		NV	12	0.05	0.5	NV	50,000	NV	NV	5
Non-Drinking Water Source [2]		NV	18,000	152	204	NV	50,000	NV	NV	1,800

Notes:

TAME = Methyl tert-Amyl Ether
TBA = tert-Butyl Alcohol
EDB = 1,2-Dibromoethane
1,2-DCA = 1,2-Dichloroethane
DIPE = Di-isopropyl ether
ETBE = Ethyl tert-butyl ether
MTBE = Methly tert-butyl ether
(µg/L) = Micrograms per liter
NV = No value
NA = Not analyzed

[1] = From Table A; Environmental Screening Levels (ESLs); Groundwater IS a Current or Potential Source of Drinking Water

[2] = From Table B; RWQCB Environmental Screening Levels (ESLs); Groundwater IS NOT a Current or Potential Source of Drinking Water

[3] = In general after this date, fuel oxygenates were monitored using MTBE detected by EPA Method 8020B, as a proxy for the approximate concentration of the remaining fuel oxygenates.

Bold results indicate detectable analyte concentrations.
Note: Shaded cell indicates that detected concentration exceeds ESL

Table IV, Summary of Groundwater Intrinsic Bioremediation Field Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California						
Well ID	Sample Date	Field Meter Dissoved Oxygen (mg/L)	Field Meter Oxidation Reduction Potential (mV)	Field Test Kit Ferrous Iron (Fe 2+)	Field Meter Field Temperature (o F / o C)	Field Meter Field pH pH units
MW-1	3/17/2003	NA	NA	NA	60.4 / 60.0 *	7.1 / 7.3
	6/23/2003	0.4	NA	NA	61.0 / 61.0 *	6.9 / 6.9
	9/18/2003	0.4	NA	NA	65.1 / 62.9 *	7.1 / 6.9
	12/15/2003	1.1	NA	NA	13.1 / 13.4	6.8 / 6.7
	6/15/2004	0.1	NA	NA	64.5 / 63.4 *	6.9 / 7.0
	12/15/2004	NA	NA	NA	15.4 / 17.5	7.0 / 6.9
	6/29/2005	0.24 / 0.17	1.0	4.5	19.78 / 21.63	7.15 / 7.08
	5/8/2006	Destroyed	Destroyed	Destroyed	Destroyed	Destroyed
MW-2	3/17/2003	NA	NA	NA	66.0 / 64.2 *	7.4 / 7.9
	6/23/2003	0.6	NA	NA	62.1 / 61.8 *	6.8 / 7.1
	9/18/2003	1.3	NA	NA	66.7 / 63.7 *	6.7 / 6.9
	12/15/2003	1.6	NA	NA	13.2 / 13.4	6.6 / 6.6
	6/15/2004	0.1	NA	NA	64.5 / 65.0 *	6.3 / 7.1
	12/15/2004	NA	NA	NA	16.9 / 17.0	7.1 / 7.1
	6/29/2005	0.19 / 0.24	0.7	0.7	18.58 / 21.18	7.12 / 7.13
	6/13/2006	0.80 / 0.42	168.0 / 168.0	0 / 0	17.49 / 17.70	6.97 / 6.98
MW-3	3/17/2003	NA	NA	NA	63.3 / 60.9 *	7.4 / 7.6
	6/23/2003	0.7	NA	NA	66.4 / 66.9 *	7.3 / 7.2
	9/18/2003	0.4	NA	NA	63.7 / 62.6 *	7.1 / 7.1
	12/15/2003	1.6	NA	NA	14.7 / 15.1	6.5 / 6.4
	6/15/2004	0.0	NA	NA	63.1 / 62.3 *	7.5 / 7.1
	12/15/2004	NA	NA	NA	15.4 / 16.7	7.2 / 7.0
	6/29/2005	0.72 / 0.78	141.7 / -67.6	0.9	17.65 / 18.79	6.94 / 7.02
	6/13/2006	1.01 / 0.41	170.0 / 168.5	0 / 0	17.30 / 17.15	7.02 / 6.98

Table IV, Summary of Groundwater Intrinsic Bioremediation Field Results
BEI Job No. 203004, Former Fiesta Beverage
966 89th Avenue, Oakland, California

Well ID	Sample Date	Field Meter	Field Meter	Field Test Kit	Field Meter	Field Meter
		Dissoved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Ferrous Iron (Fe 2+)	Field Temperature (o F / o C)	Field pH pH units
MW-1R	6/13/2006	0.87 / 0.37	172.9 / 172.9	0 / 0	17.31 / 17.36	6.90 / 6.92
MW-4	6/12/2006	0.67 / 0.33	164.3 / 161.0	0.5 / 0	16.90 / 16.79	6.82 / 6.79
MW-5	6/12/2006	0.61 / 0.31	175.2 / 169.0	0 / 0	18.40 / 18.01	7.01 / 6.94
MW-6	6/13/2006	3.10 / 0.81	181.2 / 174.8	0 / 0	17.25 / 17.32	6.94 / 6.83
MW-7	6/12/2006	0.59 / 0.27	172.5 / 171.8	0.5 / 0.2	18.14 / 18.00	6.90 / 6.87
MW-8	6/12/2006	0.37 / 0.33	186.1 / 180.4	0 / 0	18.55 / 18.39	6.85 / 6.85
MW-9	6/12/2006	2.01 / 1.87	206.0 / 191.0	0 / 0	16.88 / 16.91	6.63 / 6.66

Notes:
mV = Millivolts
mg/L = Milligrams per liter
^{o} F / ^{o} C = degrees Fahrenheit / degrees Centigrade
* = degrees Fahrenheit
2.6 / 2.2 = Initial reading (pre-purge) / Final reading (post-purge)
Na = Not available

Table V, Summary of Groundwater Intrinsic Bioremediation Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California					
Well ID	Sample Date	Method SM 5310B	Method E300.1		Method RSK 174
		CO_2	Nitrate (as N)	Sulfate	Methane
		mg/L			µg/L
MW-1	6/29/2005	490	<0.1	5	5,900
	5/8/2006	Destroyed	Destroyed	Destroyed	Destroyed
MW-2	6/29/2005	250	4.1	42	68
	6/13/2006	290	3.2	44	45
MW-3	6/29/2005	230	3.5	33	370
	6/13/2006	220	3.5	33	55
MW-1R	6/13/2006	290	4.3	46	24
MW-4	6/12/2006	260	8.6	44	1.1
MW-5	6/12/2006	240	6.8	45	1.5
MW-6	6/13/2006	290	7.2	50	<0.5
MW-7	6/12/2006	260	6	51	<0.5
MW-8	6/12/2006	330	7.3	46	<0.5
MW-9	6/12/2006	240	8.3	44	1.1

Notes: SM = Standard Method
mg/L = Milligrams per liter
µg/L = Micrograms per liter
CO_2 = Carbon Dioxide

Table VI, Summary of Grab Groundwater Sample Hydrocarbon Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California							
Well ID	Sample Date	Modified EPA Method 8015 (µg/L)	EPA Method 8020 or 8021B (µg/L)				
		TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
MCL		N/A	1	150	700	1,750	13
Drinking Water Source [1]		100	1	40	30	20	5
Non-Drinking Water Source [2]		500	46	130	290	100	1,800
W1*	1/15/1991	**25,000**	**3,100**	**2,900**	**380**	**2,800**	NA
W2*	1/15/1991	**36,000**	**3,700**	**4,300**	**840**	**4,900**	NA
B-1	11/30/1999	**850 a, b**	**0.94**	**3**	**0.7**	**5.7**	<5.0
B-2	11/30/1999	**3,200 a, c**	**94**	**210**	**79**	**370**	<10
B-3	11/30/1999	**90 b**	**<0.5**	**<0.5**	**<0.5**	**1**	<5.0
B-4	11/30/1999	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	<5.0
GP1-W	9/27/2004	**14,000 c**	**210**	**190**	**84**	**420**	<50
GP2-W	9/27/2004	**790 c**	**28**	**59**	**25**	**110**	<10
GP3-W	9/27/2004	**<50**	**<0.5**	**1.3**	**<0.5**	**0.53**	8.7
GP4-W	9/27/2004	**7,200 c**	**5**	**<5**	**46**	**110**	<50
GP5-W	9/27/2004	**14,000 c**	**94**	**25**	**380**	**1,300**	<50
GP6-W	9/27/2004	**12,000 c**	**99**	**60**	320	**1,200**	<50
GP7-W	9/27/2004	**<50**	**1.4**	**<0.5**	**<0.5**	**0.88**	12
GP8-W	9/27/2004	**1,300 c**	**73**	**180**	**37**	**150**	<15

Notes: ug/L = micrograms per liter
TPH = Total Petroleum Hydrocarbons
EPA = Environmental Protection Agency
MTBE = Methyl *tert* -Butyl Ether
[1] = From Table A; RWQCB Environmental Screening Levels (ESLs); Groundwater IS a Current or Potential Source of Drinking Water
[2] = From Table B; RWQCB Environmental Screening Levels (ESLs); Groundwater IS NOT a Current or Potential Source of Drinking Water
RWQCB = California Regional Water Quality Control Board, San Francisco Bay Region
ESL = Environmental Screening Level
N/A = Not applicable
NA = Not analyzed
RBSL = Risk Based Screening Level
<*x* = Analyte not detected at reporting limit *x*
* = Pit water collected at a depth of 14 feet below grade surface.
[a] = Laboratory note indicates that heavier gasoline range compounds are significant (aged gasoline?).
[b] = Laboratory note indicates no recognizable pattern..
[c] = Laboratory note indicates unmodified or weakly modified gasoline is significant.

Bold results indicate detectable analyte concentrations.
Note: Shaded cell indicates that detected concentration exceeds ESL

Table VII, Summary of Soil Sample Hydrocarbon Analytical Results
BEI Job No. 203004, Former Fiesta Beverage
966 89th Avenue, Oakland, California

Well ID	Depth (ft)	Sample Date	Modified EPA Method 8015	EPA Method 8020 or 8021B (mg/Kg)				
			TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Drinking Water ESL, Shallow or Deep Soil [1]			100	0.044	2.9	3.3	2.3	0.023
Non-Drinking Water ESL, Shallow Soil [2]			400	0.38	9.3	32	11	5.6
Non-Drinking Water ESL, Deep Soil [3]			400	0.51	9.3	32	11	5.6
1	9*	8/24/1990	**350**	**3.5**	**15**	**4.5**	**28**	NA
2	9*	8/24/1990	**4900**	**59**	**260**	**100**	**500**	NA
3	9*	8/24/1990	**780**	**13**	**41**	**13**	**67**	NA
4	9*	8/24/1990	**810**	**16**	**52**	**17**	**87**	NA
Composite 1	N/A	8/24/1990	**1000**	**0.16**	**1.8**	**0.57**	**22**	NA
Composite 2	N/A	8/24/1990	**10**	**0.0071**	**0.032**	**0.037**	**1.1**	NA
Composite 3	N/A	8/24/1990	**440**	**0.1**	**0.59**	**1.7**	**13**	NA
S1	14**	1/15/1991	<0.5	<0.005	**0.0068**	<0.005	**0.0077**	NA
S2	14**	1/15/1991	**2.2**	**0.081**	**0.013**	<0.005	**0.0092**	NA
MW-1	6	6/24/1993	**43**	**0.9**	**0.71**	**0.7**	**3.8**	NA
MW-1	11	6/24/1993	**60**	**2.8**	**2.3**	**3.5**	**10**	NA
MW-2	6	6/24/1993	**260**	**7.9**	**30**	**6.3**	**49**	NA
MW-2	11	6/24/1993	**11**	**0.097**	**0.34**	**0.44**	**1.6**	NA
MW-3	6	6/24/1993	**5**	**0.15**	**0.16**	**0.18**	**0.48**	NA
MW-3	11	6/24/1993	**22**	**0.29**	**2.2**	**0.29**	**5.6**	NA
GP1-6	6	9/27/2004	**2.1** [c]	**0.027**	**0.009**	<0.005	<0.005	<5.0
GP1-15.5	15.5	9/27/2004	**23** [d]	**0.0056**	<0.005	<0.005	**0.07**	<5.0
GP2-11.5	11.5	9/27/2004	**140** [c]	**1.4**	**2**	**2.3**	**6.4**	<0.50
GP3-14.5	14.5	9/27/2004	<1.0	<0.005	<0.005	<0.005	<0.005	<5.0

Table VII, Summary of Soil Sample Hydrocarbon Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California								
Well ID	Depth (ft)	Sample Date	Modified EPA Method 8015	EPA Method 8020 or 8021B (mg/Kg)				
			TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Drinking Water ESL, Shallow or Deep Soil [1]			100	0.044	2.9	3.3	2.3	0.023
Non-Drinking Water ESL, Shallow Soil [2]			400	0.38	9.3	32	11	5.6
Non-Drinking Water ESL, Deep Soil [3]			400	0.51	9.3	32	11	5.6
GP4-11.5	11.5	9/27/2004	**310** [c]	**0.28**	**0.4**	**1.4**	**2.1**	<1.0
GP5-11	11	9/27/2004	**540** [c]	**1.1**	**0.22**	**8.3**	**12**	<0.50
GP5-12.5	12.5	9/27/2004	**23** [c]	**0.13**	**0.03**	**0.24**	**0.62**	<5.0
GP6-6	6	9/27/2004	**200** [c]	**0.63**	**0.83**	**3.3**	**12**	<1.0
GP6-11.5	11.5	9/27/2004	**390** [c]	**0.63**	**0.56**	**4.5**	**18**	<1.0
GP7-2.5	2.5	9/27/2004	**2.7** [c]	**0.028**	<0.005	<0.005	**0.018**	<5.0
GP7-11.5	11.5	9/27/2004	<1.0	<0.005	<0.005	<0.005	<0.005	<5.0
GP8-6.5	6.5	9/27/2004	**170** [c]	**1.8**	**2.5**	**3.2**	**10**	<0.50
GP8-11.5	11.5	9/27/2004	**32** [c]	**0.27**	**1.1**	**0.44**	**2.2**	<0.50
GP9-11.5	11.5	9/27/2004	**120** [c]	**0.2**	**0.32**	**1.3**	**5.3**	<0.50
GP9-15.5	15.5	9/27/2004	**40** [d]	**0.011**	**0.037**	**0.066**	**0.3**	<5.0
MW5-10.5	10.5	5/8/2006	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW6-5.5	5.5	5/8/2006	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW6-13.5	13.5	5/8/2006	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW1R-7	7	5/9/2006	**450** [c]	**4.8**	**18**	**8.2**	**45**	**<10**
MW1R-13.5	13.5	5/9/2006	**60** [c, d]	**0.34**	**1.8**	**0.73**	**3.3**	<0.35
MW4-14.5	14.5	5/9/2006	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW7-14	14	6/2/2006	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW8-15	15	6/2/2006	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05
MW-9-16	16	6/2/2006	<1.0	<0.005	<0.005	<0.005	<0.005	<0.05

Table VII, Summary of Soil Sample Hydrocarbon Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California								
Well ID	Depth (ft)	Sample Date	Modified EPA Method 8015	EPA Method 8020 or 8021B (mg/Kg)				
			TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE
Drinking Water ESL, Shallow or Deep Soil [1]			100	0.044	2.9	3.3	2.3	0.023
Non-Drinking Water ESL, Shallow Soil [2]			400	0.38	9.3	32	11	5.6
Non-Drinking Water ESL, Deep Soil [3]			400	0.51	9.3	32	11	5.6

Notes:

ft = feet
mg/Kg = Milligrams per kilogram
TPH = Total Petroleum Hydrocarbons
MTBE = Methyl *tert* -Butyl Ether
RWQCB = California Regional Water Quality Control Board, San Francisco Bay Region
ESL = Environmental Screening Level

[1] = From Table A or C; RWQCB Environmental Screening Levels (ESLs); **Shallow or Deep Soils (<3m)**; Commercial/Industrial Land Use; Groundwater IS a Current or Potential Source of Drinking Water

[2] = From Table B; RWQCB Environmental Screening Levels (ESLs); **Shallow Soils (<3m)**; Commercial/Industrial Land Use; Groundwater IS NOT a Current or Potential Source of Drinking Water

[3] = From Table D; RWQCB Environmental Screening Levels (ESLs); **Deep Soils (>3m)**; Commercial/Industrial Land Use; Groundwater IS NOT a Current or Potential Source of Drinking Water

NA = Not analyzed
RBSL = Risk Based Screening Level
<*x* = Analyte not detected at reporting limit *x*
* = Assumed to be bottom samples.
** = Bottom samples (per Tank Protect Engineering Preliminary Site Assessment Report, dated December 15, 1993).
[a] = Laboratory note indicates the result is a hydrocarbon within the diesel range but that it appears to be the less volatile constituents of gasoline.
[b] = Also detected “High Point Hydrocarbons” calculated as oil at 300 mg/kg, and Oil and Grease at 80 mg/kg.
[c] = Laboratory note indicates unmodified or weakly modified gasoline is significant.
[d] = Laboratory note indicates no recognizable pattern..

Bold results indicate detectable analyte concentrations.
Note: Shaded cell indicates that detected concentration exceeds ESL

Table VIII, Summary of Miscellaneous Soil Sample Analytical Results BEI Job No. 203004, Former Fiesta Beverage 966 89th Avenue, Oakland, California		
Sample ID	Sample Date	Method SW 7010 (mg/Kg)
		Total Lead
Drinking Water ESL, Shallow or Deep Soil [1]		750
Non-Drinking Water ESL, Shallow Soil [2]		750
Non-Drinking Water ESL, Deep Soil [3]		750
GP2-11.5	9/27/2004	**10**
GP5-11.0	9/27/2004	**11**
GP9-11.5	9/27/2004	**12**

Notes:

mg/Kg = milligram per kilogram

[1] = From Table A or C; RWQCB Environmental Screening Levels (ESLs); **Shallow or Deep Soils (<3m)**; Commercial/Industrial Land Use; Groundwater IS a Current or Potential Source of Drinking Water

[2] = From Table B; RWQCB Environmental Screening Levels (ESLs); **Shallow Soils (<3m)**; Commercial/Industrial Land Use; Groundwater IS NOT a Current or Potential Source of Drinking Water

[3] = From Table D; RWQCB Environmental Screening Levels (ESLs); **Deep Soils (>3m)**; Commercial/Industrial Land Use; Groundwater IS NOT a Current or Potential Source of Drinking Water

Bold results indicate detectable analyte concentrations.

Note: Shaded cell indicates that detected concentration exceeds ESL

Table F-1, Summary of Groundwater Well Construction Details BEI Job No. 203004, Fiesta Beverage 966 89th Avenue, Oakland, California								
Well ID	Installation Date	Bore Depth (feet, bgs)	Well Completion Depth (feet, bgs)	Screen Interval (feet, bgs)	Casing Diameter / Slot Size (inches)	Measured Depth June 12 or 13, 2006	DTW June 12 or 13, 2006	Consultant
MW-1	6/25/1993	26.5	25	12 - 25	2	Destroyed	5/8/2006	TPE
MW-2	6/24/1993	26.5	25	10 - 25	2	23.95	8.25	TPE
MW-3	6/24/093	25.0	25	10 - 25	2	24.87	8.62	TPE
MW-1R	5/9/2006	22.0	22	12 - 22	2	21.54	8.49	BEI
MW-4	5/9/2006	22.0	22	12 - 22	2	21.78	8.37	BEI
MW-5	5/8/2006	20.0	20	10 - 20	2	19.73	8.75	BEI
MW-6	5/8/2006	20.0	20	10 - 20	2	19.77	8.59	BEI
MW-7	6/2/2006	22.0	22	12 - 22	2	21.70	8.31	BEI
MW-8	6/2/2006	21.5	20	10 - 20	2	19.96	8.37	BEI
MW-9	6/2/2006	22.0	22	12 - 22	2	22.07	8.50	BEI

Notes: bgs = Below grade surface
DTW = Depth to water
TPE = Tank Protect Engineering
BEI = Blymyer Engineers, Inc.

TABLE IX

Engineering Calculations to Determine Groundwater Hydraulic Characteristics
966 89th Street
Oakland, California

Plume Volume and Mass

TPH-G contour	[TPH-G] µg/L	Contour Area ft^2	Plume Area ft^2	Thickness ft	Total porosity --	Volume ft^3	Volume L	TPH-G Mass kg
>1,000	10000	2,140	2,140	20	0.35	14,980	424,111	4.241
100-1000	1000	6,239	4,540	20	0.35	31,780	899,749	0.900
10-100	0	0	0	0	0.35	0	0	0.000
<10	0	0	0	0	0.35	0	0	0.000
			6,680			46,760	1,323,860	5.141
								11.31 lbs

1 ft^3 = 28.3168 Liters
1 kg = 2.2 pounds

Plume Volume = Area * Thickness * Porosity
ΣPlume Mass(i) = Σ(Plume Volume(i) *Concentration(i))

TPH-G Groundwater Seepage Velocity, Vs $Vs = (K.i)/(\theta_e . R)$

Vs ft/yr	Vs ft/d	K ft/d	I (ft/ft)	R --	Eff Porosity --	Koc L/kg	Foc (g/g)	bulk density kg/L
4.56	0.013	0.4	0.008	2.56	0.1	5.2	0.02	1.5

time years	velocity ft/yr	Distance travelled feet	
15	4.56	68	estimated distance travelled given current plume size

TABLE X

RATING OF ALTERNATIVE REMEDIAL TECHNOLOGIES
Former Fiesta Beverage Facility
966 89th Avenue
Oakland, California

REMEDIAL ALTERNATIVE	SCORE	CRITERIA			
		Effectiveness	Implementation	Cost	Estimated Cost
MNA - Quarterly Monitoring	7	1	5	1	$623,147
MNA - Semi-Annual Monitoring	10	1	5	4	$324,874
Groundwater Pump and Treat	9	3	3	3	$366,005
Enhanced Insitu Remediation*	**14**	**5**	**4**	**5**	**$240,258**
Air Sparge and Vapor Recovery	6	2	1	3	$363,190
Dual Phase Extraction	8	4	2	2	$451,306

Notes:
Rating of Effectiveness, Implementability and Cost based on individual alternative relative to other remedial options considered.
Rating Grade
5 = high effectiveness, easy implementability, low cost
3 = moderate or average
1 = lower effectiveness, difficult implementability, high cost

*Enhanced Insitu Remediation (EIR) is a combination of EIB and limited ISCO.

Figures

UNITED STATES GEOLOGICAL SURVEY 7.5' QUADS. "OAKLAND EAST, CA & SAN LEANDRO, CA", BOTH PHOTOREVISED 1981.

BLYMYER ENGINEERS, INC.

BEI JOB NO. 203004

DATE 3-19-03

0 1000 2000

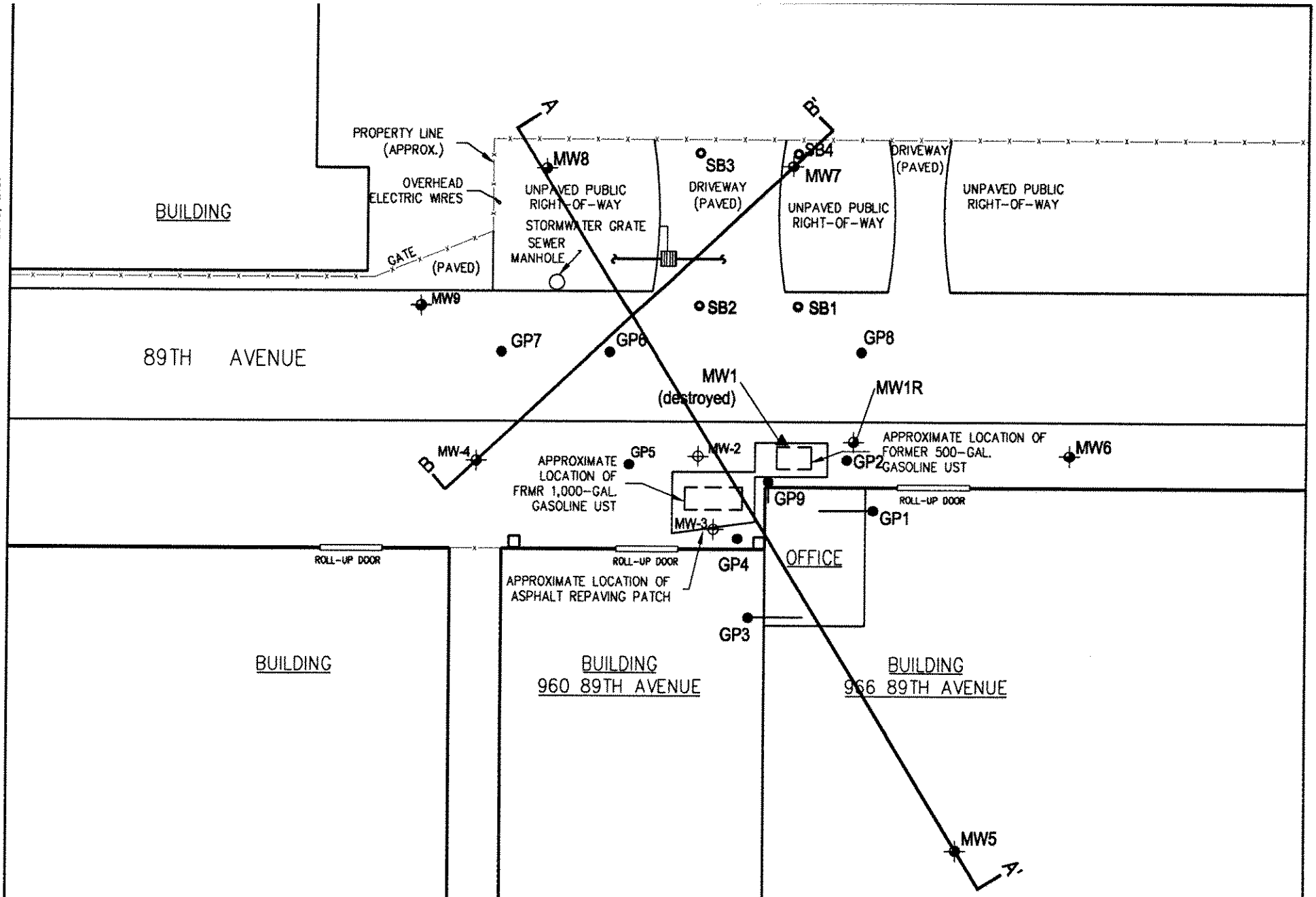
SCALE IN FEET

N

SITE LOCATION MAP

FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE 1



BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	8-24-06

LEGEND

UST	UNDERGROUND STORAGE TANK
NS	NOT SAMPLED
ND	NO ANALYTICAL, NO PID RESPONSE
⊕	GROUNDWATER MONITORING WELL (TANK PROTECT ENG.)
SB4	SOIL BORE (INSTALLED BY ALLCAL)
GP1	SOIL BORE
●—	SOIL BORE-ANGLED
⊕	GROUNDWATER MONITORING WELL (BLYMYER ENG.)
▲	DESTROYED GW MONITORING WELL

SITE PLAN

FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE 2

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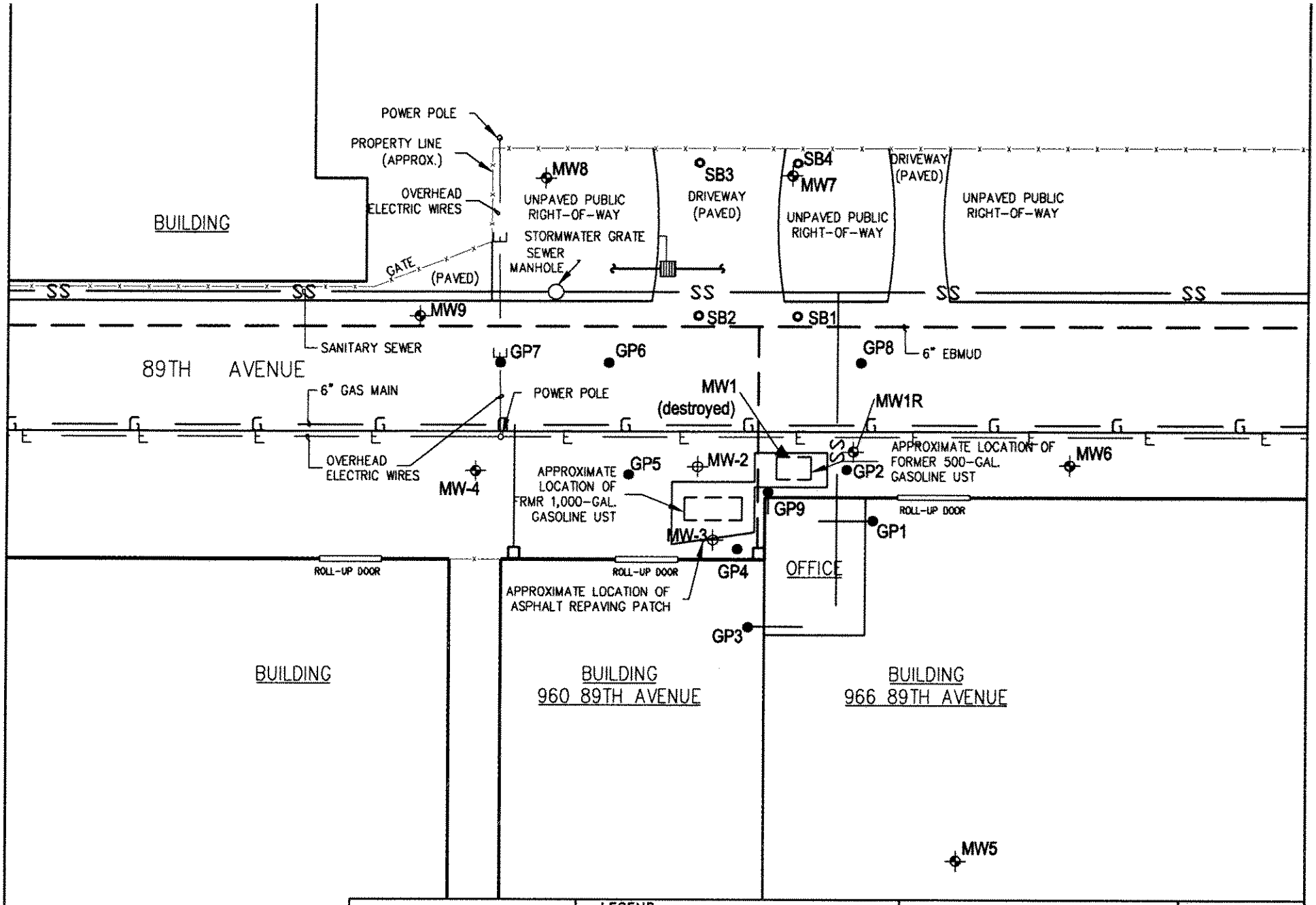

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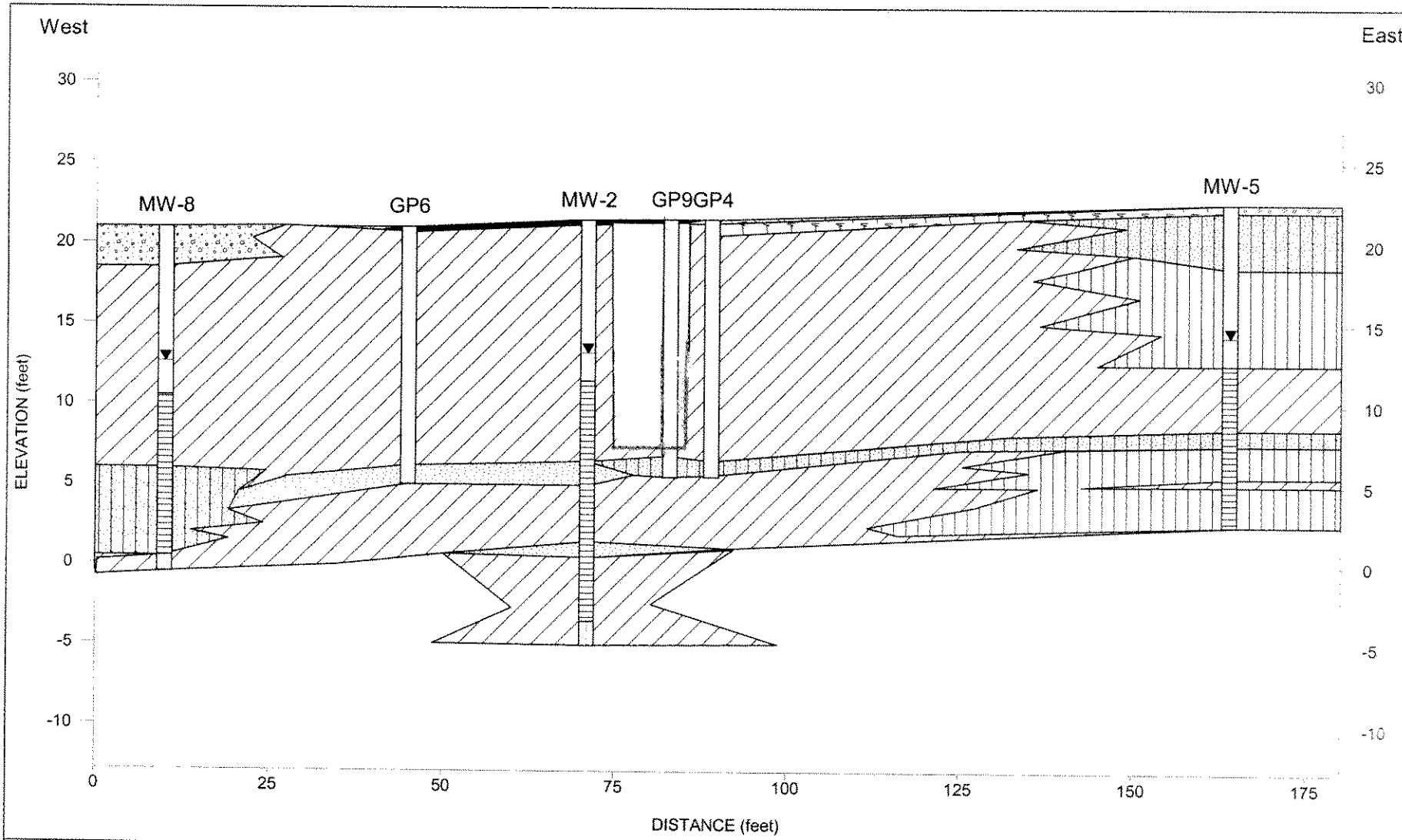


Former Fiesta Beverages
966 & 960 89th Avenue
Oakland, CA
ACEH Leak Case RO0000314
BEI Job # 203004

BLYMYER ENGINEERS, INC.

Figure 4

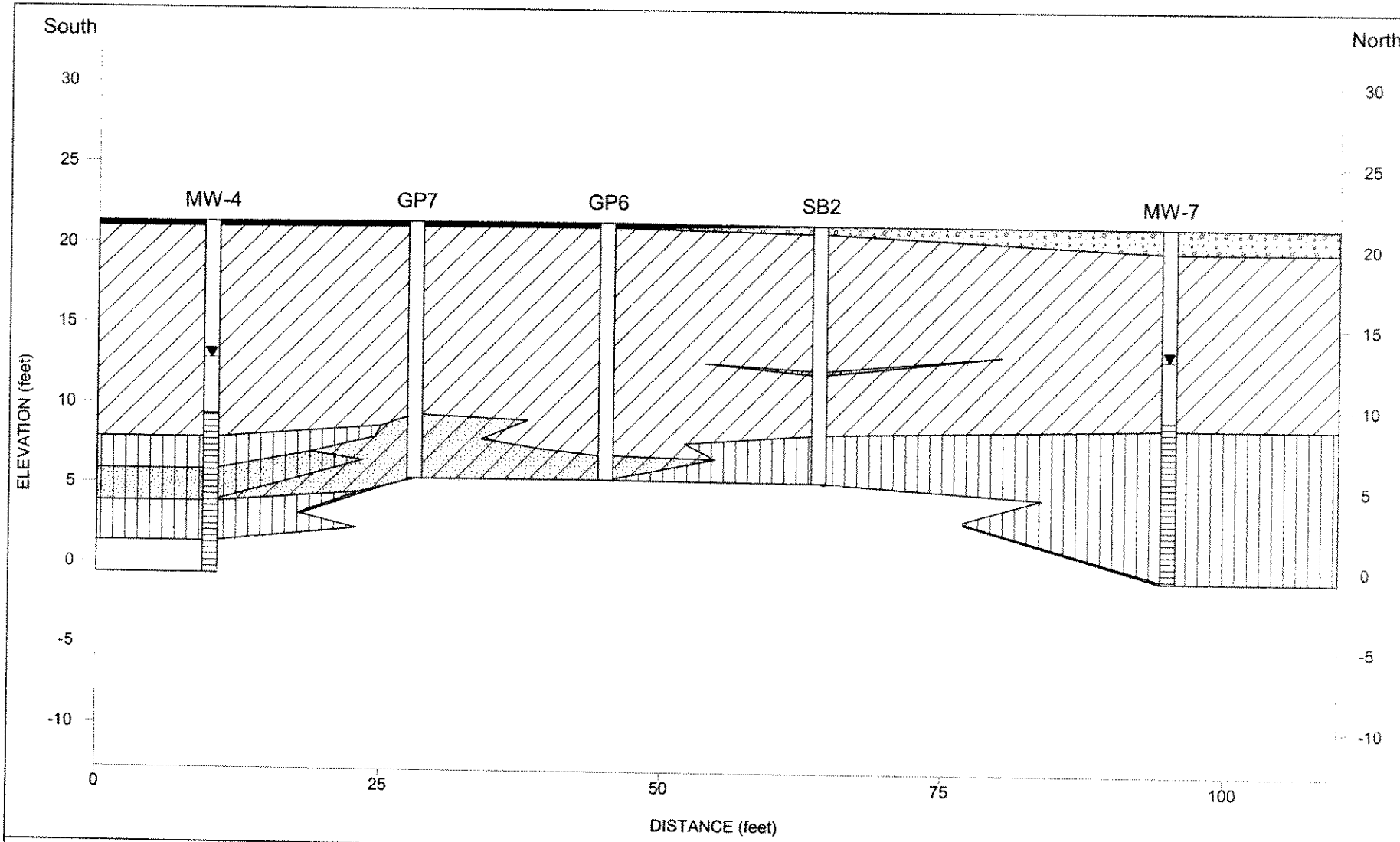
GEOLOGIC CROSS SECTION A - A'

Section East - West
Down Gradient Section

LEGEND

- SM: SILTY SAND
- CL: CLAY
- CLAYEY SAND
- GRAVEL, Well Graded
- SAND, Poorly Graded
- SAND, Well Graded
- SANDY SILT

07-13-2006 H:\Blymyer_Jobs\2003\203004 fiesta-oakland\203004.FB\BoreLogs\203004EWcross1.cro



Former Fiesta Beverages
966 & 960 89th Avenue
Oakland, CA
ACEH Leak Case RO0000314
BEI Job # 203004

BLYMYER ENGINEERS, INC.

Figure 5

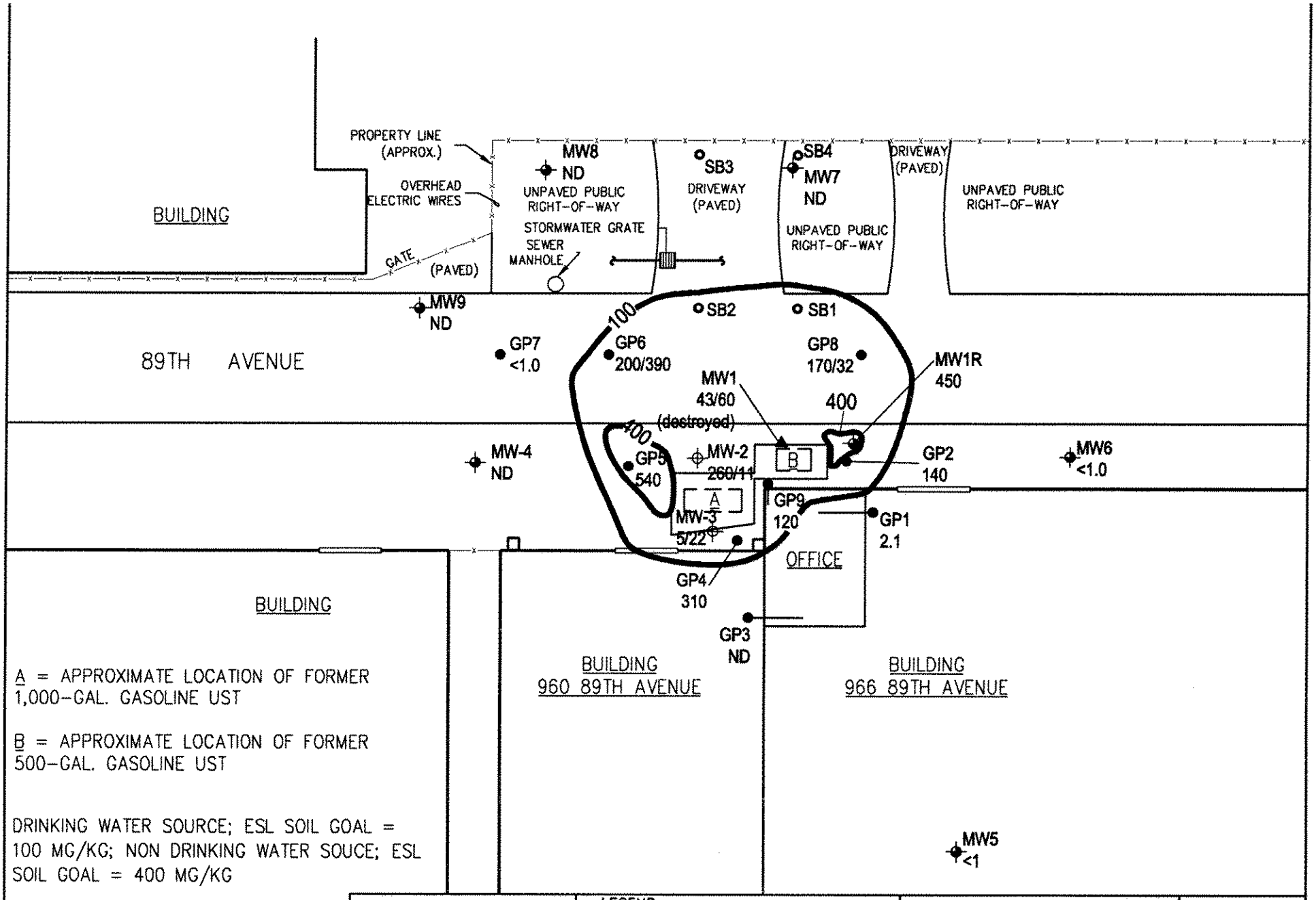
GEOLOGIC CROSS SECTION B - B'

Section North - South
Cross Gradient Section

LEGEND

- SM: SILTY SAND
- CL: CLAY
- CLAYEY SAND
- GRAVEL, Well Graded
- SAND, Poorly Graded
- GRAVELY CLAY
- SAND, Well Graded
- SANDY SILT

07-12-2006 H:\Blymyer_Jobs\2003\203004 fiesta-oakland\203004.FB\BoreLogs\203004NScross.cro



BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	8-24-06

SOIL TPH AS GAS ISOCONCENTRATION MAP 6-12 FT. BGS FORMER FIESTA BEVERAGE 966 89TH AVE. OAKLAND, CA

FIGURE 6

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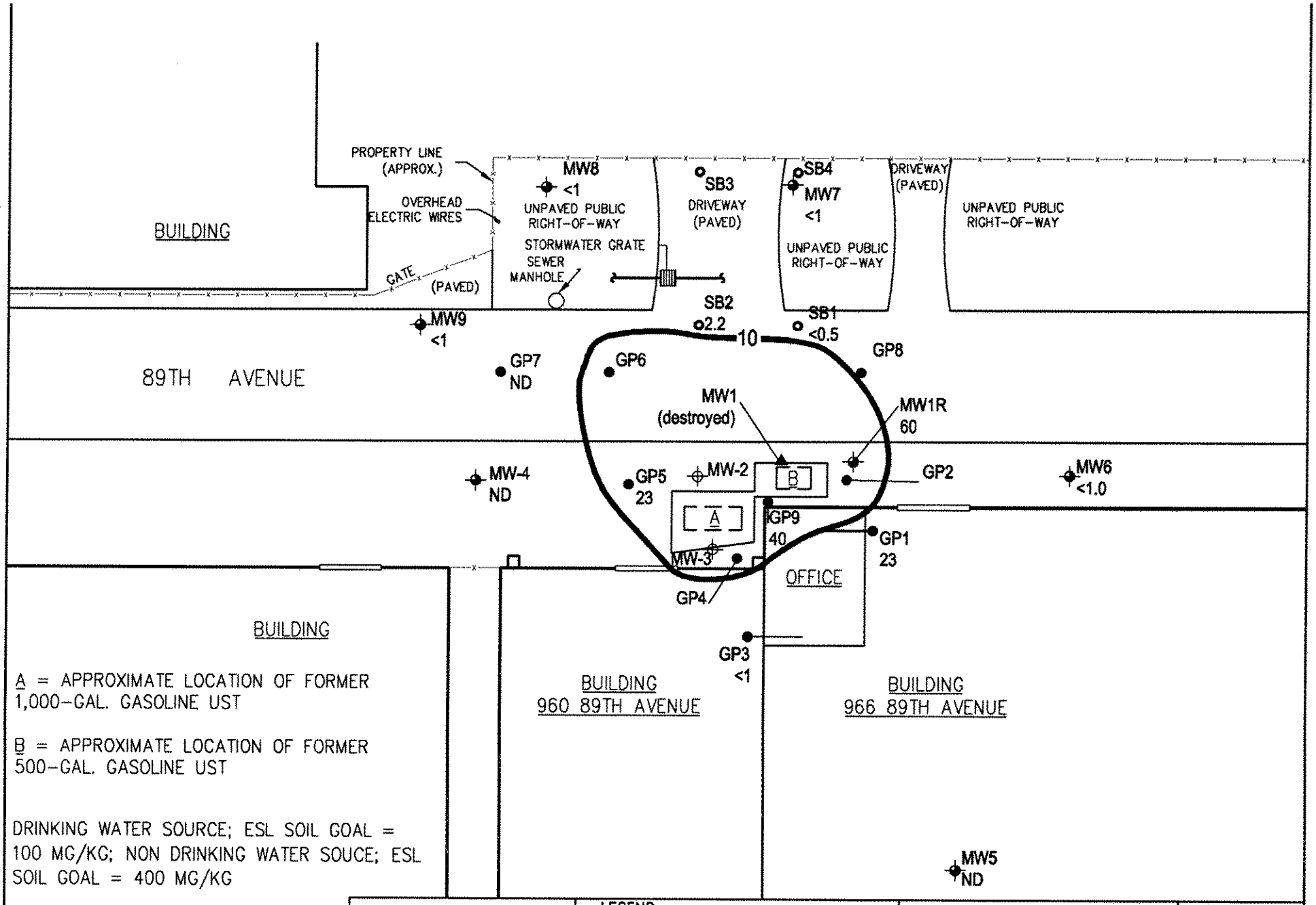

BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	8-24-06

SOIL TPH AS GAS ISOCONCENTRATION MAP 12-16.5 FT. BGS FORMER FIESTA BEVERAGE 966 89TH AVE. OAKLAND, CA

FIGURE 7

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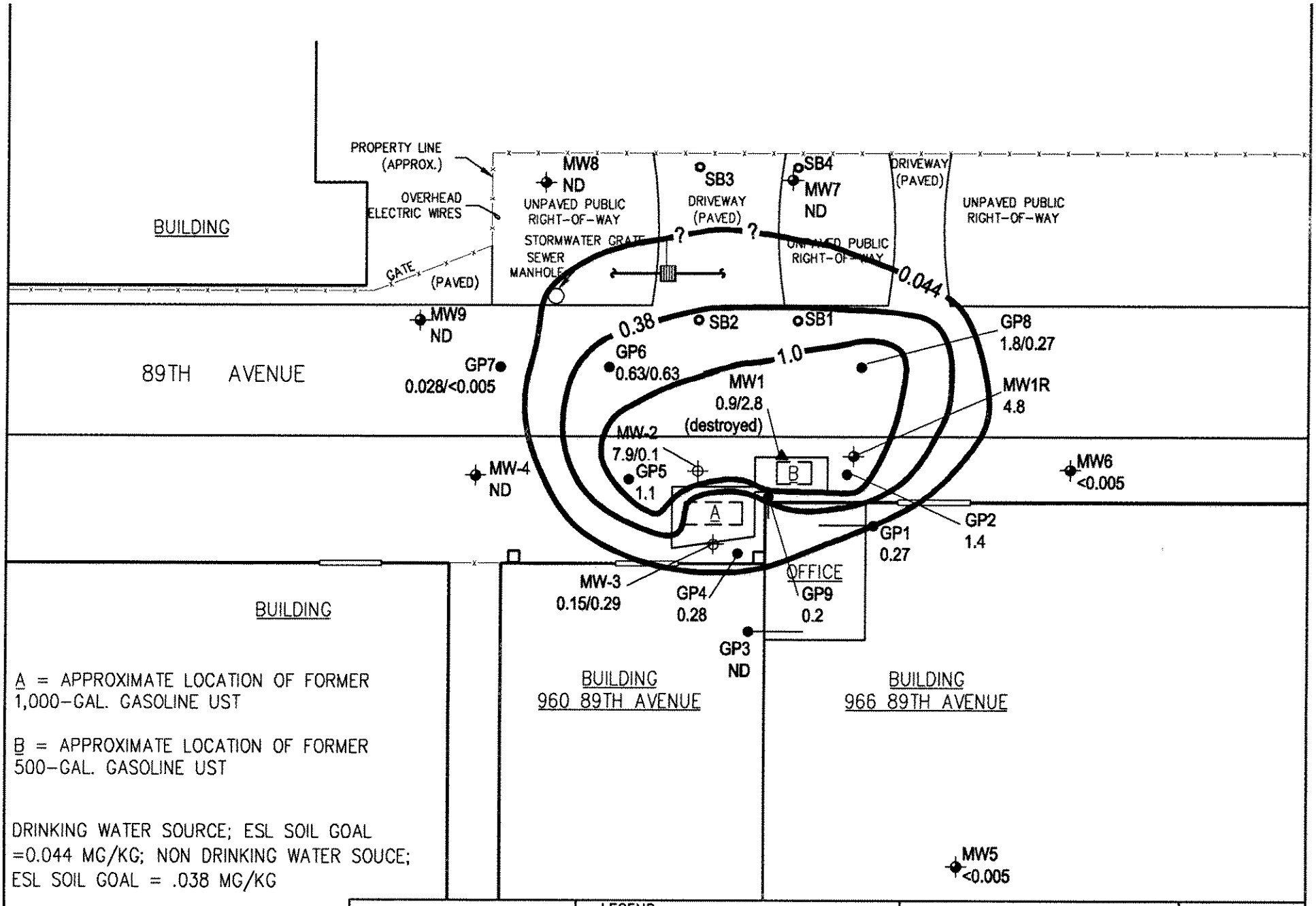

BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	8-24-06

SOIL BENZENE ISOCONCENTRATION MAP
6-12 FT. BGS
FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE 8

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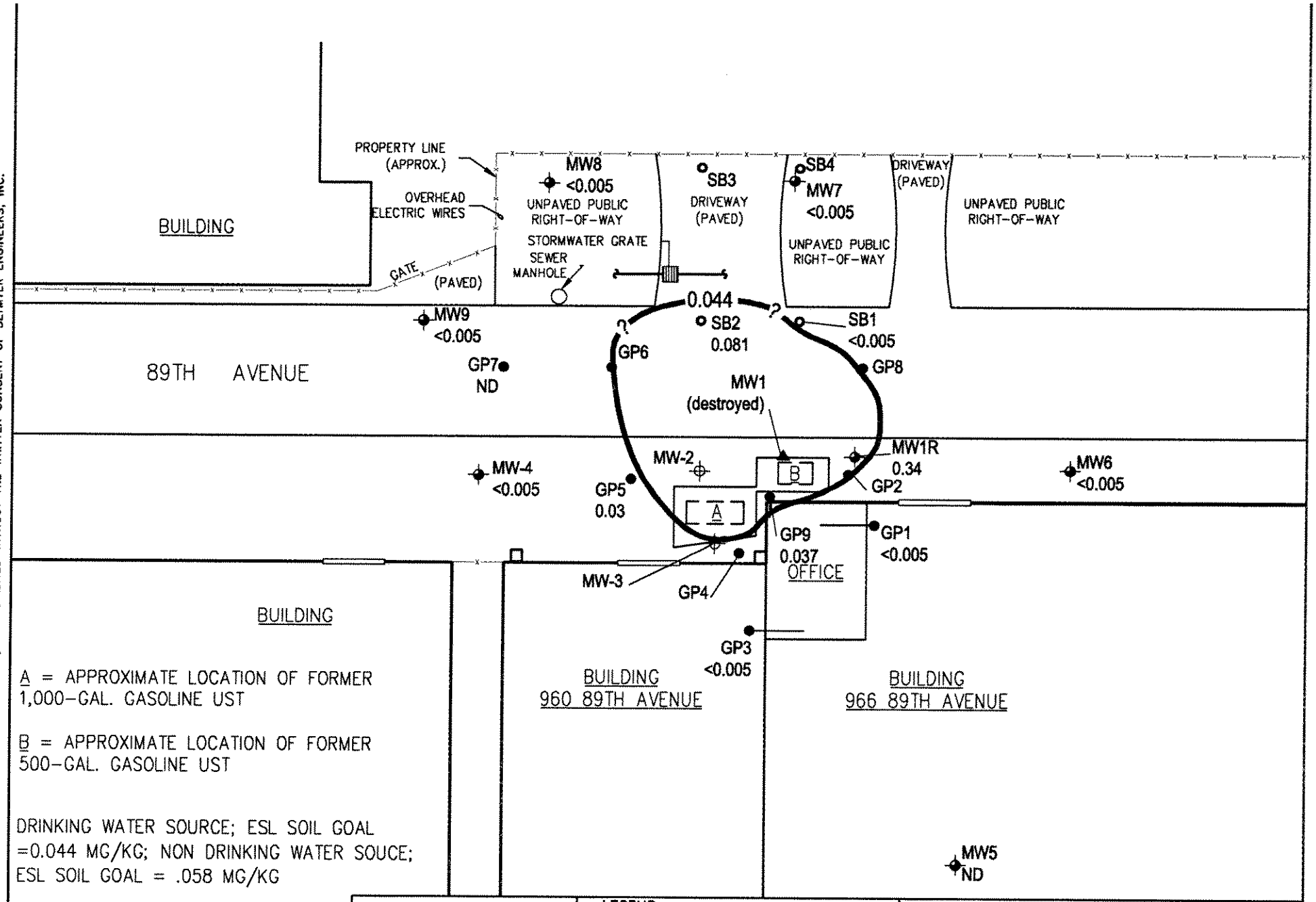

BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	8-24-06

SOIL BENZENE ISOCONCENTRATION MAP
12-16.5 FT. BGS
FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE 9

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Figure 10 - MW-1: TPH as Gasoline & Groundwater Elevation vs. Time

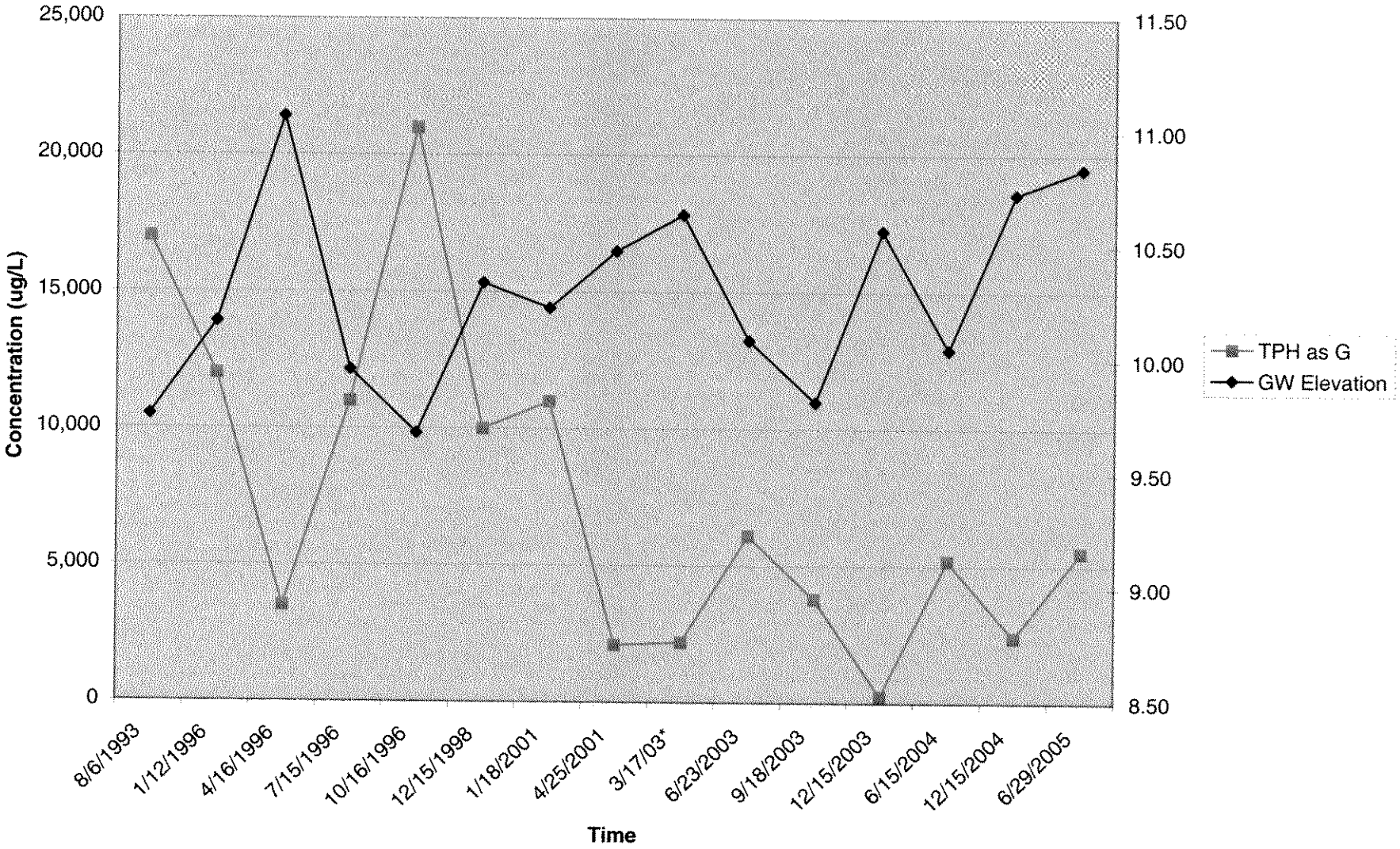


Figure 11 - MW-1: Benzene & Groundwater Elevation vs. Time

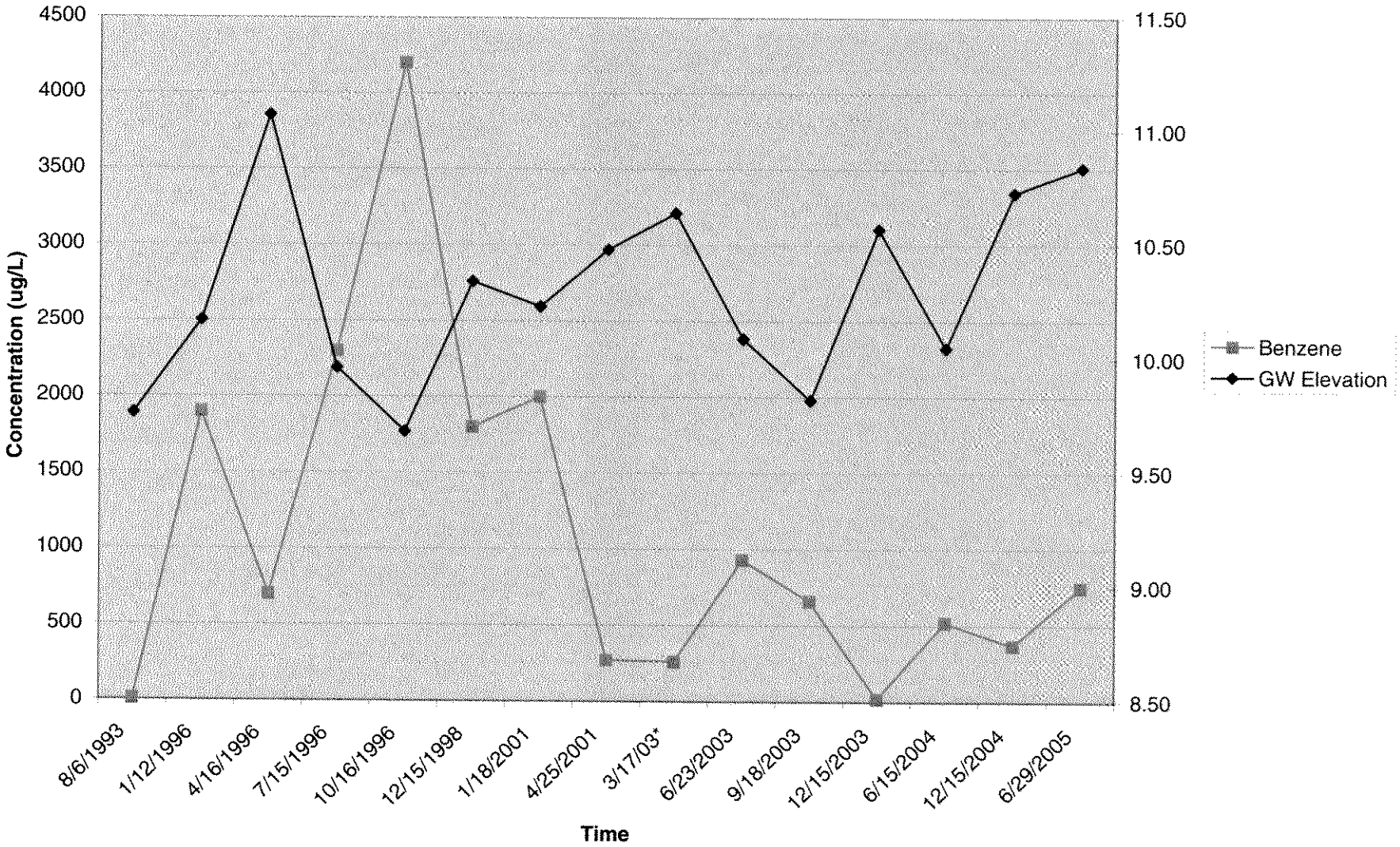


Figure 12 - MW-3: TPH as Gasoline & Groundwater Elevation vs. Time

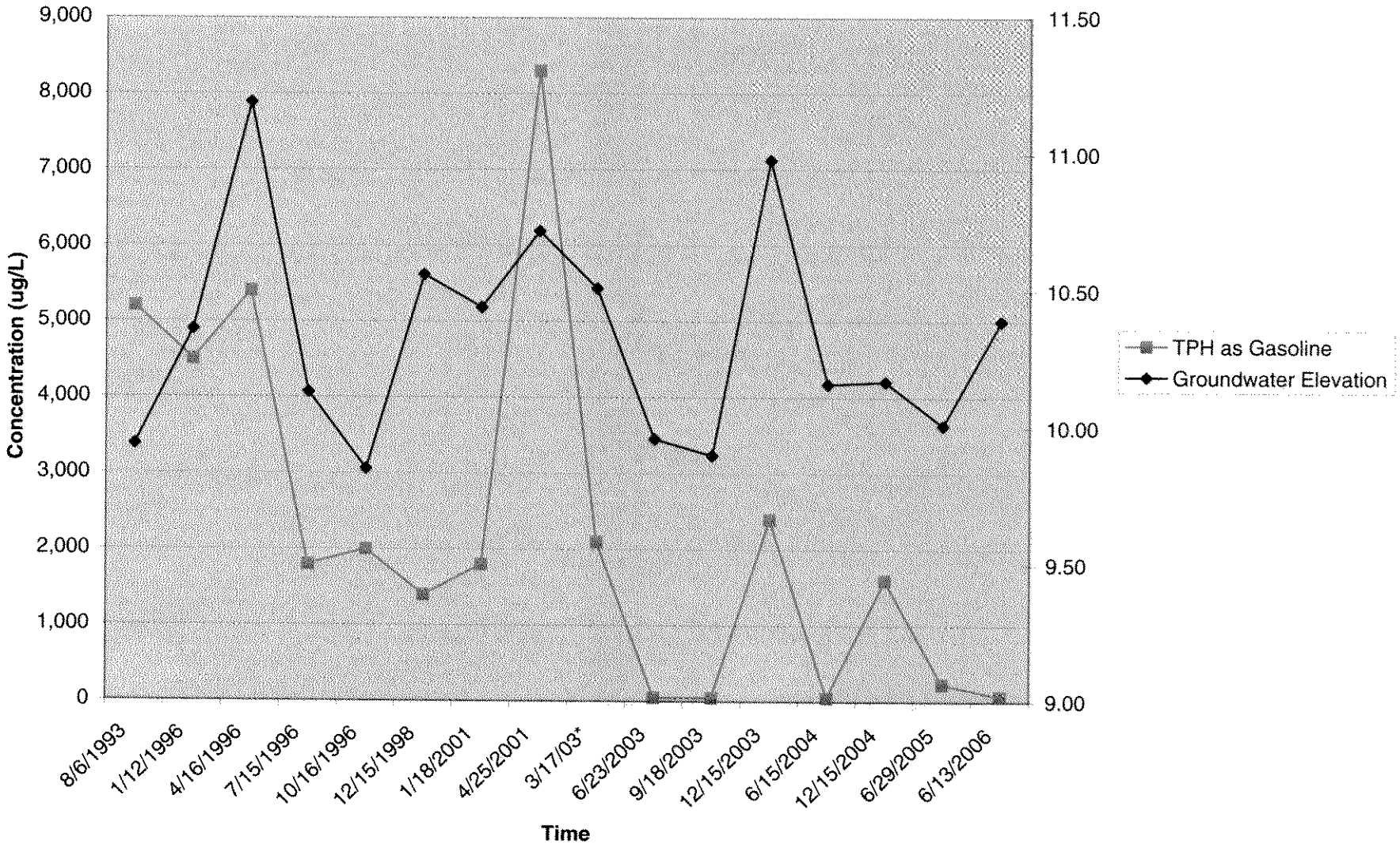
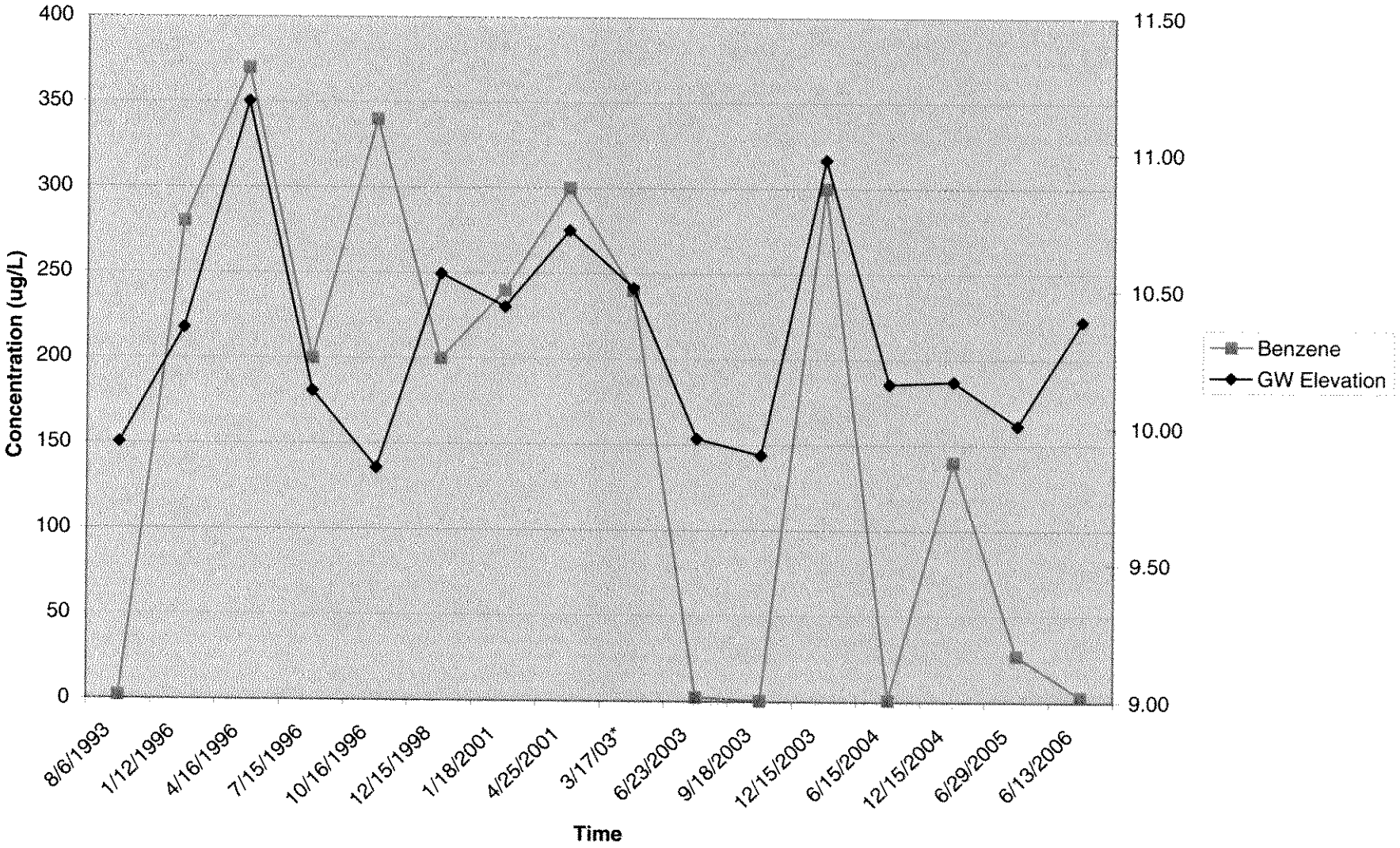
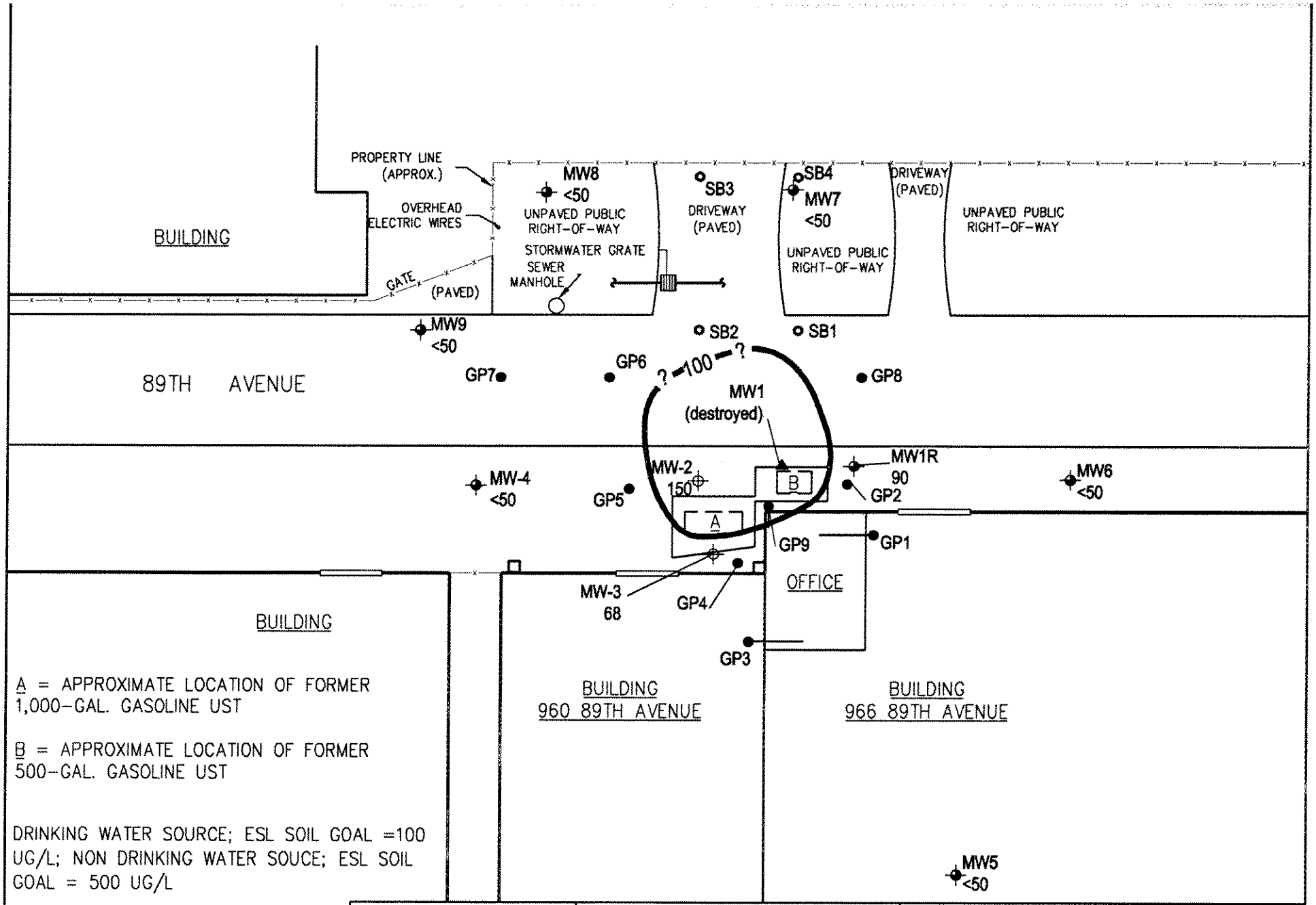


Figure 13 - MW-3: Benzene & Groundwater Elevation vs. TIme





BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	8-24-06

GROUNDWATER TPH AS GAS ISOCONCENTRATION MAP
JUNE 13, 2006
FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE 14

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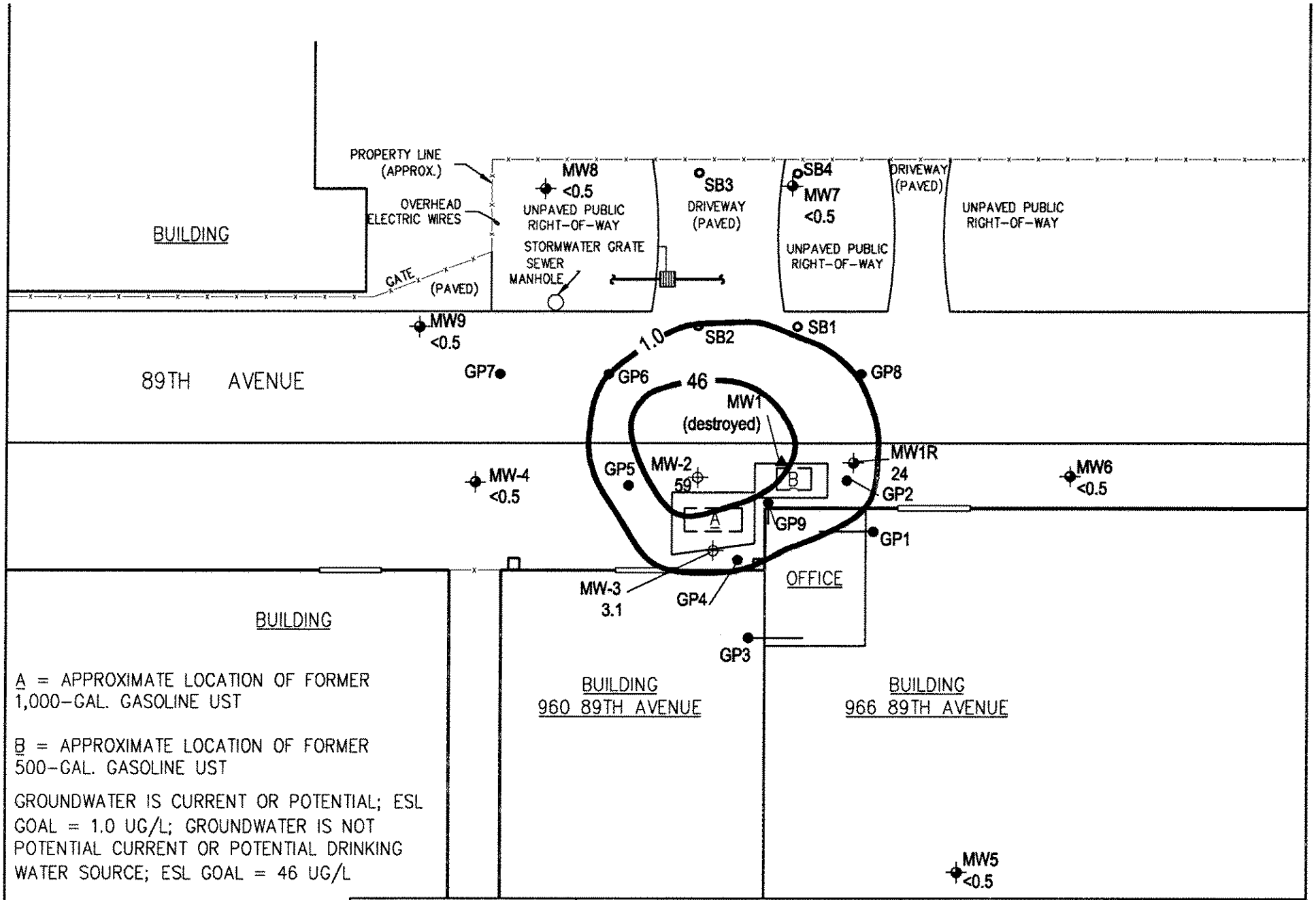


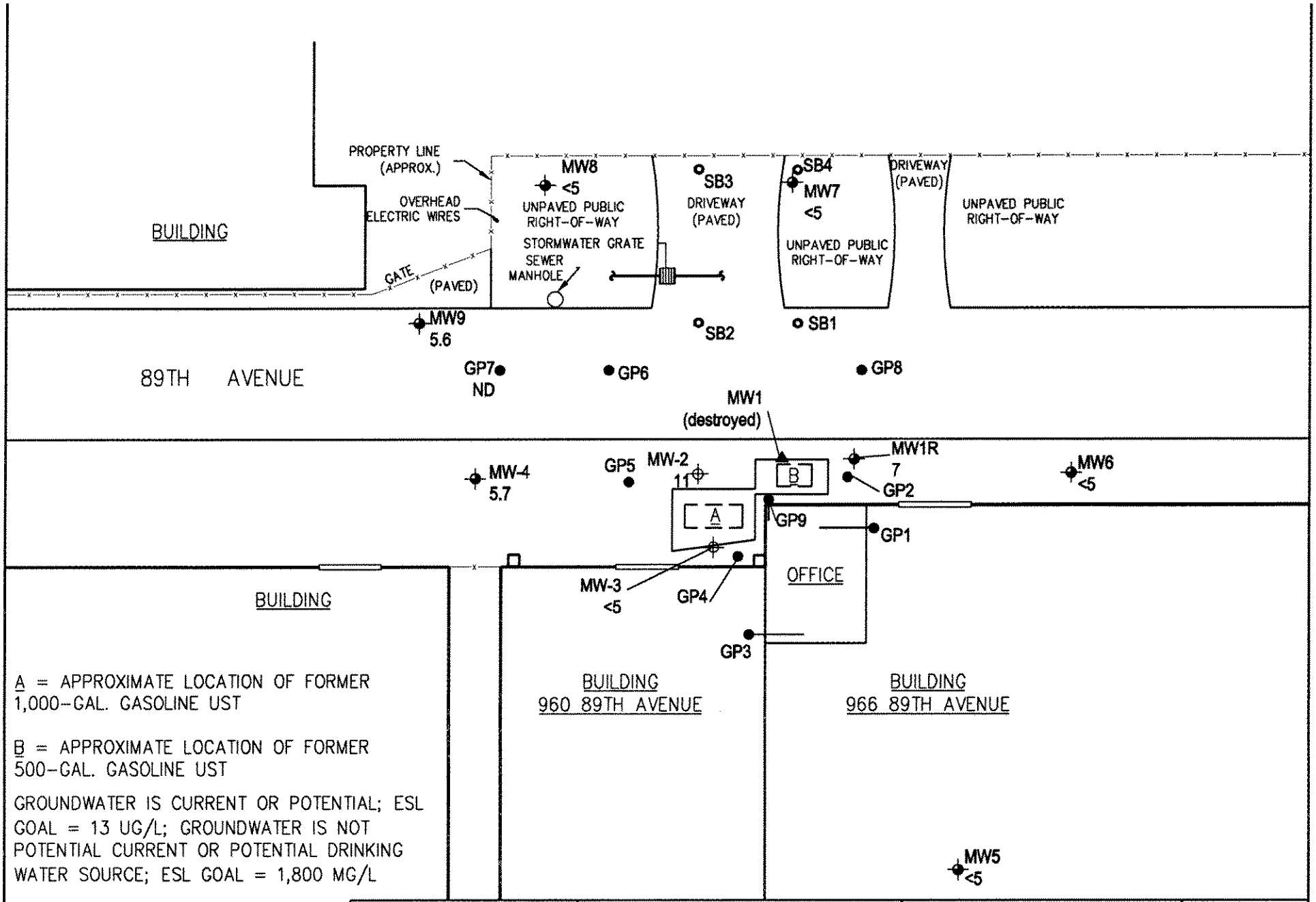
BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	8-24-06

GROUNDWATER TPH AS BENZENE ISOCONCENTRATION MAP
JUNE 13, 2006
FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE 15

L:\Acad\2003dwg\203004\203004fig15.dwg August 28, 2006 - 3:16PM lwittstock



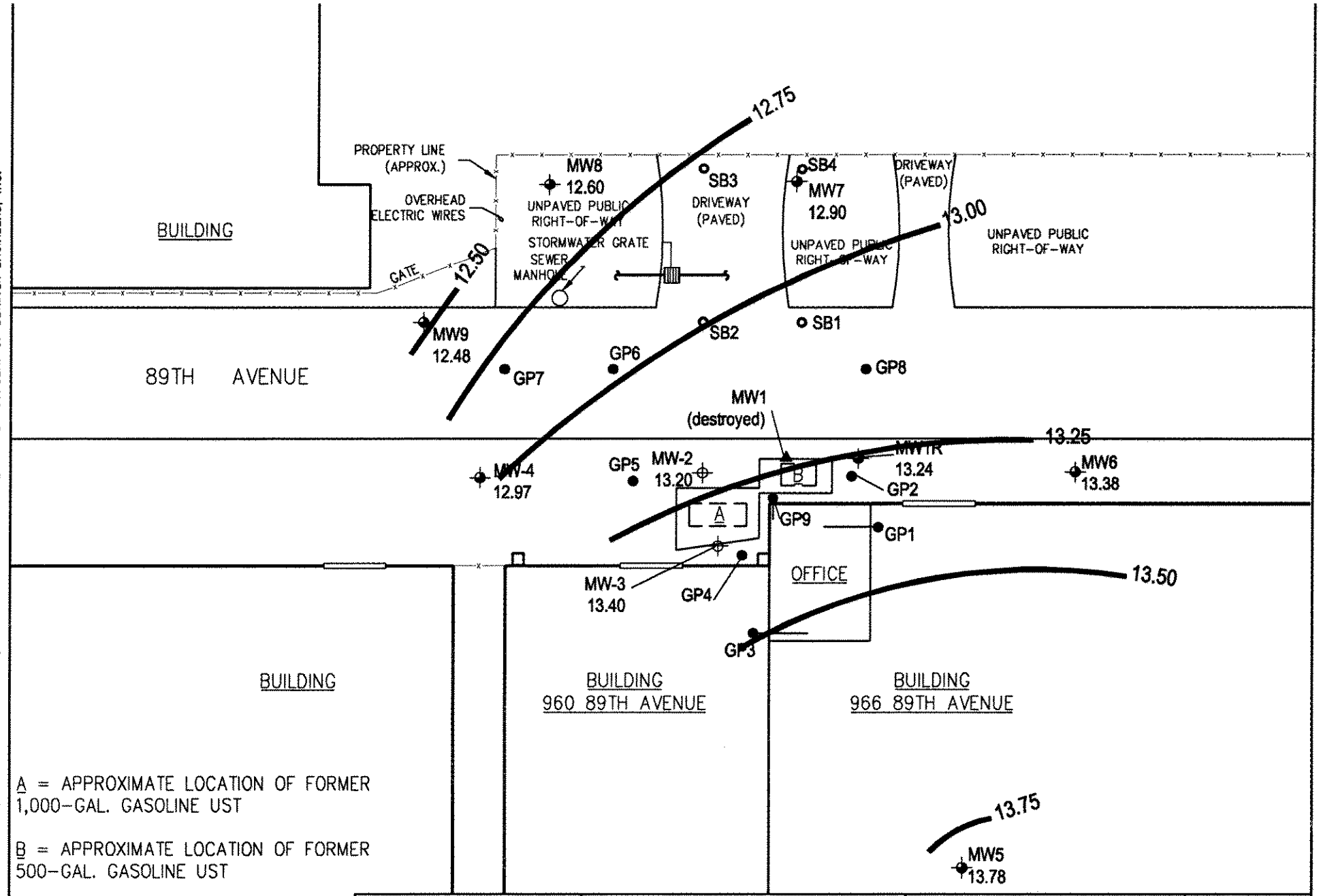
BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	8-24-06

GROUNDWATER MTBE ISOCONCENTRATION MAP
JUNE 13, 2006
FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE 16

L:\Acad\2003dwg\203004\203004fig16.dwg August 28, 2006 - 3:16PM lwittstock



BLYMYER ENGINEERS, INC.

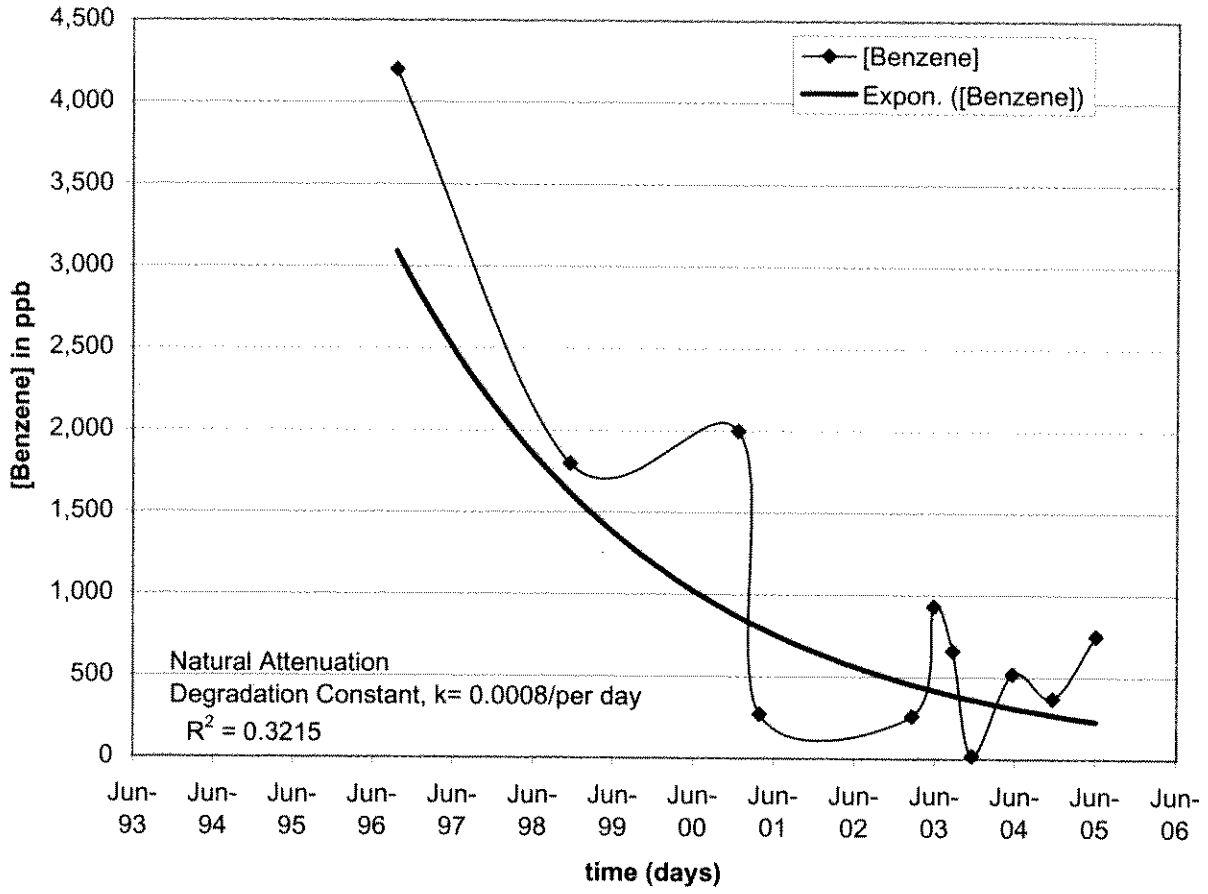
BEI JOB NO.	DATE
203004	8-24-06

GROUNDWATER GRADIENT
JUNE 12, 2006
FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE
17

L:\Acad\2003dwg\203004\203004fig17.dwg August 28, 2006 - 3:17PM lwittstock

FIGURE 18: BENZENE Decay Curve for MW-1
Estimate of Natural Attenuation Rate, k



Input for trend

Date	Observed [Benzene]
08/06/93	**7.1**
01/12/96	**1,900**
04/16/96	**700**
07/15/96	**2,300**
10/16/96	**4,200**
12/15/98	**1,800**
01/18/01	**2,000**
04/25/01	**270**
03/17/03	**260**
06/23/03	**930**
09/18/03	**660**
12/15/03	**19**
06/15/04	**520**
12/15/04	**370**
06/29/05	**750**

Best fit equation of the form:

Decay equation $C(t) = C_0 e^{-kt}$

C(t)	Concentration after time, t
C_0	Initial concentration
k	Degradation or Attenuation constant
t	time

R^2 = correlation coefficient
estimate of goodness of fit between actual and exponential data

ppb = parts per billion (micrograms per liter [µg/L])

Figure 19: Benzene Plume Fate Assuming Natural Attentuation

Measured MW-1 Data	
Date	[Benzene]
08/06/93	**7.1**
01/12/96	**1,900**
04/16/96	**700**
07/15/96	**2,300**
10/16/96	**4,200**
12/15/98	**1,800**
01/18/01	**2,000**
04/25/01	**270**
03/17/03	**260**
06/23/03	**930**
09/18/03	**660**
12/15/03	**19**
06/15/04	**520**
12/15/04	**370**
06/29/05	**750**

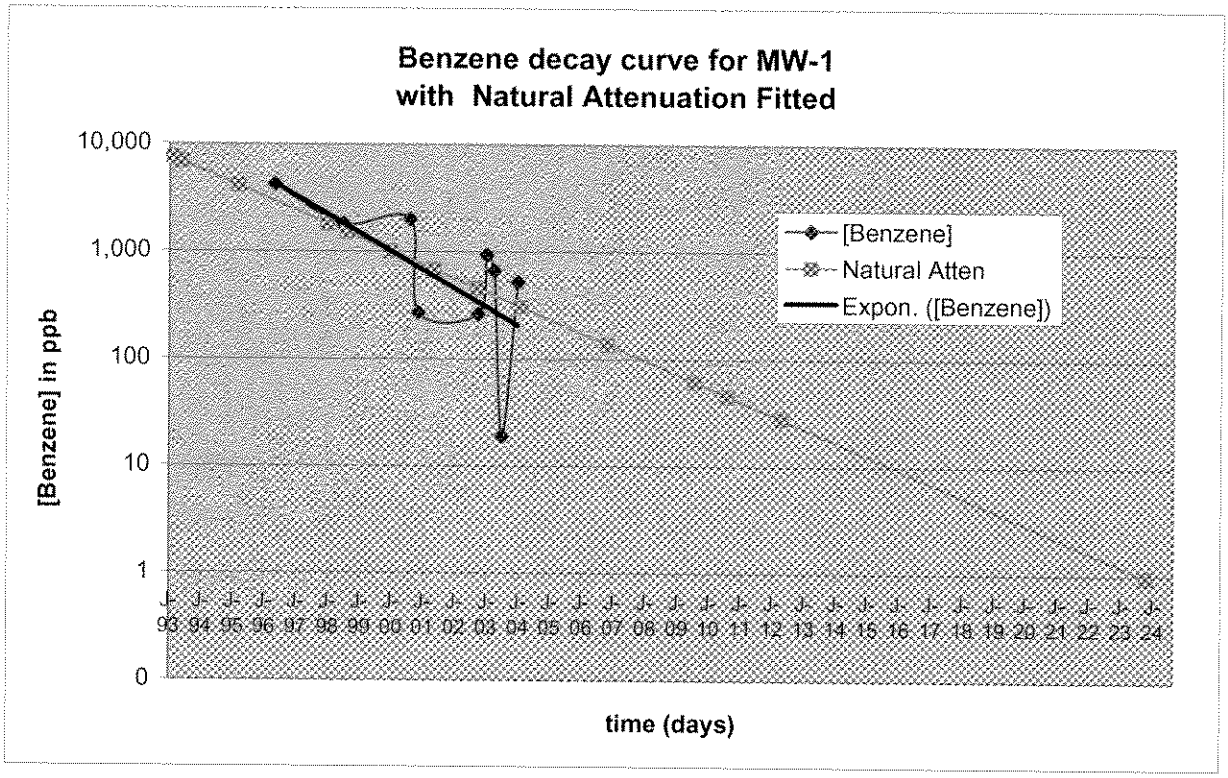
Data before 10/16/96 not included in analysis.

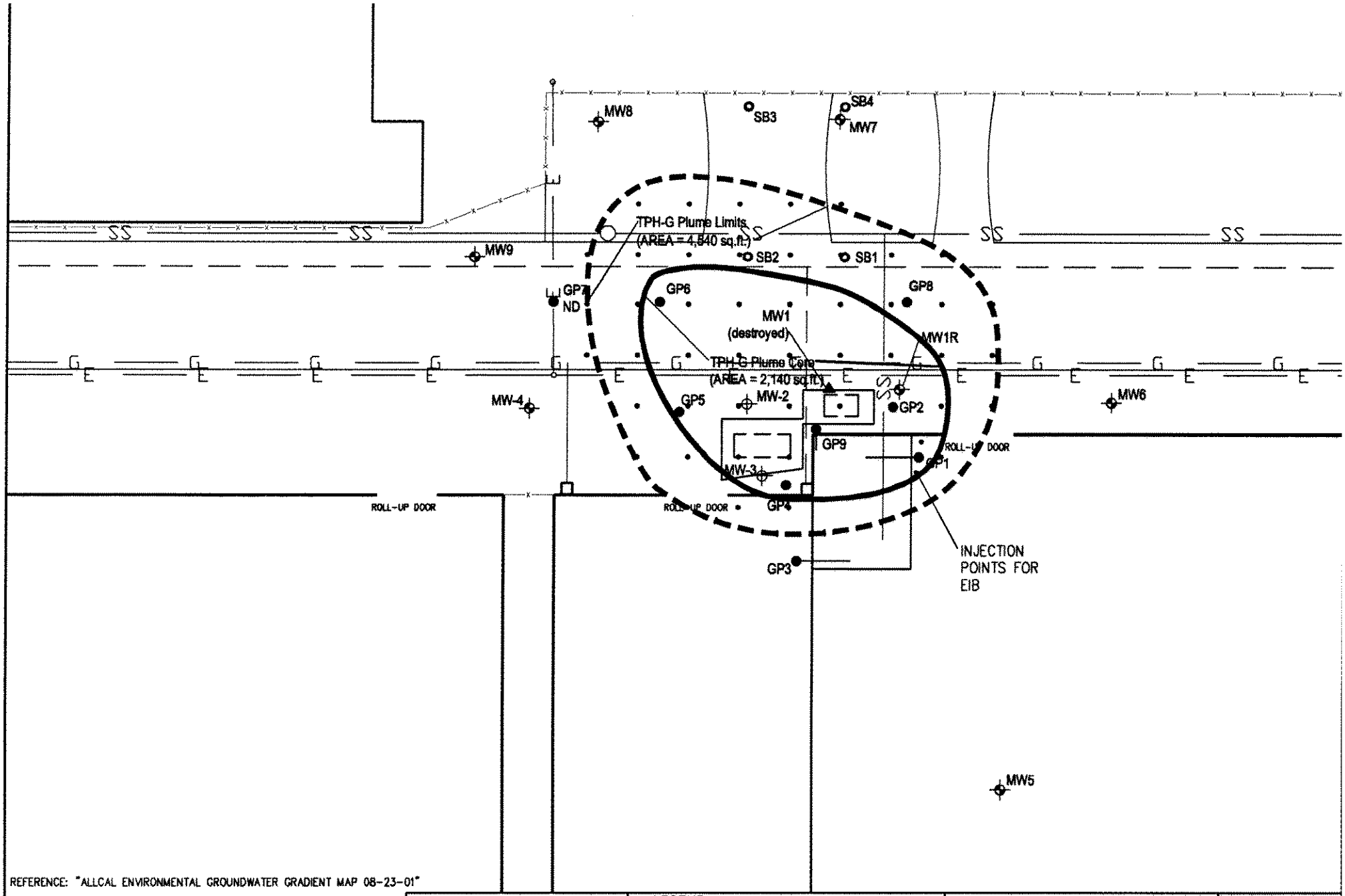
Modeled Natural Attenuation

First Order Decay Equation $C(t) = C_0 e^{-kt}$

C_0 = 7,500 k= 0.0008 ppb/d

	years	Date	days	[Benzene]
Initial Impact	0.0	08/06/93	0	7,500
	0.3	11/14/93	100	6,923
First Observed	2.1	08/26/95	750	4,116
by fit	4.9	06/16/98	1775	1,813
	5.5	01/27/99	2000	1,514
	6.8	06/10/00	2500	1,015
	8.2	10/23/01	3000	680
	9.6	03/07/03	3500	456
	11.0	07/19/04	4000	306
	13.7	04/15/07	5000	137
	16.4	01/09/10	6000	62
	17.5	01/24/11	6380	46
	19.2	10/05/12	7000	28
MCL	**30.7**	04/05/24	**11200**	1.0





REFERENCE: "ALLCAL ENVIRONMENTAL GROUNDWATER GRADIENT MAP 08-23-01"

0 25
SCALE IN FEET

BLYMYER ENGINEERS, INC.

BEI JOB NO.	DATE
203004	6-22-06

LEGEND

UST	UNDERGROUND STORAGE TANK
NS	NOT SAMPLED
ND	NOT DETECTED
	GROUNDWATER MONITORING WELL
SB4	SOIL BORE (INSTALLED BY ALLCAL)
GP1	SOIL BORE
	SOIL BORE-ANGLED
	GROUNDWATER MONITORING WELL
	DESTROYED GW MONITORING WELL

TPH-G PLUME CORE AND LIMITS WITH ESTIMATED INJECTION POINTS

FORMER FIESTA BEVERAGE
966 89TH AVE.
OAKLAND, CA

FIGURE
20

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Appendix A

Alameda County Public Works Agency – Water Resources
Well Permits W2006–0269 to W2006–0276,
City of Oakland Traffic Permit TSD-06-0073,
City of Oakland Minor Encroachment Permit ENMI06152,
City of Oakland Excavation Permit X0600512

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 04/12/2006 By jamesy
Permits Issued: W2006-0269 to W2006-0276

Receipt Number: WR2006-0170
Permits Valid from 05/08/2006 to 05/09/2006

Application Id: 1144781677892
Site Location: Former Fiesta Beverages
966 89th Avenue
City of Project Site: Oakland

Project Start Date: 05/08/2006
Completion Date: 05/09/2006

Applicant: Blymyer Engineers, Inc. - Mark Detterman
1829 Clement Avenue, Alameda, CA 94501
Phone: 510-521-3773

Property Owner: Ted Walbey
7150 Island Queen Drive, Sparks, NV 89436
Phone: 510-520-6204

Client: ** same as Property Owner **

Contact: Mark Detterman
Phone: 510-521-3773
Cell: 510-333-5032

Total Due: $2400.00
Total Amount Paid: $2400.00
Payer Name : Mark E. Detterman Paid By: MC **PAID IN FULL**

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 7 Wells
Driller: ResonantSonic International - Lic #: 57802334 - Method: hstem

Work Total: $2100.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2006-0269	04/12/2006	07/24/2006	MW-1R	6.00 in.	2.00 in.	8.00 ft	20.00 ft
W2006-0270	04/12/2006	07/24/2006	MW-4	6.00 in.	2.00 in.	8.00 ft	20.00 ft
W2006-0271	04/12/2006	07/24/2006	MW-5	6.00 in.	2.00 in.	8.00 ft	20.00 ft
W2006-0272	04/12/2006	07/24/2006	MW-6	6.00 in.	2.00 in.	8.00 ft	20.00 ft
W2006-0273	04/12/2006	07/24/2006	MW-7	6.00 in.	2.00 in.	8.00 ft	20.00 ft
W2006-0274	04/12/2006	07/24/2006	MW-8	6.00 in.	2.00 in.	8.00 ft	20.00 ft
W2006-0275	04/12/2006	07/24/2006	MW-9	6.00 in.	2.00 in.	8.00 ft	20.00 ft

Specific Work Permit Conditions

1. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

2. Permitte, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

3. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained.

4. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well destruction (Sections 13750 through 13755 (Division 7, Chapter 10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.

5. Applicant shall contact George Cashen for an inspection time at 510-670-6610 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

6. Wells shall have a Christy box or similar structure with a locking cap or cover. Well(s) shall be kept locked at all times. Well(s) that become damaged by traffic or construction shall be repaired in a timely manner or destroyed immediately (through permit process). No well(s) shall be left in a manner to act as a conduit at any time.

7. Minimum surface seal thickness is two inches of cement grout placed by tremie

8. Minimum seal depth for monitoring wells is 5 feet below ground surface(BGS) or the maximum depth practicable or 20 feet.

9. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

10. Applicant shall submit the copies of the approved encroachment permit to this office within 60 days.

Well Destruction-Monitoring - 1 Wells

Driller: ResonantSonic International - Lic #: 57802334 - Method: hstem **Work Total: $300.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth	State Well #	Orig. Permit #	DWR #
W2006-0276	04/12/2006	07/24/2006	MW-1	6.00 in.	2.00 in.	5.00 ft	26.50 ft			

Specific Work Permit Conditions

1. Drilling Permit(s) can be voided/ cancelled only in writing. It is the applicant's responsibility to notify Alameda County Public Works Agency, Water Resources Section in writing for an extension or to cancel the drilling permit application. No drilling permit application(s) shall be extended beyond ninety (90) days from the original start date. Applicants may not cancel a drilling permit application after the completion date of the permit issued has passed.

2. Prior to any drilling activities, it shall be the applicant's responsibility to contact and coordinate an Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits or agreements required for that Federal, State, County or City, and follow all City or County Ordinances. No work shall begin until all the permits and requirements have been approved or obtained.

3. Compliance with the well-sealing specifications shall not exempt the well-sealing contractor from complying with appropriate State reporting-requirements related to well destruction (Sections 13750 through 13755 (Division 7, Chapter

10, Article 3) of the California Water Code). Contractor must complete State DWR Form 188 and mail original to the Alameda County Public Works Agency, Water Resources Section, within 60 days. Including permit number and site map.

4. Applicant shall submit the copies of the approved encroachment permit to this office within 60 days.

5. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost and liability in connection with or resulting from the exercise of this Permit including, but not limited to, property damage, personal injury and wrongful death.

6. Applicant shall contact George Cashen for an inspection time at 510-670-6610 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

7. Permitte, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled, properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

8. Remove the Christy box or similar structure.

Destroy well by grouting neat cement with a tremie pipe or pressure grouting (25 psi for 5min.) to the bottom of the well and by filling with neat cement to three (3-5) feet below surface grade. Allow the sealing material to spill over the top of the casing to fill any annular space between casing and soil.

After the seal has set, backfill the remaining hole with concrete or compacted material to match existing conditions.

SPECIAL PROVISION 7-10.1 TRAFFIC REQUIREMENTS

Project Name: _____
Project Number: TSD-06-0073
Reviewed By: JWatson
Date: 4/10/2006
Permit good from 4//06
to 4//06

ADD NEW SUBSECTION TO READ:
SP 7-10.1.4 Vehicular Traffic

Attention is directed to Section 7-10. Public Convenience and Safety, of the City of Oakland Standard Specification for Public Works Construction, 2000 Edition (Include this paragraph for p-jobs, excavation permits or obstruction permits).

The Contractor shall conduct its work in such a manner as to provide public convenience and safety and according to the provisions in this subsection. The provisions shall not be modified or altered without written approval from the Engineer.

Standard traffic control devices shall be placed at the construction zone according to the latest edition of the Work Area Traffic Control Handbook or Caltrans Traffic Manual, Chapter 5 – "Traffic Controls for Construction and Maintenance Work Zone," or as directed by the Engineer.

All trenches and excavations in any public street or roadway shall be back filled and opened to traffic, or covered with suitable steel plates securely placed and opened to traffic at all times except during actual construction operations unless otherwise permitted by the Engineer.

Each section of work shall be completed or temporarily paved and open to traffic in not more than 5 days after commencing work unless otherwise permitted in writing by the Engineer.

Where construction encroaches into the sidewalk area, a minimum of 5 ½ feet of unobstructed sidewalk shall be maintained at all times for pedestrian use. Pedestrian barricades, shelter, and detour signs per Caltrans standards may be required.

The contractor shall conduct its operation in such a manner as to leave the following traffic lanes unobstructed and in a condition satisfactory for vehicular travel during the Obstruction Period. At all times traffic lanes will be restricted and reopened to travel. Emergency access shall be provided at all times.

Street Name Limits	Obstruction Period	North Bound	South Bound	East Bound	West Bound
89th Avenue between G Street and E Street	7am-4pm	N/A	N/A	1-12' lane open minimum	

The Contractor Shall Also include all check item:

1. ☐ Design a construction traffic control plan and submit (2) copies to the Engineer for approval prior to starting any work.
2. ☒ Replace all signs, pavement markings, and traffic detector loops damaged or removed due to construction within 3 days of completion of work or the final pavement lift.
3. ☒ Provide advance notice to Oakland Police at (510) 615-5874 (24-hrs) and Oakland Fire at (510) 238-3331 (2-rhs) when a single lane of traffic or less is provided on any street.
4. ☒ Provide 72-hour advance notice to AC Transit at (510) 891-4909 when affecting a bus stop.
5. ☒ For Caltrans roadways, ramps, or maintained facilities, the Contractor shall obtain appropriate permits and notify the Traffic Management Center 24 hours in advance of any work.
6. ☐ Flagger control is required. Certified Flagger is required.
7. ☐ Pedestrian walkway by K-rail, Canopy or Plywood is required. (See detour plan)
8. ☒ Pedestrian traffic shall be maintained and guided through the project at all times.
9. ☒ Provide advance notice to Business and Residence within 72-hours.
10. ☒ Allow all traffic movement at intersection.

Nothing specified herein shall prohibit emergency work and/or repair necessary to ensure public health and safety.

Approved: [signature] 7/10/06
TRANSPORTATION OPERATIONS DIVISION
CITY OF OAKLAND

CITY OF OAKLAND • Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • FAX (510) 238-2263

Job Site 966 89TH AV Parcel# 042 -4286-001-08 Appl# ENMI06152

Descr Application for monitoring wells on 89th Av Filed 04/13/06

Work Type OTHER MINOR ENCROACH

Insurance Required? YES Carrier Expires

		Applcnt	Phone#	Lic#	--License Classes--
Owner	FIESTA BEVERAGES	X	(510)520-6204		
Contractor					
Arch/Engr					
Agent	BLYMYER ENGINEERS/M DETTERMAN		(510)521-3773		

Applic Addr 2871 FRIAR ROCK CT, SPARKS NV, 89436

$901.94 TOTAL FEES PAID AT FILING $.00 TOTAL FEES PAID AT ISSUANCE

$59.00	Applic	$.00	Permit
$727.00	Process	$74.67	Rec Mgmt
$.00	Gen Plan	$.00	Invstg
$.00	Other	$41.27	Tech Enh

ADDRESS: JOB SITE

DIST:

CITY OF OAKLAND • Community and Economic Development Agency
250 Frank H. Ogawa Plaza, 2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • FAX (510) 238-2263

Job Site 966 89TH AV Parcel# 042 -4286-001-08 Appl# X0600512

Descr Excavation for monitoring wells on 89th Av Permit Issued 05/24/06

Work Type EXCAVATION-PRIVATE P

USA # Util Co. Job # Acctg#:
Util Fund #:

		Applcnt	Phone#	Lic#	--License Classes--
Owner	FIESTA BEVERAGES		(510)520-6204		
Contractor	RESONANTSONIC	X	(530)668-2424	802334	C57 A
Arch/Engr					
Agent	BLYMYER ENGINEERS/M DETTERMAN		(510)521-3773		

Applic Addr 220 N EAST ST., WOODLAND CA, 95776

$411.96 TOTAL FEES PAID AT ISSUANCE

$59.00 Applic	$300.00 Permit
$.00 Process	$34.11 Rec Mgmt
$.00 Gen Plan	$.00 Invstg
$.00 Other	$18.85 Tech Enh

ADDRESS:

DIST:

Appendix B

Soil Bore Logs and Well Construction Details

KEY TO BORE/WELL CONSTRUCTION LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS				TYPICAL NAMES
COARSE GRAINED SOILS (MORE THAN HALF IS LARGER THAN NO. 200 SIEVE)	GRAVEL (MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO 4 SIEVE SIZE)	CLEAN GRAVEL WITH LESS THAN 5% FINES	GW	WELL GRADED GRAVEL, GRAVEL-SAND MIXTURES
			GP	POORLY GRADED GRAVEL, GRAVEL-SAND MIXTURES
		GRAVEL WITH OVER 12% FINES	GM	SILTY GRAVEL, GRAVEL-SAND-SILT MIXTURES
			GC	CLAYEY GRAVEL, GRAVEL-SAND-CLAY MIXTURES
	SAND (MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO 4 SIEVE SIZE)	CLEAN SAND WITH LESS THAN 5% FINES	SW	WELL GRADED SAND, GRAVELLY SAND
			SP	POORLY GRADED SAND, GRAVELLY SAND
		SAND WITH OVER 12% FINES	SM	SILTY SAND, SAND-SILT MIXTURES
			SC	CLAYEY SAND, SAND-CLAY MIXTURES
FINE GRAINED SOILS (MORE THAN HALF IS SMALLER THAN NO. 200 SIEVE)	SILT AND CLAY (LIQUID LIMIT LESS THAN 50)		ML	INORGANIC SILT, ROCK FLOUR, SANDY OR CLAYEY SILT OF LOW PLASTICITY
			CL	INORGANIC CLAY OF LOW TO MEDIUM PLASTICITY, GRAVELLY, SANDY, OR SILTY CLAY (LEAN)
			OL	ORGANIC SILT AND ORGANIC SILTY CLAY OF LOW PLASTICITY
	SILT AND CLAY (LIQUID LIMIT GREATER THAN 50)		MH	INORGANIC SILT, MICACEOUS OR DIATOMACIOUS FINE SANDY OR SILTY SOIL, ELASTIC SILT
			CH	INORGANIC CLAY OF HIGH PLASTICITY, GRAVELLY, SANDY OR SILTY CLAY (FAT)
			OH	ORGANIC CLAY, ORGANIC SILT OF MEDIUM TO HIGH PLASTICITY
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS

FILL MATERIALS

C	CONCRETE
F	FILL
A	ASPHALT

WELL CONSTRUCTION MATERIALS

CEMENT GROUT	
BENTONITE	
FILTER SAND	SEE ABOVE FOR CONCRETE SYMBOL

SOIL CONSISTENCY FROM DRIVE SAMPLER

NON-COHESIVE SOILS*		COHESIVE SOILS*		UNCONFINED COMPRESSIVE STRENGTH
SANDS & GRAVELS	BLOWS PER FOOT	SILTS AND CLAYS	BLOWS PER FOOT	STRENGTH TONS/SQ. FT.
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 1/4
LOOSE	4 - 10	SOFT	2 - 4	1/4 - 1/2
MED. DENSE	10 - 30	MEDIUM STIFF	4 - 8	1/2 - 1
DENSE	30 - 50	STIFF	8 - 16	1 - 2
VERY DENSE	OVER 50	VERY STIFF	16 - 32	2 - 4
		HARD	OVER 32	OVER 4

* = STANDARD PENETRATION RESISTANCE IS THE NUMBER OF BLOWS REQUIRED TO DRIVE A 2-INCH O.D. (1-3/8-INCH I.D.) SPLIT BARREL SAMPLER 12 INCHES USING A 140-POUND HAMMER FALLING FREELY THROUGH 30 INCHES. THE SAMPLER IS DRIVEN 18 INCHES AND THE NUMBER OF BLOWS ARE RECORDED FOR EACH 6-INCH INTERVAL. THE SUMMATION OF THE FINAL TWO INTERVALS IS THE STANDARD PENETRATION RESISTANCE.

SAMPLE INTERVAL SYMBOLS

CORED/RECOVERED	CORED/RECOVERED/SAMPLED/ANALYZED
CORED/ NO RECOVERY	N/A NON APPLICABLE/NOT AVAILABLE
CORED/RECOVERED/SAMPLED	

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BLYMYER ENGINEERS, INC.

Groundwater Monitoring Well: MW-1R

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

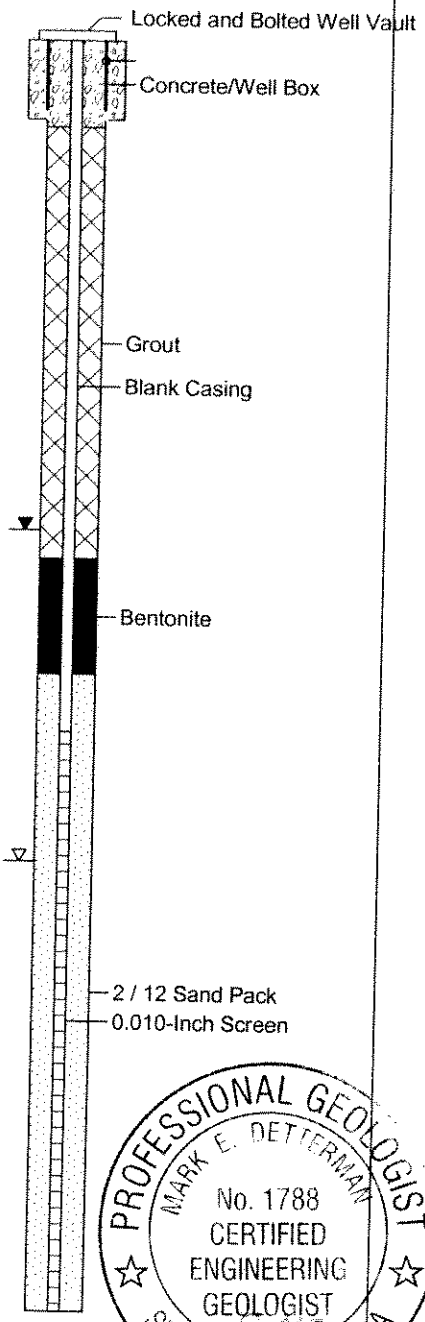
Job Number:	203004	Drilling Equipment	Geoprobe / HSA Dual Rig
Date Drilled:	May 9, 2006	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	8 inch
Drilling Company	ResonantSonic International	Total Drilled Depth	22.0 feet
Driller	Junior	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: ▼ 8.5 feet; ▽ 14.5 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					2 inches asphalt, with 2 inches of yellowish fine to course angular Asphaltic Base gravel (likely Leona Quarry)	AB	
1–2					Dark greenish gray (5G 4/1) SILTY CLAY, with odor; damp	CL	
3				MW1R-3			
4		6.4					
5–6					Grades black (5Y 2.5/2), odor		
7		134		MW1R-7			
8–10						CL	
11		97.9					
12–13					Grades very dark gray (2.5Y N3) to dark greenish gray (5GY 4/1) at 12 feet, damp; odor apparent	CL	
14				W1R-13.5			
14		41.3			Grades to light olive brown (2.5Y 4/3) mottled with yellowish brown (10YR 5/6) CLAYEY SILT, very moist to wet	ML	
16					Increasing Clay between 16 and 16.5 feet	CL	
17		0			Color as above, alternating between SILTY CLAY and CLAYEY SILT, moist to very moist depending on clay content, no free water.	CL	
18–19					Yellowish brown (10YR 5/4) CLAYEY SILT with trace fine grained sand, moist to very moist.	ML	
20		0			No Recovery, driller calls soft, lots of water		
21–22					Bottom of bore: 22 feet		

MW-1 Replacement Well:



PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Groundwater Monitoring Well: MW-4

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

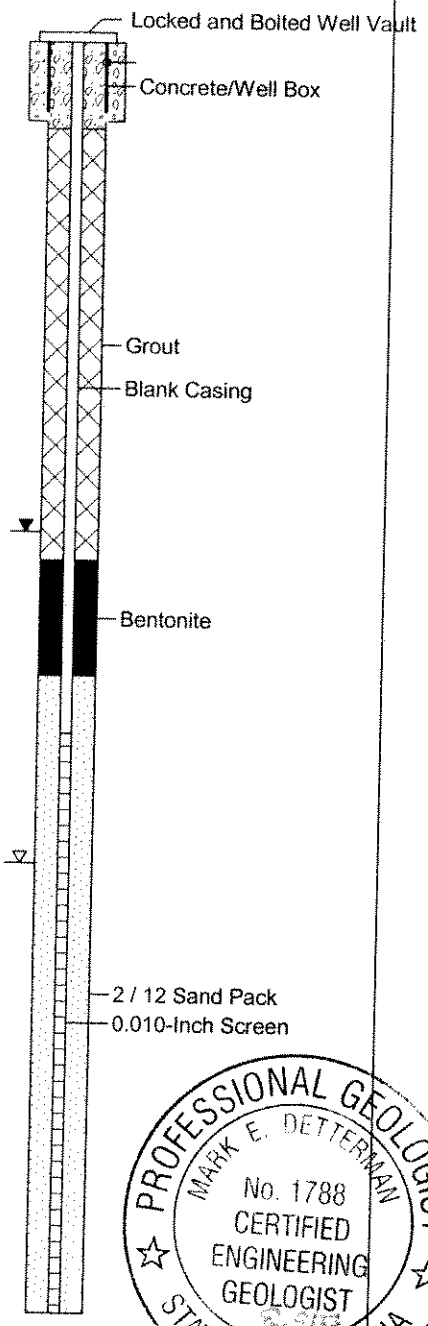
Job Number:	203004	Drilling Equipment	Geoprobe / HSA Dual Rig
Date Drilled:	May 9, 2006	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	8 inch
Drilling Company	ResonantSonic International	Total Drilled Depth	22.0 feet
Driller	Junior	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: ▼ 8.5 feet; ▽ 15.5 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					2 inches asphalt, with 2 inches of yellowish fine to course angular Asphaltic Base gravel (likely Leona Quarry)	AB	
1					Dark olive brown (2.5Y 3/3) SILTY CLAY, soft, moist	CL	
2							
3							
4							
5					Grades black (5Y 2.5/2), moist		
6							
7		0					
8				MW4-7.5		CL	
9							
10							
11					Grades lighter at 10.5 feet	CL	
12		0		MW4-11.5	Olive brown (2.5Y 4/3) SILTY CLAY, trace caliche nodules to 1/8 inch, damp.	CL	
13							
14					Grades to light olive brown (2.5Y 5/3) CLAYEY SILT, with trace carbon flecks, moist.	ML	
15		0		MW4-14.5			
16					Light olive brown (2.5Y 5/3) SILTY SAND, fine grained, moist to wet.	SM	
17							
18					Color as above, alternating between SILTY CLAY to CLAYEY SILT, wet.	ML	
19							
20					No Recovery, driller calls soft, wet.		
21							
22					Bottom of bore: 22 feet		

MW-1 Replacement Well:



PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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Groundwater Monitoring Well: MW-5

BLYMYER ENGINEERS, INC.

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

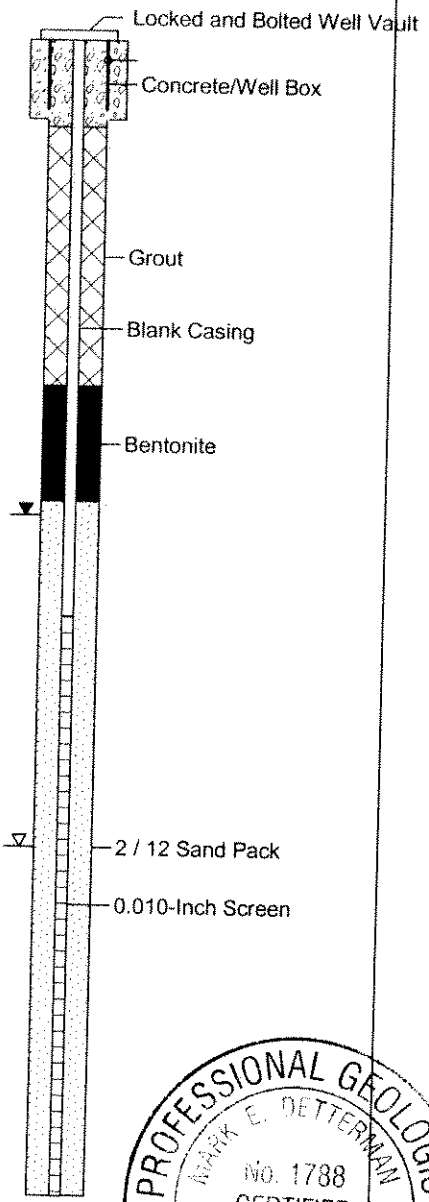
Job Number:	203004	Drilling Equipment	Geoprobe / HSA Dual Rig
Date Drilled:	May 8, 2006	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	8 inch
Drilling Company	ResonantSonic International	Total Drilled Depth	20.0 feet
Driller	Junior	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: ▼ 8.25 feet; ▽ 14 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					6 inches concrete	Concrete	
1					Very dark olive brown (2.5Y 3/3) SILTY SAND, fine grained, damp.	SM	
2							
3							
4							
5		0			Very dark olive brown (2.5Y 3/3) to black (2.5Y N2/) CLAYEY SILT, with burned wood fragments (burnt odor) at 4 ft horizon, damp.	ML	
6							
7		0			Grades dark gray (2.5Y N4/) SILTY CLAY to CLAYEY SILT, moist to very moist (poor recovery).	ML	
8							
9							
10					Grades dark gray (2.5Y N4/), to light olive brown (2.5Y 5/6) CLAYEY SILT to SILTY CLAY, increasingly moist at 13 feet.	CL	
11				MW5-10.5			
12		0					
13							
14					Trace course sand to fine gravels at 14 feet.	SM	
15					Grayish brown (2.5Y 5/2) CLAYEY SILT, w/ trace fine fine grained sand, wet.	ML	
16		0					
17				MW5-16.5	Increasing clay at 17 to 17.5 feet.	CL	
18					As before.	ML	
19							
20					Dark yellowish brown (10YR 4/6) to yellowish brown (10YR 5/8) CLAYEY SILT with 15 to 20% fine grained sand, wet.	ML	
21					Bottom of bore: 20 feet		
22							

MW-1 Replacement Well:



PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Groundwater Monitoring Well: MW-6

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

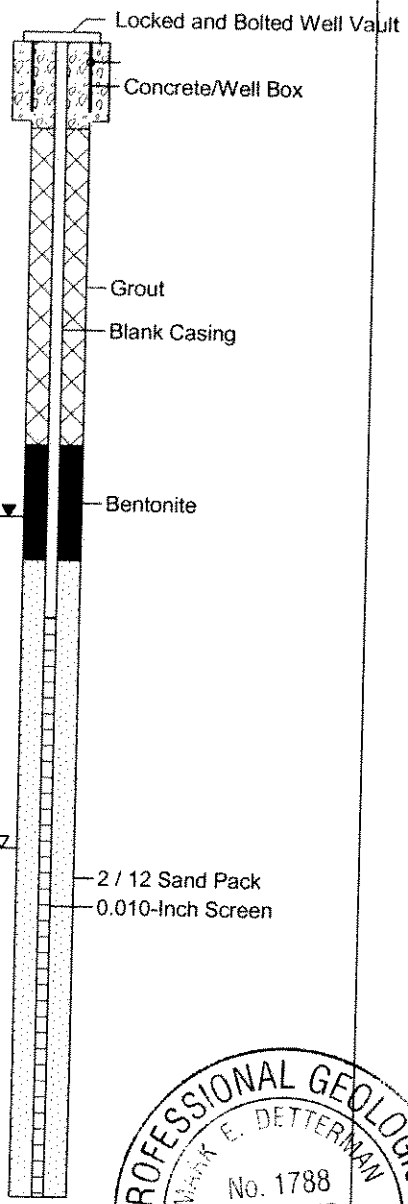
Job Number:	203004	Drilling Equipment	Geoprobe / HSA Dual Rig
Date Drilled:	May 8, 2006	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	8 inch
Drilling Company	ResonantSonic International	Total Drilled Depth	20.0 feet
Driller	Junior	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: ▼ 8.25 feet; ▽ 14 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					2 inches asphalt, with 2 inches of yellowish fine to course angular Asphaltic Base gravel (likely Leona Quarry)	AB	
1							
2		3.4			Very dark grayish brown (2.5Y 3/2) SILTY CLAY, trace odor (sweet?), moist	CL	
3							
4							
5		2.0					
6				MW6-5.5	Grades black (2.5Y N2), trace caliche nodules to 1/8 inch, odor (sweet?), damp to moist.		
7							
8							
9						CL	
10							
11		0					
12				MW6-11.5			
13		0					
14				MW6-13.5	Grades light olive brown (2.5Y 5/4) CLAYEY SILT, moist to very moist.	ML	
15					Light olive brown (2.5Y 5/4), SILTY SAND, fine grained w/trace medium grained sand, very moist, no free water.	SM	
16							
17		0			Grayish brown (2.5Y 5/2) to olive brown (2.5Y 4/3) SILTY SAND, fine grained, wet.	SM	
18							
19							
20					Light olive brown (2.5Y 5/4) CLAYEY SILT to SILTY CLAY, wet.	CL	
					Bottom of bore: 20 feet		
21							
22							

MW-1 Replacement Well:



PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Groundwater Monitoring Well: MW-7

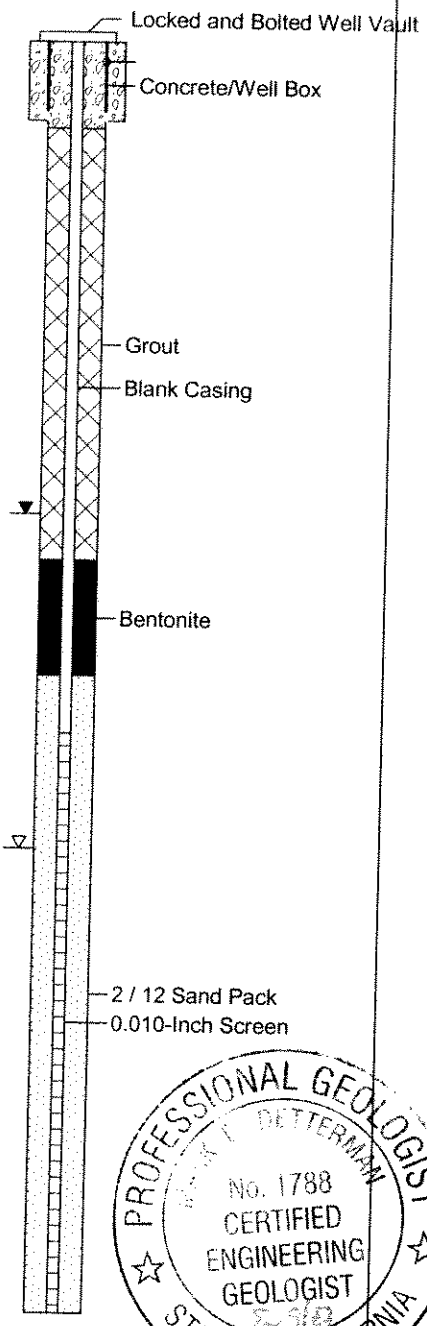
Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	HSA Rig
Date Drilled:	June 2, 2006	Sample Method	CA-Modified
Logged By	Mark Detterman	Soil Bore Diameter	8 inch
Drilling Company	ResonantSonic International	Total Drilled Depth	22.0 feet
Driller	Jose / Carlos	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: ▼ 8.20 feet; ▽ 14 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0–1					Pale yellow (2.5 Y 7/3) GRAVELLY SANDY SILT with CLAY; course grained gravel 25%, fine to course sand 25%, FILL	FILL	
1–2					Very dark gray brown (10YR 3/2) SILTY CLAY, damp.	CL	
2–5					As above.	CL	
5	5					CL	
5–6	7					CL	
6	7	0				CL	
6–8					As above.	CL	
8	9					CL	
8–9	12					CL	
9	14	0			Olive brown (2.5Y 4/3) SILTY CLAY, stiff, damp.	CL	
9–13					As above.	CL	
13	7				Olive brown (2.5Y 4/4) sandy CLAYEY SILT, <5% medium grained sand, wet at 14 ft.	ML	
13–14	12	0				ML	
14	18			MW7-14		ML	
14–18					As above.	ML	
18	9	0			Light olive brown (2.5Y 5/4), SILTY CLAY to CLAYEY SILT, softer, very moist, trace to no free water.	ML	
18–19	11			MW7-18.5		ML	
19	13					ML	
19–22					Tip collection - as above.	ML	
22					Bottom of bore: 22 feet		



PROFESSIONAL GEOLOGIST
MARK T. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Groundwater Monitoring Well: MW-8

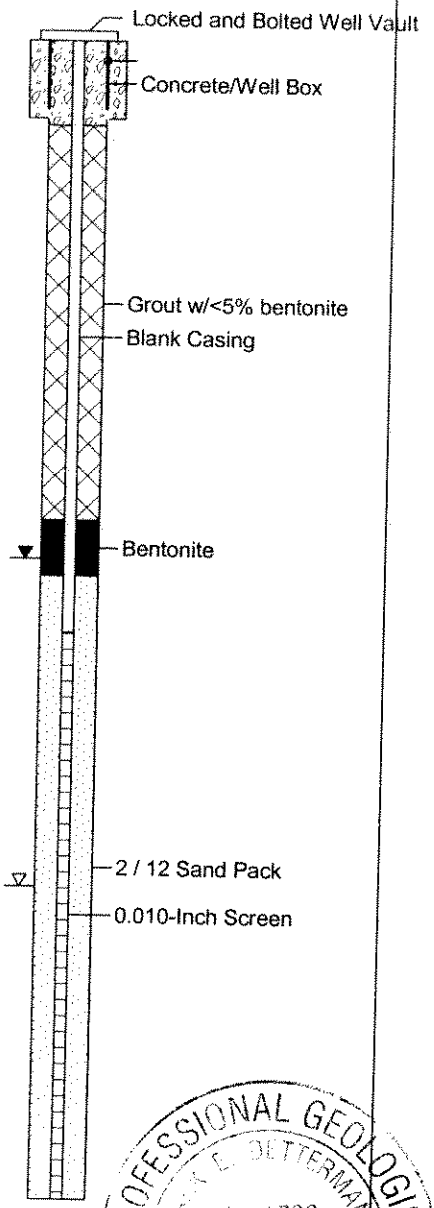
Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	HSA Rig
Date Drilled:	June 2, 2006	Sample Method	CA-Modified
Logged By	Mark Detterman	Soil Bore Diameter	8 inch
Drilling Company	ResonantSonic International	Total Drilled Depth	21.5 feet
Driller	Jose / Carlos	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: ▼ 9.20 feet; ▽ 15 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0–1					Pale yellow (2.5 Y 7/3) GRAVELLY SANDY SILT with CLAY; course grained gravel 25%, fine to course sand 25%, FILL	FILL	
2–4					Very dark brown (10YR 2/2) SILTY CLAY, with 1/8-inch subrounded pebbles, moist.	CL	
5–6	5 5 7	0		MW8-6	Black (5Y 2.5/2) SILTY CLAY, stiff, damp.	CL	
7–10	6 7 9	0			Dark yellow brown (10YR 3/4) CLAYEY SILT to SILTY CLAY, moist (15% recovery)	CL	
11–15	6 7 9	0		MW8-15	Olive brown (2.5Y 4/3), SILTY SAND, 80% fine grained sand, wet (driller call).	SM	
16					Grades more silty at 16 ft.		
17–18					Grades more sandy with depth.		
19					Fine to medium grained, wet.		
20–21	8 10 11	0			Light olive brown (2.5Y 5/3) Sandy SILTY CLAY, 15% fine grained sand, wet	CL	
22					Very dark gray (2.5Y N3/) SILTY CLAY (in tip only), wet.	CL	
23					Bottom of bore: 21.5 feet		



PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
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CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Groundwater Monitoring Well: MW-9

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	HSA Rig
Date Drilled:	June 2, 2006	Sample Method	CA-Modified
Logged By	Mark Detterman	Soil Bore Diameter	8 inch
Drilling Company	ResonantSonic International	Total Drilled Depth	22.0 feet
Driller	Jose / Carlos	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: 8.45 feet; 16 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					4 inches asphalt pavement (2 layers)	Aspha	
1					Black (5Y 2.5/2) SILTY CLAY, very moist (suspect adjacent EBMUD leak on 6-inch water main, recently repaired).	CL	
2							
3					Very dark grayish brown (10YR 3/2) SILTY CLAY, very moist (EBMUD), gradational contact.	CL	
4							
5	3	0			Very dark brown (10YR 2/2) SILTY CLAY, moist.		
6	3						
7	3					CL	
8							
9							
10	5						
11	5	0		MW9-11	Olive brown (2.5Y 4/3) SILTY CLAY, mottled with greenish gray (5GY 6/1) SILTY CLAY, trace carbon flecks and rootlets, moist.		
12	6						
13						CL	
14							
15	5						
16	7	0		MW9-16	Olive brown (2.5Y 4/3) sandy CLAYEY SILT, <10% fine grained sand, very moist to wet at 16 ft.		
17	9						
18						ML	
19							
20	8						
21	8	0		MW9-21	Greenish gray (5Y 5/1) CLAYEY SILT to SILTY CLAY, wet.	CL	
22	9				Bottom of bore: 22 feet		

Locked and Bolted Well Vault
Concrete/Well Box
Grout
Blank Casing
Bentonite
2 / 12 Sand Pack
0.010-Inch Screen

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Appendix C

Blaine Tech Services, Inc.
Well Development and Sampling Field Forms,
June 2, June 5, June 12, and June 13, 2006

SPH or Purge Water Drum Log

lient: Blymer Eng. @ Former Fiesta Beverage

ite Address: 9666 89th Ave, Oakland

STATUS OF DRUM(S) UPON ARRIVAL						
Date	6/29/05	6/02/06	6/05/06			
umber of drum(s) empty:		0 BTS				
umber of drum(s) 1/4 full:						
umber of drum(s) 1/2 full:	1					
umber of drum(s) 3/4 full:			1			
umber of drum(s) full:			1			
otal drum(s) on site:	1	0 BTS	2 BTS			
re the drum(s) properly labeled?	N		Y			
rum ID & Contents:	-		Purge H_2O			
any drum(s) are partially or totally lled, what is the first use date:	-	—	6/02/06			

If you add any SPH to an empty or partially filled drum, drum must have at least 20 gals. of Purgewater or DI Water.

If drum contains SPH, the drum MUST be steel AND labeled with the appropriate label.

All BTS drums MUST be labeled appropriately.

STATUS OF DRUM(S) UPON DEPARTURE						
Date	6/29/05	6/02/06	6/05/06			
Number of drums empty:						
Number of drum(s) 1/4 full:						
Number of drum(s) 1/2 full:	2					
Number of drum(s) 3/4 full:		1				
Number of drum(s) full:		1	3			
Total drum(s) on site:	2	2 BTS	3 BTS			
Are the drum(s) properly labeled?	Y	Y	Y			
Drum ID & Contents:	SPH Purge Water	Purge H_2O	Purge H_2O			

LOCATION OF DRUM(S)

Describe location of drum(s): ~~Near MW-3 against wall~~ 6/02/06 (see map / nearest MW-5)

⇒ owner, 'Gary', intends to move to so. of Property (behind bldg.)

FINAL STATUS						
Number of new drum(s) left on site this event	1	~~6/02/06~~ 2	1			
Date of inspection:	6/29/05	6/02/06	6/05/06			
Drum(s) labelled properly:	Y	Y	Y			
Logged by BTS Field Tech:	PC	wg	wg			
Office reviewed by:	LA	W	W			

WELLHEAD INSPECTION CHECKLIST

Date 06/02/06 Client Blymyer @ Former Fiesta Beverage

Site Address 966 89th Ave. Oakland, CA

Job Number 060602-WC1 Technician WC/SC

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW1R	X					X		
MW-5	X					X		
MW-6	X							
MW-4	X					X		
MW-7	X					X		
MW-8	X					X		
MW-9	X					X		

NOTES: #2357 locks given to client by Mike N. prior to site arrival.

WELL GAUGING DATA

Project # 060602-WC1 Date 06/02/06 Client Blymyer @ Former Fiesta Beverage

Site 966 89th Avenue Oakland, CA

19.5, 8.25

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or (TOC)	Final DTB =
MW1R	2					8.36	21.20		Fi 21.54
MW-5	2					8.64	19.75		19.75
MW-6	2					8.25	19.81		19.81
MW-4	2					8.22	21.77		21.78
MW-7	2					8.23	21.69		21.70
MW-8	2					8.25	18.85		19.96
MW-9	2					8.10	22.04		22.04

WELL DEVELOPMENT DATA SHEET

Project #: 060602-WC1	Client: Blymyer @ former Fiesta Beverage
Developer: WC/SC	Date Developed: 06/02/06
Well I.D. MW1R	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 21.20' After 21.54'	Depth to Water: Before 8.36' After 8.96'
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well w/ 2" surge block prior to development	

Volume Conversion Factor (VCF):	Well dia.		VCF
{12 x (d^2/4) x π} /231	2"	=	0.16
where	3"	=	0.37
12 = in / foot	4"	=	0.65
d = diameter (in.)	6"	=	1.47
π = 3.1416	10"	=	4.08
231 = in 3/gal	12"	=	6.87

2.1	X	10	=	21.
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump
Other equipment used 2" surge block

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	DTW
0818	64.6	6.7	698	>1000	2.1	Hard bottom detected. brown color/heavy sediment	10.98
0825	63.1	7.0	718 µS	>1000	4.2	brown color/heavy sediment	11.35
0831	62.9	7.0	716	>1000	6.3	" " / " "	11.42
0835	62.6	7.0	716	>1000	8.4	" " / " "	11.75
0839	62.8	7.0	712	>1000	10.6	" " / " "	10.86
0842	62.8	7.0	716	>1000	12.8	dark brown/a lot of silt still	
0847	63.1	7.0	711	>1000	15.0	" " / " " " "	10.48
0851	63.1	7.0	711	>1000	17.1	brown color / mod. silt still.	10.77
0857	62.8	7.0	709	>1000	19.2	" " / " " "	
0900	62.9	7.0	708	>1000	21.3	brown color/starting to clear but still heavy silt.	

Did Well Dewater? No	If yes, note above.	Gallons Actually Evacuated:	21.3

WELL DEVELOPMENT DATA SHEET

Project #: 060602-WC1	Client: Blymyer @ former Fiesta Bejorse
Developer: WC/SC	Date Developed: 06/02/06
Well I.D. MW-4	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 21.77 After 21.78	Depth to Water: Before 8.22 After 8.44
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well for ~10 min prior to development.	

Volume Conversion Factor (VCF):	Well dia.		VCF
{12 x (d^2/4) x π} /231	2"	=	0.16
where	3"	=	0.37
12 = in / foot	4"	=	0.65
d = diameter (in.)	6"	=	1.47
π = 3.1416	10"	=	4.08
231 = in 3/gal	12"	=	6.87

2.2	x	10	=	~~6.6~~ 22.0
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump _____
Other equipment used 2" surge block

TIME	TEMP (F)	pH	Cond (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	DTW
1144	66.4	7.3	716	>1000	2.2	hard bottom detected brown clay/heavy silt.	9.60'
1147	64.6	7.3	700	>1000	4.4	brown clay/heavy silt.	9.76
1150	64.9	7.2	700	>1000	6.6	" " / " "	9.67
1152	65.2	7.2	702	>1000	8.8	" " / " "	9.75
1155	64.5	7.2	706	>1000	~~10.2~~ 11.0	clearing some, still brown w/ heavy silt.	
1158	64.8	7.2	711	>1000	~~12.4~~ 13.2	brown / heavy silt.	
1201	64.6	7.2	712	>1000	~~14.6~~ 15.4	" / " "	
1204	64.2	7.2	708	>1000	~~16.8~~ 17.6	" " "	9.38
1207	64.5	7.2	700	>1000	~~19.0~~ 19.8	clearing some still brown w/ heavy silt.	
1210	64.0	7.1	700	>1000	~~21.2~~ 22.0	brown w/ med-heavy silt.	

Did Well Dewater? No	If yes, note above.	Gallons Actually Evacuated:	~~21.2~~ 22.0

WELL DEVELOPMENT DATA SHEET

Project #: 060602 - WC1	Client: Plymyer @ Former Fiesta Beverage
Developer: WC, SC	Date Developed: 06/02/06
Well I.D. MW-5	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 19.75 After 19.75	Depth to Water: Before 8.64 After 9.10
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well w/ 2" Surge block for ~10 min prior to development.	

Volume Conversion Factor (VCF):	Well dia.		VCF
$(12 \times (d^2/4) \times \pi) / 231$	2"	=	0.16
where	3"	=	0.37
12 = in / foot	4"	=	0.65
d = diameter (in.)	6"	=	1.47
π = 3.1416	10"	=	4.08
231 = in 3/gal	12"	=	6.87

1.8	X	10	=	18
1 Case Volume		Specified Volumes		gallons

Purging Device:

- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump _____
Other equipment used 2" Surge Block

TIME	TEMP (F)	pH	Cond (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	DTW
0930	65.1	7.3	728	71000	1.8	hard bottom detected, brown color / heavy sediment	9.45
0933	63.9	7.1	689	>1000	3.6	brown color / heavy silt.	9.41
0936	63.7	7.0	679	71000	5.4	brown color / a little less silt / slight odor	9.36
0938	63.5	7.0	673	71000	7.2	light red brown / less silt slight odor	
0942	63.4	7.0	674	>1000	9.0	" " " / " " "	
0944	63.4	7.0	671	>1000	10.8	" " " / " " "	
0947	63.3	6.7.0	672	918	12.6	light brown / slight color.	
0950	63.4	7.0	671	728	14.4	" " / " "	
0953	63.4	6.9	671	672	16.2	clearing, light brown slight odor.	
0956	63.4	6.9	671	581	18.0	" / " "	
0959	63.4	6.9	671	632	19.8	clearing / slight odor	

Did Well Dewater? No If yes, note above. Gallons Actually Evacuated: 19.8

WELL DEVELOPMENT DATA SHEET

Project #: 060602 - WC1	Client: Blymyer@former Fiesta Beverage
Developer: WC/SC	Date Developed: 06/07/06
Well I.D. MW-6	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 19.81 After 19.81	Depth to Water: Before 8.25 After 16.41
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well for ~10min w/ 2" surge block	

Volume Conversion Factor (VCF):	Well dia.		VCF
$\{12 \times (d^2/4) \times \pi\} / 231$	2"	=	0.16
where	3"	=	0.37
12 = in / foot	4"	=	0.65
d = diameter (in.)	6"	=	1.47
π = 3.1416	10"	=	4.08
231 = in 3/gal	12"	=	6.87

1.9	x	10	=	19
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump
Other equipment used 2" surge block

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	DTW =
1028	65.2	7.2	1082	>1000	1.9	hard bottom detected brown color / heavy silt. slight odor	10.02
1033	64.6	7.3	1054	>1000	3.8	brown color / heavy silt.	11.43
1037	64.2	7.3	970	>1000	5.7	" " / " "	12.82
1042	64.1	7.3	846	>1000	7.6	" " / " "	14.09
1045	64.0	7.3	882	>1000	9.5	" " / " "	15.90
1050	65.0	7.2	1063	>1000	11.4	brown color / heavy silt.	16.48
1056	65.7	7.4	1000	>1000	13.3	slowed pump down due to air bubbles - waterline.	16.64
1101	66.0	7.3	888	>1000	15.2	brown color / heavy silt / slight odor	16.64
1108	65.5	7.3	784	242	17.1	clearing / brown color slight odor	w/ below top of pump
1114	65.8	7.3	771	81	19.0	light brown / slight odor	

Did Well Dewater? No	If yes, note above.	Gallons Actually Evacuated:	19.0

WELL DEVELOPMENT DATA SHEET

Project #: 060602-WC-1	Client: Blymyer @ former Firsta
Developer: WC	Date Developed: 6/05/06
Well I.D. MW-7	Well Diameter: (circle one) ~~2~~ 3 4 6
Total Well Depth: Before 21.69 After 21.70	Depth to Water: Before ~~8.63~~ 8.23 After 8.50
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well for 10min prior to purge w/ 2" surge block	

Volume Conversion Factor (VCF):	Well dia.		VCF
{12 x (d^2/4) x π} /231	2"	=	0.16
where	3"	=	0.37
12 = in / foot	4"	=	0.65
d = diameter (in.)	6"	=	1.47
π = 3.1416	10"	=	4.08
231 = in 3/gal	12"	=	6.87

2.1	x	10	=	21.0
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump _____
Other equipment used 2" Surge Block

TIME	TEMP (F)	pH	Cond. (mS or ~~uS~~)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	DTW -
1141	63.6	7.0	889	>1000	2.1	hard Bottom detected/very dark Brown w/ heavy silt	9.15
1143	63.5	7.0	885	>1000	4.2	very dark w/ heavy silt	9.06
1146	63.7	7.0	810	>1000	6.3	Dark Brown/very silty	8.98
1148	63.9	7.0	802	>1000	8.4	no visible change in appearance	9.20
1151	64.1	7.0	805	>1000	10.5	lighter dark brown/silty	
1153	64.0	7.0	799	>1000	12.6	no visible change in appearance	9.18
1156	63.9	6.9	789	>1000	14.7	lighter dark brown/silty	
1158	64.0	7.0	789	>1000	16.8	Brown/silty	
1201	63.9	7.0	782	>1000	18.9	Brown/w/silt	
1203	64.0	7.0	777	>1000	21.0	lighter Brown/w/silt	

Did Well Dewater? no | If yes, note above. | Gallons Actually Evacuated: 21 Gallons

WELL DEVELOPMENT DATA SHEET

Project #: 060602-WC-1	Client: Blymyer
Developer: WC	Date Developed: 6/5/06
Well I.D. MW-6	Well Diameter: (circle one) 2 3 4 6
Total Well Depth: Before 18.85 After 19.96	Depth to Water: Before 8.25 After 8.81
Reason not developed:	If Free Product, thickness:

Additional Notations: Surged well for 10 min prior to purge w/ 2" surge block

Volume Conversion Factor (VCF):	Well dia.		VCF
(12 x (d^2/4) x π) /231	2"	=	0.16
where	3"	=	0.37
12 = in / foot	4"	=	0.65
d = diameter (in.)	6"	=	1.47
π = 3.1416	10"	=	4.08
231 = in 3/gal	12"	=	6.87

1.7	X	10	=	17.0
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump
Other equipment used 2" Surge block

50

TIME	TEMP (F)	pH	Cond. (mS or (uS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	DTW=
0955	63.2	6.8	1177	>1000	1.7	hard bottom detected/Dark Brown very silty	9.24
0958	63.0	6.9	1020	>1000	3.4	Dark Brown / very silty /	9.95
1000	62.9	6.9	908	>1000	5.1	slightly lighter Dark brown / very silty	9.65
1003	62.8	6.9	877	>1000	6.8	no noticeable change.	10.00
1005	62.7	6.9	938	>1000	8.5	lighter Dark Brown/silty	9.71
1008	62.6	6.9	855	>1000	10.2	Brown/silty	
1010	62.8	6.9	826	>1000	11.9	Brown/less silt	
1013	62.7	6.9	824	>1000	13.6	Lighter Brown/less silt	9.56
1015	62.8	6.9	818	>1000	15.3	" " / " "	
1018	62.8	6.9	813	>1000	17.0	light Brown w/ some silt	

Did Well Dewater? NO | If yes, note above. | Gallons Actually Evacuated: 17 gallons

WELL DEVELOPMENT DATA SHEET

Project #: 060602-WC-1	Client: Blymyer @ Former Fiesta
Developer: WC	Date Developed: 6/05/06
Well I.D. MW-9	Well Diameter: (circle one) ② 3 4 6
Total Well Depth: Before 22.04 After 22.04	Depth to Water: Before 8.40 After 9.25
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well for 10 min prior to purge w/ 2" surge block	

Volume Conversion Factor (VCF):	Well dia.		VCF
$(12 \times (d^2/4) \times \pi) / 231$	2"	=	0.16
where	3"	=	0.37
12 = in / foot	4"	=	0.65
d = diameter (in.)	6"	=	1.47
π = 3.1416	10"	=	4.08
231 = in 3/gal	12"	=	6.87

2.2	x	10	=	22
1 Case Volume		Specified Volumes		gallons

Purging Device:
- ☐ Bailer
- ☐ Suction Pump
- ☐ Electric Submersible
- ☒ Positive Air Displacement

Type of Installed Pump _____
Other equipment used 2" surge block

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:	DTW
1033	62.3	7.0	751	>1000	2.2	had bottom detected / Dark Brown, very silty	10.3
1035	62.2	6.9	745	>1000	4.4	Dark Brown / very silty	10.30
1038	62.2	6.9	772	>1000	6.6	Dark Brown / very silty (not as heavy)	10.41
1040	62.2	6.9	786	>1000	8.8	lighter Dark Brown / silty	10.58
1043	62.3	6.9	787	>1000	11.0	no visible change in appearance	10.3
1045	62.2	6.9	781	>1000	13.2	Brown / silty	
1047	62.4	6.9	771	>1000	15.4	Brown / w/ silt suspended in H2O	
1050	62.3	6.9	766	>1000	17.6	lighter Brown / w/ silt	10.41
1052	62.2	6.9	757	>1000	19.8	lighter Brown / w/ some silt	
1055	62.2	6.9	754	>1000	22.0	light brown / w/ silt	

Did Well Dewater? No | If yes, note above. | Gallons Actually Evacuated: 22 gallons

SPH or Purge Water Drum Log

lient: Blymer Eng. @ Former Fiesta Beverage

ite Address: 9666 89th Ave, Oakland

TATUS OF DRUM(S) UPON ARRIVAL

Date	6/29/05	6/02/06	6/05/06	6/12/06		
umber of drum(s) empty:		0 BTS				
umber of drum(s) 1/4 full:						
umber of drum(s) 1/2 full:	1					
umber of drum(s) 3/4 full:			1			
lumber of drum(s) full:			1	30		
otal drum(s) on site:	1	0 BTS	2 BTS	30		
re the drum(s) properly labeled?	N		Y	X		
)rum ID & Contents:	-		Purge H_2O	H_2O?		
any drum(s) are partially or totally lled, what is the first use date:	-	—	6/02/06			

If you add any SPH to an empty or partially filled drum, drum must have at least 20 gals. of Purgewater or DI Water.

If drum contains SPH, the drum MUST be steel AND labeled with the appropriate label.

All BTS drums MUST be labeled appropriately.

STATUS OF DRUM(S) UPON DEPARTURE

Date	6/29/05	6/02/06	6/05/06	6/13/06		
Number of drums empty:						
Number of drum(s) 1/4 full:						
Number of drum(s) 1/2 full:	2			1		
Number of drum(s) 3/4 full:		1				
Number of drum(s) full:		1	3			
Total drum(s) on site:	2	2 BTS	3 BTS	30		
Are the drum(s) properly labeled?	Y	Y	Y	Y		
Drum ID & Contents:	~~SP~~ Purge water	Purge H_2O	Purge H_2O	H_2O		

LOCATION OF DRUM(S)

Describe location of drum(s): ~~Near mw-3 against wall~~ as of 6/02/06 (see map / nearest mw-5)

⇒ owner, 'Gary', intends to move to so. of property (behind building)

FINAL STATUS

Number of new drum(s) left on site this event	1	~~0~~ 2 to store	1	1		
Date of inspection:	6/29/05	6/02/06	6/05/06	6/13/06		
Drum(s) labelled properly:	Y	Y	Y	Y		
Logged by BTS Field Tech:	~~RB~~ PC	wg	wg	MM		
Office reviewed by:	LA	W	W			

WELLHEAD INSPECTION CHECKLIST

Date 6/12/06 Client Blymyer

Site Address 966 89th Ave. Oakland

Job Number 060612-M01 Technician MM

Well ID	Well Inspected - No Corrective Action Required	Water Bailed From Wellbox	Wellbox Components Cleaned	Cap Replaced	Debris Removed From Wellbox	Lock Replaced	Other Action Taken (explain below)	Well Not Inspected (explain below)
MW-1R	X							
MW-2		No Bolts		Casing Flush w/Gravbar Seal				
MW-3	X							
MW-4	X							
MW-5	X							
MW-6	X							
MW-7	X							
MW-8	X							
MW-9	X							

NOTES: _____

WELL GAUGING DATA

Project # 060612-MD1 Date 6/12/06 12 MDJ 7/4/06 Client Blymyer

Site 966 89th Ave, Oakland

Well ID	Well Size (in.)	Sheen / Odor	Depth to Immiscible Liquid (ft.)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to water (ft.)	Depth to well bottom (ft.)	Survey Point: TOB or TOC	
MW-1R	2					8.52	21.54		
MW-2	2					8.10	23.95		
MW-3	2					8.49	24.87		
MW-4	2					8.37	21.78		
MW-5	2					8.75	19.73		
MW-6	2					10.18	19.77		
MW-7	2					8.31	21.70		
MW-8	2					~~8.37~~ 10.18 MD	~~19.96~~ ~~19.77~~ MD		
MW-9	2					8.80	22.07	TOC	

LOW FLOW WELL MONITORING DATA SHEET

Project #: 660605 cecc-12-MA	Client: Blymyer @ 9068 7th Ave, Oakland
Sampler: MD	Start Date: 6/13/06
Well I.D.: MW-1R	Well Diameter: (2) 3 4 6 8 ___
Total Well Depth: ~~8.49~~ 21.54	Depth to Water Pre: ~~8.49~~ Post: 8.65
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556, HACH

Purge Method: 2" Grundfos Pump Peristaltic Pump Bladder Pump
Sampling Method: Dedicated Tubing New Tubing Other ___
Flow Rate: ~150 ml/min Pump Depth: 16'

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	DTW Observations	
pre			Fe^{2+} = 0.0		0.87	172.9			
0822	17.31	6.90	642	256	0.39 3.9 DO	172.6	450	8.57	clear
0825	17.31	6.90	644	149	0.29	172.4	900	8.65	
0828	17.33	6.91	643	91	0.31	172.2	1350	8.65	
0831	17.35	6.91	643	51	0.31	172.2	1800	8.65	
0834	17.37	6.91	642	35	0.35	171.9	2250	8.65	
0837	17.37	6.92	643	34	0.34	171.6	2700	8.65	
0840	17.36	6.92	643	26	0.37	171.5	3150	8.65	
		post-	Fe^{2+} = 0.0		0.37	172.9			

Did well dewater? Yes (No) Amount actually evacuated: 3150
Sampling Time: 0850 Sampling Date: 6/13/06
Sample I.D.: MW-1R Laboratory: McCampbell
Analyzed for: TPH-G BTEX MTBE TPH-D Other: See COC
Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 060123-MW1	Client: Blymyer @ 9668 9th Ave, Oakland
Sampler: MB	Start Date: 6/13/06
Well I.D.: MW-2	Well Diameter: (2) 3 4 6 8
Total Well Depth: 23.95	Depth to Water Pre: 8.25 Post: 9.57
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: PVC Grade	Flow Cell Type: YSI 556, HACH

Purge Method: 2" Grundfos Pump (2) Peristaltic Pump Bladder Pump
Sampling Method: Dedicated Tubing (2) New Tubing Other
Flow Rate: ~150ml/min Pump Depth: 2

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	DTW Observations
pre			Fe^{2+} = 0.0mg/L		0.80	168.0		
0910	17.49	6.97	631	26	0.72	169.4	450	8.89 clear
0913	17.50	6.97	631	19	0.71	169.7	900	9.19
0916	17.60	6.98	628	13	0.72	169.1	1350	9.32
0919	17.65	6.97	624	10	0.65	168.6	1800	9.41
0922	17.63	6.97	621	9	0.55	168.3	2250	9.46
0925	17.64	6.97	621	~~16~~ 16	0.46	168.1	2700	9.52
0928	17.70	6.98	620	7	0.39	167.7	3150	9.55
0931	17.70	6.98	619	13	0.42	168.0	3600	9.57
			post Fe^{2+} = 0.0mg/L		0.42	168.0		

Did well dewater? Yes (No) Amount actually evacuated: 3600

Sampling Time: 0940 Sampling Date: 6/13/06

Sample I.D.: MW-2 Laboratory: (W)Calscience

Analyzed for: TPH-G BTEX MTBE TPH-D Other: See COC

Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 060612-MD1	Client: BP/ARCO 76966 Stanic Oakland
Sampler: MD	Start Date: 6/13/06
Well I.D.: MW-3	Well Diameter: (2) 3 4 6 8
Total Well Depth: 24.87	Depth to Water Pre: 8.62 Post: 9.03
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556, Hach

Purge Method: 2" Grundfos Pump (Peristaltic Pump) Bladder Pump
Sampling Method: Dedicated Tubing (New Tubing) Other
Flow Rate: ~150 ml/min Pump Depth: ~~YSI 556, Hach~~ MW ~20'

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals or mL)	DTW Observations
Pre.			FE 25	0.0	~~0~~ 1.01	170.0		
0953	17.30	7.02	499	10	0.90	170.5	450	8.99 clear
0956	17.30	6.99	498	6	1.09	171.1	900	9.02
0959	17.27	6.96	498	6	0.85	170.7	1350	9.03
1002	17.24	6.98	498	6	0.74	170.0	1800	9.03
1005	17.22	6.98	499	5	0.72	169.3	2250	9.03
1008	17.20	6.98	500	4	0.50	169.1	2700	9.03
1011	17.15	6.98	501	3	0.43	169.5	3150	9.03
1014	17.15	6.98	502	3	0.41	168.5	3600	9.03
			Post: FE 25	0.0	0.41	168.5		

Did well dewater? Yes (No) Amount actually evacuated: 3600

Sampling Time: 1020 Sampling Date: 6/13/06

Sample I.D.: MW-3 Laboratory: McCampbell

Analyzed for: TPH-G BTEX MTBE TPH-D Other: Gel Cop

Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 060612-MD1	Client: Blymyer @ 766 89th Ave, Oakland
Sampler: MD	Start Date: 6/12/06
Well I.D.: MW-4	Well Diameter: (2) 3 4 6 8
Total Well Depth: 21.78	Depth to Water Pre: 8.37 Post: 8.41
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: 16

Purge Method: 2" Grundfos Pump (Peristaltic Pump) Bladder Pump
Sampling Method: Dedicated Tubing (New Tubing) Other
Flow Rate: ~150 ml/min Pump Depth: 1st SS / ATACH

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or (mL))	PID Observations
Pre:			Fe^{2+} = 0.5		0.67	169.3		
1317	16.90	6.82	686	77	0.68	163.7	~450 ml	8.39 Clear
1320	16.91	6.80	684	43	0.55	163.6	900 ml	8.40
1323	16.83	6.80	684	7	0.57	163.2	1350	8.41
1326	16.76	6.79	685	2	0.54	163.1	1800	8.41
1329	16.79	6.80	685	2	0.38	162.3	2250	8.41
1332	16.74	6.79	685	2	0.33	161.3	2700	8.41
1335	16.79	6.79	685	2	0.33	161.0	3150	8.41
			Post: Fe^{2+} = 0.0		0.33	161.0		

Did well dewater? Yes (No) Amount actually evacuated: 3150
Sampling Time: 1340 Sampling Date: 6/12/06
Sample I.D.: MW-4 Laboratory: McCampbell
Analyzed for: TPH-G BTEX MTBE TPH-D Other: Sec CAC
Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 060612-MD1	Client: Bfayer @ 966 8th St Oakland
Sampler: MD	Start Date: 6/12/06
Well I.D.: MW-5	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 19.73	Depth to Water Pre: 8.75 Post: 8.77
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556, HACH

Purge Method: 2" Grundfos Pump
Sampling Method: Dedicated Tubing
Flow Rate: 150 ml

~~Peristaltic~~ Pump
New Tubing
Pump Depth: ~15'

Bladder Pump
Other ____

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	DTW Observations
Pre			Fe²⁺ = 0.0		0.61	175.2		
1235	16.40	7.01	729	400	0.53	174.1	450	8.76 (odor)
1238	18.23	7.01	728	338	0.41	173.5	900	8.76
1241	18.17	7.01	728	315	0.36	173.3	1350	8.77
1244	18.12	7.00	725	201	0.30	172.3	1800	8.77
1247	18.07	6.97	715	164	0.31	171.3	2250	8.77
1250	18.04	6.96	708	125	0.30	170.1	2700	8.77
1253	18.01	6.94	704	112	0.31	169.0	3150	8.77
			post: Fe²⁺ 0.0		0.31	169.0		

Did well dewater? Yes (No) Amount actually evacuated: 3150 ml

Sampling Time: 1300 Sampling Date: 6/12/06

Sample I.D.: MW-5 Laboratory: McCampbell

Analyzed for: TPH-G BTEX MTBE TPH-D Other: See COC

Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 060612-MD1	Client: Blymyer @ 966 8th St Oakland
Sampler: MM	Start Date: 6/13/06
Well I.D.: MW-6	Well Diameter: (2) 3 4 6 8
Total Well Depth: 19.77	Depth to Water Pre: 8.59 Post: 8.62
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556, HACH

Purge Method: 2" Grundfos Pump (Peristaltic Pump) Bladder Pump
Sampling Method: Dedicated Tubing (New Tubing) Other
Flow Rate: ~150 ml/min Pump Depth: ~15'

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	PT Observations	
pre:			Fe2+ = 0.0		3.10	184.2			
0739	17.25	6.94	790	24	2.67	182.9	450ml	8.60	clear
0742	17.24	6.91	722	12	2.12	180.5	900ml	8.62	
0745	17.28	6.84	680	22	1.40	177.1	1350ml	8.62	
0748	17.25	6.84	676	12	1.22	177.4	1800ml	8.62	
0751	17.30	6.83	661	10	1.05	176.1	2250ml	8.62	
0754	17.31	6.84	655	8	0.90	176.0	2700ml	8.62	
0757	17.33	6.83	653	7	0.86	175.9	3150ml	8.62	
0800	17.35	6.84	652	6	0.79	174.9	3600ml	8.62	
0803	17.32	6.83	651	6	0.81	174.8	4050ml	8.62	
		post:	Fe2+ = 0.0		0.81	174.8			

Did well dewater? Yes (No) Amount actually evacuated: 4050ml
Sampling Time: 0810 Sampling Date: 6/13/06
Sample I.D.: MW-6 Laboratory: McCampbell
Analyzed for: TPH-G BTEX MTBE TPH-D Other: See COC
Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 060612-MD1	Client: Blymyer 966 80th Ave, Oakland
Sampler: MP	Start Date: 6/12/06
Well I.D.: MW-7	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 21.70	Depth to Water Pre: 8.31 Post: 8.37
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556 MPS

Purge Method: 2" Grundfos Pump
Sampling Method: Dedicated Tubing
(Peristaltic Pump) Bladder Pump
(New Tubing) Other ____
Flow Rate: 150ml/min
Pump Depth: 16'

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	DTW Observations	
PRE			Fe^{2+} = 0.5 mg/L		1.07 0.59 mg/L	172.5			
1144	18.14	6.90	734	391	0.58	175.3	450ml	8.35	cloudy
1147	18.16	6.88	733	392	0.43	175.3	900ml	8.35	
1150	18.17	6.88	733	318	0.34	174.9	1350ml	8.36	
1153	18.10	6.88	~~734~~ 734	260	0.30	174.3	1800ml	8.37	
1156	18.09	6.88	733	205	0.28	173.8	2250ml	8.37	
1159	18.00	6.88	731	180	0.27	173.6	2700ml	8.37	
1202	17.99	6.87	728	141	0.27	173.0	3150ml	8.37	
1205	18.00	6.87	728	147	0.27	171.8	3600	8.37	✓
		POST=	Fe^{2+} = 0.2		0.27	171.9			

Did well dewater? Yes (No) Amount actually evacuated: 3600
Sampling Time: 1210 Sampling Date: 6/12/06
Sample I.D.: MW-7 Laboratory: McCampbell
Analyzed for: TPH-G BTEX MTBE TPH-D Other: See COC
Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 060612-MD1	Client: Blymyer 966 89th Ave, Oakland
Sampler: MD	Start Date: 6/12/06
Well I.D.: MW-8	Well Diameter: (2) 3 4 6 8
Total Well Depth: 19.96	Depth to Water Pre: 8.37 Post: 8.44
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI 556 / HACH

Purge Method: 2" Grundfos Pump (Peristaltic Pump) Bladder Pump
Sampling Method: Dedicated Tubing (New Tubing) Other
Flow Rate: 150 ml/min Pump Depth: 15'

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	DTW Observations
PC			Fe^{2+}= 0.0	0.0	0.37	186.1		
1034	18.55	6.85	793	690	0.33	187.5	450ml	8.39 cloudy
1037	18.56	6.85	790	493	0.30	186.6	900ml	8.39
1040	18.47	6.85	787	324	0.31	185.6	1350ml	8.42
1043	18.38	6.84	783	194	0.32	184.1	1800ml	8.44
1046	18.33	6.84	782	123	0.36	183.2	2250	8.44
1049	18.31	6.84	781	82	0.36	182.5	2700ml	8.44 clear
1052	18.49	6.85	777	61	0.34	181.1	3150ml	8.44
1055	18.39	6.85	778	44	0.33	180.4	3600	8.44
		PAT	Fe^{2+}= 0.0		0.33	180.4		

Did well dewater? Yes (No) Amount actually evacuated: 3600ml
Sampling Time: 1100 Sampling Date: 6/12/06
Sample I.D.: MW-8 Laboratory: McCampbell
Analyzed for: TPH-G BTEX MTBE TPH-D Other: See COC
Equipment Blank I.D.: @ Time Duplicate I.D.:

LOW FLOW WELL MONITORING DATA SHEET

Project #: 060682-MD1	Client: Blymer @ 966 89th, Oakland
Sampler: MM	Start Date: 6/12/06
Well I.D.: MW-9	Well Diameter: (2) 3 4 6 8 ____
Total Well Depth: 22.07	Depth to Water Pre: 8.50 Post: 8.59
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: (PVC) Grade	Flow Cell Type: YSI556, HACH

Purge Method: 2" Grundfos Pump (Peristaltic Pump) Bladder Pump
Sampling Method: Dedicated Tubing (New Tubing) Other ____

Flow Rate: 150 ml/min Pump Depth: 17'

Time	Temp. (°C or °F)	pH	Cond. (mS or µS)	Turbidity (NTUs)	D.O. (mg/L)	ORP (mV)	Water Removed (gals. or mL)	DTW Observations	
pre:			Fe^{2+}=0.0		2.01	206.0			
0919	16.88	6.63	699	11	1.97	202.1	450	8.55	clear
0922	16.93	6.64	695	12	1.75	196.6	900	8.56	
0925	16.90	6.65	691	16	1.82	193.9	1350	8.58	
0928	16.88	6.65	693	41	1.81	192.2	1800	8.59	
0931	16.88	6.66	690	44	1.84	191.6	2250	8.59	
0934	16.91	6.66	690	39	1.87	191.0	2700	8.59	
			post Fe^{2+}=0.0		1.87	191.0			

Did well dewater? Yes (No) Amount actually evacuated: 2700

Sampling Time: 0940 Sampling Date: 6/12/06

Sample I.D.: MW-9 Laboratory: McCampbell

Analyzed for: TPH-G BTEX MTBE TPH-D Other: See COC

Equipment Blank I.D.: @ Time Duplicate I.D.:

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 060612 - MD1

CLIENT: Blymyer Engineers, Inc.

SITE: Former Fiesta Beverage
966 89th Avenue
Oakland, CA

CONDUCT ANALYSIS TO DETECT

LAB: McCampbell DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND
☐ EPA ☐ RWQCB REGION ____
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

Invoice and Report to : Blymyer Engineers, Inc.
Attn: Mark Detterman ** 48hr Hold Time
EDF Format Required.
* Run highest MTBE result a second time by EPA 8260B for all 9 additives including EDB, 1,2-DCA Ethanol & Methanol.

SAMPLE I.D.	DATE	TIME	MATRIX S=SOIL W=H_2O	CONTAINERS TOTAL	C = COMPOSITE ALL CONTAINERS	TPH-G (8015)	BTEX & MTBE* (8021B)		Nitrate, Sulfate (300.1)	Methane (RSK 370)	Carbon Dioxide (SM 5310B)			ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-9	6/12/06	0940	W	8		X	X		X	X	X						
MW-8		1100		8		X	X		X	X	X						
MW-7		1210		8		X	X		X	X	X						
MW-5		1300		8		X	X		X	X	X						
MW-4		1340		8		X	X		X	X	X						

SAMPLING COMPLETED	DATE	TIME
	6/12/06	1400

SAMPLING PERFORMED BY: John DeJong

RESULTS NEEDED NO LATER THAN: As contracted

		DATE	TIME		DATE	TIME
RELEASED BY		6/12/06	1500	RECEIVED BY	SAMPLE CUSTODIAN	6/12/06 1500
RELEASED BY		6/12/06	1500	RECEIVED BY		6/12/06 1500
RELEASED BY				RECEIVED BY		

SHIPPED VIA	DATE SENT	TIME SENT	COOLER #	

CLEAN TO DIRTY WORKSHEET C2D2.S

These wells are listed in CLEAN TO DIRTY ORDER. All work must progress from CLEAN TO DIRTY.

Gauge, evacuate and sample wells in CLEAN TO DIRTY ORDER – ONLY.
Any deviations from the CLEAN TO DIRTY ORDER must be explained in writing.

WELL I.D.	TPH-G	LATEST	TPH-D DIESEL	Cal. to	LATEST	CLEANING PROTOCOL #	GAUGE ONLY or SAMPLE
USI556	05C1520	6/12/06 0650	pH 4	→ 4.03	Temp 24.6°C	MP	
			7	→ 7.00			
			10	→ 10.01			
			ORP 231	→ 231			
			DO 100%	100.1%			
			Cond 3900	3890			
Turb.	0111000245M		20	21			
			100	102	N/A		
			800	789			
USI556	05C1520	6/13/06	pH 4	3.99			
			7	7.00	22.81	MP	
			10	10.01			
			DO 100	→ 100.4			
			cond 3900	→ 3899			
			ORP 234	→ 234.0			
Turb.	0111000245M		20	21			
			100	107	N/A		
			800	841			

DEVIATIONS:

I, _____ attest that, except as noted, all wells were gauged, evacuated and sampled in CLEAN TO DIRTY ORDER, and all pieces of equipment were cleaned using the specified protocol.

Appendix D

Laboratory Analytical Reports, McCampbell Analytical, Inc.
May 16, 2006; June 9, 2006; June 20, 2006; and June 22, 2006

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

Blymyer Engineers, Inc. 1829 Clement Avenue Alameda, CA 94501-1395	Client Project ID: #203004; Former Fiesta	Date Sampled: 05/08/06
		Date Received: 05/10/06
	Client Contact: Mark Detterman	Date Reported: 05/16/06
	Client P.O.:	Date Completed: 05/16/06

WorkOrder: 0605213

May 16, 2006

Dear Mark:

Enclosed are:

1). the results of **6** analyzed samples from your **#203004; Former Fiesta 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.

Best regards,

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

Blymyer Engineers, Inc.	Client Project ID: #203004; Former Fiesta	Date Sampled: 05/08/06-05/09/06
1829 Clement Avenue		Date Received: 05/10/06
Alameda, CA 94501-1395	Client Contact: Mark Detterman	Date Extracted: 05/10/06
	Client P.O.:	Date Analyzed: 05/11/06

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0605213

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW5-10.5	S	ND	ND	ND	ND	ND	ND	1	97
003A	MW6-5.5	S	ND	ND	ND	ND	ND	ND	1	99
005A	MW6-13.5	S	ND	ND	ND	ND	ND	ND	1	94
007A	MW1R-13.5	S	60,a,m	ND<0.35	0.34	1.8	0.73	3.3	1	97
008A	MW1R-7	S	450,a	ND<10	4.8	18	8.2	45	200	96
011A	MW4-14.5	S	ND	ND	ND	ND	ND	ND	1	94
Reporting Limit for DF =1; ND means not detected at or above the reporting limit		W	NA	NA	NA	NA	NA	NA	1	ug/L
		S	1.0	0.05	0.005	0.005	0.005	0.005	1	mg/Kg

* water and vapor samples and all TCLP & SPLP extracts are reported in μg/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) value derived using a client specified carbon range; o) results are reported on a dry weight basis.

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

W.O. Sample Matrix: Soil QC Matrix: Soil WorkOrder: 0605213

EPA Method: SW8021B/8015Cm **Extraction: SW5030B** **BatchID: 21654** **Spiked Sample ID: 0605200-011A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(btex) £	ND	0.60	91.5	96.4	5.26	90.2	97.8	8.12	70 - 130	70 - 130
MTBE	ND	0.10	91.6	90.5	1.16	89.4	93.9	4.97	70 - 130	70 - 130
Benzene	ND	0.10	87.8	87.4	0.425	84.1	90	6.83	70 - 130	70 - 130
Toluene	ND	0.10	88.6	88.4	0.289	85	91.3	7.16	70 - 130	70 - 130
Ethylbenzene	ND	0.10	90.3	90.6	0.349	87.1	93.2	6.76	70 - 130	70 - 130
Xylenes	ND	0.30	85.3	85	0.391	84.3	89.3	5.76	70 - 130	70 - 130
%SS:	92	0.10	95	99	4.12	98	108	9.71	70 - 130	70 - 130

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

NONE

BATCH 21654 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0605213-001A	5/08/06 9:25 AM	5/10/06	5/11/06 12:14 PM	0605213-003A	5/08/06 1:50 PM	5/10/06	5/11/06 1:48 PM
0605213-005A	5/08/06 2:15 PM	5/10/06	5/11/06 2:22 PM	0605213-007A	5/09/06 7:35 AM	5/10/06	5/11/06 2:56 PM
0605213-008A	5/09/06 7:25 AM	5/10/06	5/11/06 1:15 PM	0605213-011A	5/09/06 11:10 AM	5/10/06	5/11/06 7:42 PM

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not 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 Second Avenue South, #D7
Pacheco, CA 94553-5560
(925) 798-1620

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0605213 **ClientID: BEIA** **EDF: NO**

Report to:
Mark Detterman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395
TEL: (510) 521-3773
FAX: (510) 865-2594
ProjectNo: #203004; Former Fiesta
PO:

Bill to:
Accounts Payable
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395

Requested TAT: 5 days
Date Received: **05/10/2006**
Date Printed: **05/10/2006**

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
0605213-001	MW5-10.5	Soil	5/8/06 9:25:00 AM	☐	A											
0605213-003	MW6-5.5	Soil	5/8/06 1:50:00 PM	☐	A											
0605213-005	MW6-13.5	Soil	5/8/06 2:15:00 PM	☐	A											
0605213-007	MW1R-13.5	Soil	5/9/06 7:35:00 AM	☐	A											
0605213-008	MW1R-7	Soil	5/9/06 7:25:00 AM	☐	A											
0605213-011	MW4-14.5	Soil	5/9/06 11:10:00 AM	☐	A											

Test Legend:

1	G-MBTEX_S	2		3		4		5	
6		7		8		9		10	
11		12							

Prepared by: Kathleen Owen

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.

0605213 BLFA

BLYMYER
ENGINEERS, INC.
1829 Clement Avenue
Alameda, CA 94501 (510) 521-3773 FAX (510) 865-2594

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

JOB # 203004 | PROJECT NAME/LOCATION: Former Fiesta Beverages

SAMPLERS (SIGNATURE): Mark

TURNAROUND TIME: 5/Std DAY(S)

REMARKS: ~~Clf~~ added 5/12/06 per fax

DATE	TIME	COMP	GRAB	SAMPLE NAME/LOCATION	# OF CONTAINERS	TPH AS GASOLINE + BTXE / MTBE (MOD EPA 8015/8020) / 8021	TPH AS DIESEL (MOD EPA 8015)	VOC (EPA 624/8240)	SEMI-VOC (EPA 625/8270)	TRPH (EPA 418.1)	BTXE (EPA 8020/602)	HOLD	REMARKS
5/4/06	925		X	MW5-10.5		X							
	940			MW5-11.5									Hold
	950			MW6-5.5		X							
	200			MW6-11.5									Hold
	215			MW6-13.5		X							
5/7/06	720			MW1R-3									Hold
	735			MW1R-13.5		X							
	725			MW1R-7		X							
	1050			MW4-7.5									Hold
	1100			MW4-11.5									Hold
	1110			MW4-14.5		X							

HEADSPACE ABSENT ✓ | APPROPRIATE ✓
CONTAINERS
PRESERVED IN LAB
DECHLORINATED IN LAB
PRESERVATION: VOAs | O&G | METALS | OTHER

REQUESTED BY: Mark Detterman

RESULTS AND INVOICE TO: BEI

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
Mark	5/10/06 PM 130	RTDavis
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)
	5/10/06 1610	

DATE / TIME	REMARKS:	RECEIVED BY: (SIGNATURE)
5/10/06 1730		Kathleen Cullen

WHITE: Accompany Sample YELLOW: BEI, After Lab Signs PINK: Original Sampler

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

Blymyer Engineers, Inc. 1829 Clement Avenue Alameda, CA 94501-1395	Client Project ID: #203004; Former Fiesta Bev	Date Sampled: 06/02/06
		Date Received: 06/05/06
	Client Contact: Mark Detterman	Date Reported: 06/09/06
	Client P.O.:	Date Completed: 06/09/06

WorkOrder: 0606087

June 09, 2006

Dear Mark:

Enclosed are:

1). the results of **3** analyzed samples from your **#203004; Former Fiesta Bev 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.

Best regards,

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

Blymyer Engineers, Inc.	Client Project ID: #203004; Former Fiesta Bev	Date Sampled: 06/02/06
1829 Clement Avenue		Date Received: 06/05/06
Alameda, CA 94501-1395	Client Contact: Mark Detterman	Date Extracted: 06/05/06
	Client P.O.:	Date Analyzed: 06/06/06

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0606087

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
002A	MW9-16	S	ND	ND	ND	ND	ND	ND	1	97
005A	MW8-15	S	ND	ND	ND	ND	ND	ND	1	87
007A	MW7-14	S	ND	ND	ND	ND	ND	ND	1	81
Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	NA	NA	NA	NA	NA	NA	1	ug/L
	S	1.0	0.05	0.005	0.005	0.005	0.005	1	mg/Kg

* water and vapor samples and all TCLP & SPLP extracts are reported in µg/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) value derived using a client specified carbon range; o) results are reported on a dry weight basis.

DHS ELAP Certification N° 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

W.O. Sample Matrix: Soil QC Matrix: Soil WorkOrder: 0606087

EPA Method: SW8021B/8015Cm	Extraction: SW5030B	BatchID: 22024	Spiked Sample ID: 0606087-002a

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/Kg	mg/Kg	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(btex)£	ND	0.60	105	102	2.70	98.4	100	1.60	70 - 130	70 - 130
MTBE	ND	0.10	101	95.4	5.47	97.1	96.6	0.583	70 - 130	70 - 130
Benzene	ND	0.10	95.6	92.6	3.17	90.4	91.3	0.911	70 - 130	70 - 130
Toluene	ND	0.10	94.6	91.9	2.89	90.1	90.8	0.798	70 - 130	70 - 130
Ethylbenzene	ND	0.10	93.2	92.9	0.339	90.6	91.9	1.38	70 - 130	70 - 130
Xylenes	ND	0.30	89.7	89.3	0.372	85.3	88.7	3.83	70 - 130	70 - 130
%SS:	97	0.10	106	88	18.6	98	104	5.94	70 - 130	70 - 130

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

NONE

BATCH 22024 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606087-002A	6/02/06 7:40 AM	6/05/06	6/06/06 8:20 AM	0606087-005A	6/02/06 10:10 AM	6/05/06	6/06/06 9:19 AM
0606087-007A	6/02/06 12:45 PM	6/05/06	6/06/06 6:47 PM				

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

N/A = not 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 ELAP Certification N° 1644

QA/QC Officer

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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0606087 **ClientID: BEIA** **EDF: YES**

Report to:
Mark Detterman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395

TEL: (510) 521-3773
FAX: (510) 865-2594
ProjectNo: #203004; Former Fiesta Bev
PO:

Bill to:
Accounts Payable
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395

Requested TAT: 5 days

Date Received: 06/05/2006
Date Printed: 06/05/2006

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0606087-002	MW9-16	Soil	6/2/06 7:40:00 AM	☐	A	A										
0606087-005	MW8-15	Soil	6/2/06 10:10:00 AM	☐	A											
0606087-007	MW7-14	Soil	6/2/06 12:45:00 PM	☐	A											

Test Legend:

1	G-MBTEX_S	2	PREDF REPORT	3		4		5	
6		7		8		9		10	
11		12							

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.

BE19 060087

BLYMYER ENGINEERS, INC.
1829 Clement Avenue
Alameda, CA 94501 (510) 521-3773 FAX (510) 865-2594

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

JOB # 203004 | PROJECT NAME/LOCATION: Former Fiesta Bev

SAMPLERS (SIGNATURE): Mark E.

TURNAROUND TIME: 5/Std DAY(S)

REMARKS: EDF Rqt Required.

DATE	TIME	COMP	GRAB	SAMPLE NAME/LOCATION	# OF CONTAINERS	TPH AS GASOLINE + BTXE (MOD EPA 8015/8020) MTBE	TPH AS DIESEL (MOD EPA 8015)	VOC (EPA 624/8240)	SEMI-VOC (EPA 625/8270)	TRPH (EPA 418.1)	BTXE (EPA 8020/602)	HOLD	
6/2/06	720			MW9-11	1 brass								Hold @ lab
	740			MW9-16		X							
	750			MW9-21									Hold @ lab
	950			MW8-6									Hold @ lab
	1010			MW8-15		X							
	1235			MW7-8,5									Hold @ lab
	1245			MW7-14		X							
	100			MW7-18.5									Hold @ lab

ICE/t ✓
GOOD CONDITION ✓ APPROPRI. TE
~~HEAD SPACE ABSENT~~ ~~CONTAINERS~~
DECHLORINATED IN LAB PRESERVED IN LAB
PRESERVATION ~~VOAS~~ ~~O&G~~ ~~METALS~~ ~~OTHER~~

REQUESTED BY: Mark Jetterson

RESULTS AND INVOICE TO: Mark Jetterson / Blymyer Eng.

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
Mark E.	6/5/06 10:10 AM	
RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)
	6/5/06 12:29	

RELINQUISHED BY: (SIGNATURE)	DATE / TIME	RECEIVED BY: (SIGNATURE)
	6/5/06 1230	
DATE / TIME	REMARKS:	

WHITE: Accompany Sample YELLOW: BEI, After Lab Signs PINK: Original Sampler

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

Blymyer Engineers, Inc. 1829 Clement Avenue Alameda, CA 94501-1395	Client Project ID: #060612-MD1; Former Fiesta Beverage	Date Sampled: 06/12/06
		Date Received: 06/12/06
	Client Contact: Mark Detterman	Date Reported: 06/20/06
	Client P.O.:	Date Completed: 06/20/06

WorkOrder: 0606274

June 20, 2006

Dear Mark:

Enclosed are:

1). the results of **5** analyzed samples from your **#060612-MD1; Former Fiesta Beverage 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.

Best regards,

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

Blymyer Engineers, Inc. 1829 Clement Avenue Alameda, CA 94501-1395	Client Project ID: #060612-MD1; Former Fiesta Beverage Client Contact: Mark Detterman Client P.O.:	Date Sampled: 06/12/06 Date Received: 06/12/06 Date Extracted: 06/13/06-06/15/06 Date Analyzed: 06/13/06-06/15/06

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0606274

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-9	W	ND	5.6	ND	ND	ND	ND	1	101
002A	MW-8	W	ND	ND	ND	ND	ND	ND	1	116
003A	MW-7	W	ND	ND	ND	ND	ND	ND	1	102
004A	MW-5	W	ND	ND	ND	ND	ND	ND	1	104
005A	MW-4	W	ND	5.7	ND	ND	ND	ND	1	108
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; p) see attached narrative.

DHS ELAP Certification N° 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

Blymyer Engineers, Inc.	Client Project ID: #060612-MD1; Former Fiesta Beverage	Date Sampled: 06/12/06
1829 Clement Avenue		Date Received: 06/12/06
Alameda, CA 94501-1395	Client Contact: Mark Detterman	Date Extracted: 06/20/06
	Client P.O.:	Date Analyzed: 06/20/06

Methyl tert-Butyl Ether*

Extraction method: SW5030B Analytical methods: SW8260B Work Order: 0606274

Lab ID	Client ID	Matrix	Methyl-t-butyl ether (MTBE)	DF	% SS
005A	MW-4	W	6.1	1	110
	Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	0.5	µg/L	
		S	NA	NA	

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

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

surrogate diluted out of range or 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/matrix interference; k) reporting limit near, but not identical to our standard reporting limit due to variable Encore sample weight; m) reporting limit raised due to insufficient sample amount; n) results are reported on a dry weight basis; p) see attached narrative.

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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

Blymyer Engineers, Inc.	Client Project ID: #060612-MD1; Former Fiesta Beverage	Date Sampled: 06/12/06
1829 Clement Avenue		Date Received 06/12/06
Alameda, CA 94501-1395	Client Contact: Mark Detterman	Date Extracted 06/12/06
	Client P.O.:	Date Analyzed 06/12/06-06/13/06

Inorganic Anions by IC*

Extraction method: E300.1 Analytical methods: E300.1 Work Order: 0606274

Lab ID	Client ID	Matrix	Nitrate as N	DF	Nitrate as NO_3^-	DF	Sulfate	DF	% SS
001B	MW-9	W	8.3	10	37	10	44	10	92
002B	MW-8	W	7.3	10	32	10	46	10	93
003B	MW-7	W	6.0	10	26	10	51	10	93
004B	MW-5	W	6.8	1	30	1	45	10	94
005B	MW-4	W	8.6	10	38	10	44	10	93

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	0.1	0.45	0.1	mg/L
	S	NA	NA	NA	mg/Kg

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

* [Nitrate as NO_3^-] = 4.4286 x [Nitrate as N]

surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.

h) a lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted/raised due to high inorganic content/matrix interference; k) sample arrived with head space.

DHS ELAP Certification N° 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

Blymyer Engineers, Inc. 1829 Clement Avenue Alameda, CA 94501-1395	Client Project ID: #060612-MD1; Former Fiesta Beverage	Date Sampled: 06/12/06
		Date Received: 06/12/06
	Client Contact: Mark Detterman	Date Extracted: 06/12/06
	Client P.O.:	Date Analyzed: 06/19/06

Inorganic Carbon as Carbon Dioxide*

Analytical Method: SM5310 B

Work Order: 0606274

Lab ID	Client ID	Matrix	IC as CO2	DF
0606274-001D	MW-9	W	240	10
0606274-002D	MW-8	W	330	10
0606274-003D	MW-7	W	260	10
0606274-004D	MW-5	W	240	10
0606274-005D	MW-4	W	260	10

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	2.6 mg/L
	S	NA

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg.

* Non-Purgeable Organic Carbon=NPOC; TOC=Total Organic Carbon; DOC=Dissolved Organic Carbon; POC=Purgeable Organic Cabon; IC=Inorganic Carbon.

i) liquid sample contains greater than ~1 vol. % sediment.

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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

Blymyer Engineers, Inc. 1829 Clement Avenue Alameda, CA 94501-1395	Client Project ID: #060612-MD1; Former Fiesta Beverage	Date Sampled: 06/12/06
		Date Received: 06/12/06
	Client Contact: Mark Detterman	Date Extracted: 06/13/06
	Client P.O.:	Date Analyzed: 06/13/06

Methane*

Extraction method: RSK 174 Analytical methods: RSK174 Work Order: 0606274

Lab ID	Client ID	Matrix	Methane	DF	% SS
001C	MW-9	W	1.1	1	N/A
002C	MW-8	W	ND	1	N/A
003C	MW-7	W	ND	1	N/A
004C	MW-5	W	1.5	1	N/A
005C	MW-4	W	1.1	1	N/A

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	0.5	µg/L
	S	NA	NA

* water samples are reported in µg/L.

DHS ELAP Certification N° 1644

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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

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606274

EPA Method: SW8021B/8015Cm **Extraction: SW5030B** **BatchID: 22156** **Spiked Sample ID: 0606274-004A**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	Acceptance Criteria (%) LCS / LCSD
TPH(btex)£	ND	60	110	113	2.17	108	110	2.52	70 - 130	70 - 130
MTBE	ND	10	95.8	106	9.99	103	103	0	70 - 130	70 - 130
Benzene	ND	10	102	106	3.55	102	104	2.03	70 - 130	70 - 130
Toluene	ND	10	95.9	99.2	3.38	98.5	98.9	0.386	70 - 130	70 - 130
Ethylbenzene	ND	10	101	104	3.05	103	104	0.611	70 - 130	70 - 130
Xylenes	ND	30	91	95.7	5.00	95	96	1.05	70 - 130	70 - 130
%SS:	104	10	103	101	1.97	104	100	3.88	70 - 130	70 - 130

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

NONE

BATCH 22156 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606274-001A	6/12/06 9:40 AM	6/13/06	6/13/06 5:14 PM	0606274-002A	6/12/06 11:00 AM	6/14/06	6/14/06 2:08 AM
0606274-003A	6/12/06 12:10 PM	6/15/06	6/15/06 8:23 AM	0606274-004A	6/12/06 1:00 PM	6/14/06	6/14/06 3:37 AM
0606274-005A	6/12/06 1:40 PM	6/14/06	6/14/06 4:06 AM				

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 ELAP Certification N° 1644

QA/QC Officer

McCampbell Analytical, Inc.

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

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606274

EPA Method: SW8260B **Extraction: SW5030B** **BatchID: 22254** **Spiked Sample ID: 0606384-003A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
Methyl-t-butyl ether (MTBE)	ND	10	93.5	99.7	6.41	94.4	95.1	0.735	70 - 130	70 - 130
%SS1:	113	10	104	110	5.57	105	102	3.13	70 - 130	70 - 130

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

NONE

BATCH 22254 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606274-005A	6/12/06 1:40 PM	6/20/06	6/20/06 6:11 AM				

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 ELAP Certification N° 1644

JR 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 RSK174

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606274

EPA Method: RSK174 **Extraction: RSK 174** **BatchID: 22160** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
Methane	N/A	1.76	N/A	N/A	N/A	97.6	99.9	2.31	N/A	80 - 120

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

NONE

BATCH 22160 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606274-001C	6/12/06 9:40 AM	6/13/06	6/13/06 2:39 PM	0606274-002C	6/12/06 11:00 AM	6/13/06	6/13/06 2:57 PM
0606274-003C	6/12/06 12:10 PM	6/13/06	6/13/06 3:16 PM	0606274-004C	6/12/06 1:00 PM	6/13/06	6/13/06 3:34 PM
0606274-005C	6/12/06 1:40 PM	6/13/06	6/13/06 3:56 PM				

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

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

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

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

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

DHS ELAP Certification N° 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 SM5310B

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606274

EPA Method: SM5310 B	Extraction: SM5310 B	BatchID: 22161	Spiked Sample ID: 0606274-003D

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
IC as CO2	260	36.7	95.9	95.6	0.0368	97.5	97.1	0.462	70 - 130	80 - 120

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

NONE

BATCH 22161 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606274-001D	6/12/06 9:40 AM	6/12/06	6/19/06 1:47 PM	0606274-002D	6/12/06 11:00 AM	6/12/06	6/19/06 1:55 PM
0606274-003D	6/12/06 12:10 PM	6/12/06	6/19/06 2:03 PM	0606274-004D	6/12/06 1:00 PM	6/12/06	6/19/06 2:10 PM
0606274-005D	6/12/06 1:40 PM	6/12/06	6/19/06 2:18 PM				

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

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

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

N/A = not applicable to this method.

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 ELAP Certification N° 1644

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

QC SUMMARY REPORT FOR E300.1

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606274

EPA Method: E300.1 **Extraction: E300.1** **BatchID: 22138** **Spiked Sample ID: N/A**

Analyte	Sample mg/L	Spiked mg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	Acceptance Criteria (%) LCS / LCSD
Nitrate as N	N/A	1	N/A	N/A	N/A	109	107	1.88	N/A	85 - 115
Sulfate	N/A	1	N/A	N/A	N/A	106	108	2.27	N/A	85 - 115
%SS:	N/A	0.10	N/A	N/A	N/A	98	98	0	N/A	90 - 115

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

NONE

BATCH 22138 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606274-001B	6/12/06 9:40 AM	6/12/06	6/13/06 6:53 AM	0606274-002B	6/12/06 11:00 AM	6/12/06	6/13/06 7:21 PM
0606274-003B	6/12/06 12:10 PM	6/12/06	6/13/06 7:50 PM	0606274-004B	6/12/06 1:00 PM	6/12/06	6/12/06 10:30 AM
0606274-004B	6/12/06 1:00 PM	6/12/06	6/13/06 8:19 PM	0606274-005B	6/12/06 1:40 PM	6/12/06	6/13/06 8:48 AM

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 applicable to this method.

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 ELAP Certification N° 1644

QA/QC Officer

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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0606274 **ClientID: BEIA** **EDF: NO**

Report to:
Mark Detterman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395
TEL: (510) 521-3773
FAX: (510) 865-2594
ProjectNo: #060612-MD1; Former Fiesta Beverage
PO:

Bill to:
Accounts Payable
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395

Requested TAT: 5 days
Date Received: 06/12/2006
Date Printed: 06/16/2006

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0606274-001	MW-9	Water	6/12/06 9:40:00 AM	☐	B	A	D		C							
0606274-002	MW-8	Water	6/12/06 11:00:00	☐	B	A	D		C							
0606274-003	MW-7	Water	6/12/06 12:10:00	☐	B	A	D		C							
0606274-004	MW-5	Water	6/12/06 1:00:00 PM	☐	B	A	D		C							
0606274-005	MW-4	Water	6/12/06 1:40:00 PM	☐	B	A	D	A	C							

Test Legend:

1	300_1_W	2	G-MBTEX_W	3	IC(CO2)_W	4	MTBE_W	5	RSK174_W
6		7		8		9		10	
11		12							

Prepared by: Kathleen Owen

Comments: mtbe confirmation added 6/16/06

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.

0606274 - BE/A

BLAINE TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 060612-MD1

CLIENT: Blymyer Engineers, Inc.

SITE: Former Fiesta Beverage
966 89th Avenue
Oakland, CA

CONDUCT ANALYSIS TO DETECT

LAB: McCampbell DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND
☐ EPA ☐ RWQCB REGION
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

Invoice and Report to : Blymyer Engineers, Inc.
Attn: Mark Detterman ** 48hr Hold Time
EDF Format Required.
*Run highest MTBE result a second time by EPA 8260B for all 9 additives including EDB, 1,2-DCA Ethanol & Methanol.

SAMPLE I.D.	DATE	TIME	MATRIX (S= SOIL W=H2O)	CONTAINERS TOTAL	C = COMPOSITE ALL CONTAINERS	TPH-G (8015)	*BTEX & MTBE (8021B)		**Nitrate, Sulfate (300.1)	Methane (~~RSK-174~~) (~~RSK-175~~)	Carbon Dioxide (SM 5310B)			ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #
MW-9	6/12/06	0940	W	8		X	X		X	X	X						
MW-8	|	1100	|	8		X	X		X	X	X						
MW-7	|	1210	|	8		X	X		X	X	X						
MW-5	|	1300	|	8		X	X		X	X	X						
MW-4	|	1340	|	8		X	X		X	X	X						

SAMPLING COMPLETED DATE 6/12/06 TIME 1400 SAMPLING PERFORMED BY John DeJong

RESULTS NEEDED NO LATER THAN As contracted

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
John DeJong	6/12/06	1500	~~Sample Custodian~~	6/12/06	1500
~~Sample Custodian~~	6/12/06	1500	~~[illegible]~~	6/12/06	1500
[illegible]	6/12/06	4:30	Kathleen Queen	6/12/06	

SHIPPED VIA | DATE SENT | TIME SENT | COOLER #

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

Blymyer Engineers, Inc. 1829 Clement Avenue Alameda, CA 94501-1395	Client Project ID: Former Fiesta Beverage	Date Sampled: 06/13/06
		Date Received: 06/13/06
	Client Contact: Mark Detterman	Date Reported: 06/19/06
	Client P.O.:	Date Completed: 06/22/06

WorkOrder: 0606295

June 22, 2006

Dear Mark:

Enclosed are:

1). the results of **4** analyzed samples from your **Former Fiesta Beverage 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.

Best regards,

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

Blymyer Engineers, Inc.	Client Project ID: Former Fiesta Beverage	Date Sampled: 06/13/06
		Date Received: 06/13/06
1829 Clement Avenue	Client Contact: Mark Detterman	Date Extracted: 06/14/06-06/15/06
Alameda, CA 94501-1395	Client P.O.:	Date Analyzed: 06/14/06-06/15/06

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0606295

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-6	W	ND	ND	ND	ND	ND	ND	1	105
002A	MW-1A	W	90,a	7.0	24	ND	ND	1.9	1	104
003A	MW-2	W	150,a	11	59	3.0	3.4	2.7	1	110
004A	MW-3	W	68,a	ND	3.1	1.8	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; p) see attached narrative.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

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

Blymyer Engineers, Inc.	Client Project ID: Former Fiesta Beverage	Date Sampled: 06/13/06
1829 Clement Avenue		Date Received: 06/13/06
Alameda, CA 94501-1395	Client Contact: Mark Detterman	Date Extracted: 06/21/06
	Client P.O.:	Date Analyzed: 06/21/06

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

Extraction Method: SW5030B Analytical Method: SW8260B Work Order: 0606295

		Reporting Limit for DF =1	
Lab ID	0606295-003E		
Client ID	MW-2		
Matrix	W		
DF	1	S	W
Compound	**Concentration**	ug/kg	µg/L
tert-Amyl methyl ether (TAME)	4.5	NA	0.5
t-Butyl alcohol (TBA)	6.5	NA	5.0
1,2-Dibromoethane (EDB)	ND	NA	0.5
1,2-Dichloroethane (1,2-DCA)	ND	NA	0.5
Diisopropyl ether (DIPE)	ND	NA	0.5
Ethanol	ND	NA	50
Ethyl tert-butyl ether (ETBE)	ND	NA	0.5
Methanol	ND	NA	500
Methyl-t-butyl ether (MTBE)	7.6	NA	0.5
Surrogate Recoveries (%)			
%SS1:	102		
Comments			

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

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

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

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

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

Blymyer Engineers, Inc.	Client Project ID: Former Fiesta Beverage	Date Sampled: 06/13/06
1829 Clement Avenue		Date Received: 06/13/06
Alameda, CA 94501-1395	Client Contact: Mark Detterman	Date Extracted: 06/15/06
	Client P.O.:	Date Analyzed: 06/15/06

Methane*

Extraction method: RSK 174 Analytical methods: RSK174 Work Order: 0606295

Lab ID	Client ID	Matrix	Methane	DF	% SS
001B	MW-6	W	ND	1	N/A
002B	MW-1A	W	24	20	N/A
003B	MW-2	W	45	40	N/A
004B	MW-3	W	55	40	N/A
	Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	0.5		µg/L
		S	NA		NA

* water samples are reported in µg/L.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

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

Blymyer Engineers, Inc. 1829 Clement Avenue Alameda, CA 94501-1395	Client Project ID: Former Fiesta Beverage	Date Sampled: 06/13/06
		Date Received 06/13/06
	Client Contact: Mark Detterman	Date Extracted 06/13/06
	Client P.O.:	Date Analyzed 06/14/06

Inorganic Anions by IC*

Extraction method: E300.1 Analytical methods: E300.1 Work Order: 0606295

Lab ID	Client ID	Matrix	Nitrate as N	DF	Nitrate as NO3⁻	DF	Sulfate	DF	% SS
001D	MW-6	W	7.2	1	32	1	50	10	93
002D	MW-1A	W	4.3	1	19	1	46	10	93
003D	MW-2	W	3.2	1	14	1	44	10	93
004D	MW-3	W	3.5	1	15	1	33	10	93

Reporting Limit for DF =1; ND means not detected at or above the reporting limit	W	0.1	0.45	0.1	mg/L
	S	NA	NA	NA	mg/Kg

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg, wipe samples in mg/wipe, product/oil/non-aqueous liquid samples in mg/L.

* [Nitrate as NO3⁻] = 4.4286 x [Nitrate as N]

surrogate diluted out of range or surrogate coelutes with another peak; N/A means surrogate not applicable to this analysis.

h) a lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; j) sample diluted/raised due to high inorganic content/matrix interference; k) sample arrived with head space.

DHS ELAP Certification N° 1644

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

Blymyer Engineers, Inc.	Client Project ID: Former Fiesta Beverage	Date Sampled: 06/13/06
1829 Clement Avenue		Date Received: 06/13/06
Alameda, CA 94501-1395	Client Contact: Mark Detterman	Date Extracted: 06/13/06
	Client P.O.:	Date Analyzed: 06/19/06

Inorganic Carbon as Carbon Dioxide*

Analytical Method: SM5310 B

Work Order: 0606295

Lab ID	Client ID	Matrix	IC as CO2	DF
0606295-001C	MW-6	W	290	1
0606295-002C	MW-1A	W	290	1
0606295-003C	MW-2	W	290	1
0606295-004C	MW-3	W	220	1

Reporting Limit for DF = 1; ND means not detected at or above the reporting limit	W	2.6 mg/L
	S	NA

* water samples are reported in mg/L, soil/sludge/solid samples in mg/kg.

* Non-Purgeable Organic Carbon=NPOC; TOC=Total Organic Carbon; DOC=Dissolved Organic Carbon; POC=Purgeable Organic Cabon; IC=Inorganic Carbon.

i) liquid sample contains greater than ~1 vol. % sediment.

DHS ELAP Certification N° 1644

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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606295

EPA Method: SW8021B/8015Cm **Extraction: SW5030B** **BatchID: 22171** **Spiked Sample ID: 0606295-001A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
TPH(btex)£	ND	60	108	107	1.48	113	107	5.72	70 - 130	70 - 130
MTBE	ND	10	106	111	5.19	108	116	6.72	70 - 130	70 - 130
Benzene	ND	10	108	111	2.91	103	113	9.54	70 - 130	70 - 130
Toluene	ND	10	102	102	0	96.8	106	8.75	70 - 130	70 - 130
Ethylbenzene	ND	10	107	107	0	104	110	5.39	70 - 130	70 - 130
Xylenes	ND	30	96	95.3	0.697	95.3	100	4.78	70 - 130	70 - 130
%SS:	105	10	104	107	2.15	101	109	7.63	70 - 130	70 - 130

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

NONE

BATCH 22171 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606295-001A	6/13/06 8:10 AM	6/15/06	6/15/06 3:04 AM	0606295-002A	6/13/06 8:50 AM	6/15/06	6/15/06 3:36 AM
0606295-003A	6/13/06 9:40 AM	6/15/06	6/15/06 4:09 AM	0606295-004A	6/13/06 10:20 AM	6/14/06	6/14/06 5:05 PM

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

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

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

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

cluttered chromatogram; sample peak coelutes with surrogate peak.

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

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

DHS ELAP Certification N° 1644

QA/QC Officer

McCampbell Analytical, Inc.

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

QC SUMMARY REPORT FOR SW8260B

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606295

EPA Method: SW8260B **Extraction: SW5030B** **BatchID: 22277** **Spiked Sample ID: 0606404-001B**

Analyte	Sample µg/L	Spiked µg/L	MS % Rec.	MSD % Rec.	MS-MSD % RPD	LCS % Rec.	LCSD % Rec.	LCS-LCSD % RPD	Acceptance Criteria (%) MS / MSD	Acceptance Criteria (%) LCS / LCSD
tert-Amyl methyl ether (TAME)	ND	10	101	102	1.29	94.1	97.7	3.83	70 - 130	70 - 130
t-Butyl alcohol (TBA)	ND	50	93.4	95.2	1.96	95.4	94	1.55	70 - 130	70 - 130
1,2-Dibromoethane (EDB)	ND	10	105	107	2.23	97.9	104	6.29	70 - 130	70 - 130
1,2-Dichloroethane (1,2-DCA)	ND	10	106	106	0	99.4	101	1.13	70 - 130	70 - 130
Diisopropyl ether (DIPE)	ND	10	116	115	0.817	99.5	105	5.62	70 - 130	70 - 130
Ethanol	ND	500	116	113	2.21	99.9	110	9.94	70 - 130	70 - 130
Ethyl tert-butyl ether (ETBE)	ND	10	97.5	97.6	0.143	87.2	90.8	4.13	70 - 130	70 - 130
Methanol	ND	2500	102	100	1.83	101	97.1	3.69	70 - 130	70 - 130
Methyl-t-butyl ether (MTBE)	ND	10	98.3	97.6	0.744	88.1	92.5	4.88	70 - 130	70 - 130
%SS1:	111	10	103	102	1.66	102	101	1.42	70 - 130	70 - 130

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

NONE

BATCH 22277 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606295-003E	6/13/06 9:40 AM	6/21/06	6/21/06 8:50 AM				

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 ELAP Certification N° 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 RSK174

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606295

EPA Method: RSK174 **Extraction: RSK 174** **BatchID: 22160** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	µg/L	µg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
Methane	N/A	1.76	N/A	N/A	N/A	97.6	99.9	2.31	N/A	80 - 120

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

NONE

BATCH 22160 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606295-001B	6/13/06 8:10 AM	6/15/06	6/15/06 3:53 PM	0606295-002B	6/13/06 8:50 AM	6/15/06	6/15/06 8:26 PM
0606295-003B	6/13/06 9:40 AM	6/15/06	6/15/06 8:46 PM	0606295-004B	6/13/06 10:20 AM	6/15/06	6/15/06 9:05 PM

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

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

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

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

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

DHS ELAP Certification N° 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 E300.1

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606295

EPA Method: E300.1 **Extraction: E300.1** **BatchID: 22138** **Spiked Sample ID: N/A**

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
Nitrate as N	N/A	1	N/A	N/A	N/A	109	107	1.88	N/A	85 - 115
Sulfate	N/A	1	N/A	N/A	N/A	106	108	2.27	N/A	85 - 115
%SS:	N/A	0.10	N/A	N/A	N/A	98	98	0	N/A	90 - 115

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

NONE

BATCH 22138 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606295-001D	6/13/06 8:10 AM	6/13/06	6/14/06 12:09 AM	0606295-001D	6/13/06 8:10 AM	6/13/06	6/14/06 2:05 AM
0606295-002D	6/13/06 8:50 AM	6/13/06	6/14/06 12:38 AM	0606295-002D	6/13/06 8:50 AM	6/13/06	6/14/06 2:33 AM
0606295-003D	6/13/06 9:40 AM	6/13/06	6/14/06 1:07 AM	0606295-003D	6/13/06 9:40 AM	6/13/06	6/14/06 3:02 AM
0606295-004D	6/13/06 10:20 AM	6/13/06	6/14/06 1:36 AM	0606295-004D	6/13/06 10:20 AM	6/13/06	6/14/06 3:31 AM

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 applicable to this method.

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 ELAP Certification N° 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 SM5310B

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0606295

EPA Method: SM5310 B	Extraction: SM5310 B	BatchID: 22161	Spiked Sample ID: 0606274-003D

Analyte	Sample	Spiked	MS	MSD	MS-MSD	LCS	LCSD	LCS-LCSD	Acceptance Criteria (%)	
	mg/L	mg/L	% Rec.	% Rec.	% RPD	% Rec.	% Rec.	% RPD	MS / MSD	LCS / LCSD
IC as CO2	260	36.7	95.9	95.6	0.0368	97.5	97.1	0.462	70 - 130	80 - 120

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

NONE

BATCH 22161 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0606295-001C	6/13/06 8:10 AM	6/13/06	6/19/06 3:32 PM	0606295-002C	6/13/06 8:50 AM	6/13/06	6/19/06 3:39 PM
0606295-003C	6/13/06 9:40 AM	6/13/06	6/19/06 4:14 PM	0606295-004C	6/13/06 10:20 AM	6/13/06	6/19/06 4:20 PM

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

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

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

N/A = not applicable to this method.

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 ELAP Certification N° 1644

QA/QC Officer

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

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0606295 **ClientID: BEIA** **EDF: NO**

Report to:
Mark Detterman
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395
TEL: (510) 521-3773
FAX: (510) 865-2594
ProjectNo: Former Fiesta Beverage
PO:

Bill to:
Accounts Payable
Blymyer Engineers, Inc.
1829 Clement Avenue
Alameda, CA 94501-1395

Requested TAT: 5 days
Date Received: 06/13/2006
Date Printed: 06/19/2006

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below) 1	2	3	4	5	6	7	8	9	10	11	12
0606295-001	MW-6	Water	6/13/06 8:10:00 AM	☐	D		A	C	B							
0606295-002	MW-1A	Water	6/13/06 8:50:00 AM	☐	D		A	C	B							
0606295-003	MW-2	Water	6/13/06 9:40:00 AM	☐	D	E	A	C	B							
0606295-004	MW-3	Water	6/13/06 10:20:00	☐	D		A	C	B							

Test Legend:

1	300_1_W	2	9-OXYS_W	3	G-MBTEX_W	4	IC(CO2)_W	5	RSK174_W
6		7		8		9		10	
11		12							

Prepared by: Melissa Valles

Comments: Mtbe confirmation set up 6/19/06

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

B014 060295

BLAINE
TECH SERVICES, INC.

1680 ROGERS AVENUE
SAN JOSE, CALIFORNIA 95112-1105
FAX (408) 573-7771
PHONE (408) 573-0555

CHAIN OF CUSTODY BTS # 060612-M01

CLIENT: Blymyer Engineers, Inc.

SITE: Former Fiesta Beverage
966 89th Avenue
Oakland, CA

SAMPLE I.D.	DATE	TIME	MATRIX S=SOIL W=H_2O	CONTAINERS TOTAL	C = COMPOSITE ALL CONTAINERS	TPH-G (8015)	BTEX & *MTBE (8021B)	9 OXY confirmation set up if/when	**Nitrate, Sulfate (300.1) and	Methane (RSK-174) (ESK 376)	Carbon Dioxide (SM 5310B)
MW-6	6/13/06	0810	W	8		X	X		X	X	X
MW-1A		0850				X	X		X	X	X
MW-2		0940				X	X	X	X	X	X
MW-3		1020				X	X		X	X	X

CONDUCT ANALYSIS TO DETECT

LAB: McCampbell DHS #

ALL ANALYSES MUST MEET SPECIFICATIONS AND DETECTION LIMITS SET BY CALIFORNIA DHS AND
☐ EPA ☐ RWQCB REGION
☐ LIA
☐ OTHER

SPECIAL INSTRUCTIONS

Invoice and Report to : Blymyer Engineers, Inc.

Attn: Mark Detterman **48 hr. Hold Time

EDF Format Required.

*Run highest MTBE result a second time by EPA 8260B for all additives including EDB, 1,2-DCA, Ethanol and Methanol.

ADD'L INFORMATION	STATUS	CONDITION	LAB SAMPLE #

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

PRESERVATION: VOA'S ✓ | O&G | METALS | OTHER

SAMPLING COMPLETED: DATE 6/13/06 TIME 1045

SAMPLING PERFORMED BY: D. Nuñez

RESULTS NEEDED NO LATER THAN: As contracted

RELEASED BY	DATE	TIME	RECEIVED BY	DATE	TIME
D. Nuñez	6/13/06	1450		6/13/06	1450
	6/15/06	430	Mc Vall	6/13/06	1450
				4/13/06	4°C

SHIPPED VIA | DATE SENT | TIME SENT | COOLER #

Appendix E

Well Survey,
CSS Environmental Services, Inc.
June 21, 2006

CSS ENVIRONMENTAL SERVICES, INC.
Managing Cost, Scope and Schedule
100 Galli Drive, Suite 1
Novato, CA 94949
Telephone: (415) 883-6203
Facsimile: (415) 883-6204

Site Positions

6306 - 966 89th Avenue, Oakland, CA

Horizontal Coordinate System: North American 1983-CONUS **Survey Date:** 02/17, 06/21/06
Height System: North American Vertical Datum of 1988-Ortho. Ht. (GEOID99)
Project file: 6306 89th Ave Oakland.spr
Desired Horizontal Accuracy: 0.100Ft + 1ppm
Desired Vertical Accuracy: 0.100Ft + 2ppm
Confidence Level: 95% Err.
Linear Units of Measure: Int. Feet
Please note locations are GPS derived, elevations are by differential leveling.

	Site ID	Site Descriptor		Position	95% Error	Fix Status	Position Status
1	MW-2	TBM1 ON N RIM WELL LOC	Lat.	37° 44′ 49.33891″ N	0.000	Fixed	Adjusted
			Lon.	122° 10′ 55.58788″ W	0.000	Fixed	
		TBM1	Elv.	21.62	0.000	Fixed	
		SOUTH TOC	Elv.	21.45			
2	MW-1	NR WELL LOC	Lat.	37° 44′ 49.45227″ N	0.018		Adjusted
			Lon.	122° 10′ 55.39688″ W	0.010		
		TOC	Elv.	21.70			
3	MW1R	TBM3 ON N RIM WELL LOC	Lat.	37° 44′ 49.51791″ N	0.027		Adjusted
			Lon.	122° 10′ 55.27065″ W	0.019		
		TBM3	Elv.	22.14			
		TOC	Elv.	21.73			
4	MW-3	TBM2 ON N RIM WELL LOC	Lat.	37° 44′ 49.22696″ N	0.018		Adjusted
			Lon.	122° 10′ 55.45419″ W	0.010		
		TBM2	Elv.	22.23			
		NORTH TOC	Elv.	22.02			
5	MW-4	NR WELL LOC	Lat.	37° 44′ 49.08388″ N	0.014		Adjusted
			Lon.	122° 10′ 56.02709″ W	0.006		
		TOC	Elv.	21.34			
6	MW-5	OFFSET 45' SSE OF WELL	Lat.	37° 44′ 48.50976″ N	0.027		Adjusted
		THIS LOCATION IS OFFSET FRM WELL	Lon.	122° 10′ 54.37819″ W	0.016		
		TOC	Elv.	22.53			
7	MW-6	NR WELL LOC	Lat.	37° 44′ 49.70146″ N	0.028		Adjusted
			Lon.	122° 10′ 54.81625″ W	0.013		
		TOC	Elv.	21.97			
8	MW-7	NR WELL LOC	Lat.	37° 44′ 49.86987″ N	0.017		Adjusted
			Lon.	122° 10′ 55.73778″ W	0.021		
		TOC	Elv.	21.21			

CSS ENVIRONMENTAL SERVICES, INC.
Managing Cost, Scope and Schedule
100 Galli Drive, Suite 1
Novato, CA 94949
Telephone: (415) 883-6203
Facsimile: (415) 883-6204

9	MW-8	NR WELL LOC	Lat.	37° 44′ 49.56762″ N	0.010	Adjusted
			Lon.	122° 10′ 56.21314″ W	0.007	
		TOC	Elv.	20.97		
10	MW-9	NR WELL LOC	Lat.	37° 44′ 49.23327″ N	0.017	Adjusted
			Lon.	122° 10′ 56.35673″ W	0.016	
		TOC	Elv.	20.98		
11	BC-1	4-IN W OF BLDG CORNER	Lat.	37° 44′ 49.33969″ N	0.378	Adjusted
			Lon.	122° 10′ 55.39368″ W	0.379	
12	BC-2	4-IN W OF ROLL-UP DOOR	Lat.	37° 44′ 49.15327″ N	0.337	Adjusted
			Lon.	122° 10′ 55.50907″ W	0.404	
13	BC-3	2-FT W OF BLDG CORNER	Lat.	37° 44′ 48.98093″ N	0.015	Adjusted
			Lon.	122° 10′ 55.86416″ W	0.018	
14	FC-1	2-FT E OF FENCE CORNER	Lat.	37° 44′ 49.54924″ N	0.098	Adjusted
			Lon.	122° 10′ 56.35783″ W	0.091	
15	FC-2	2-FT E OF FENCE CORNER	Lat.	37° 44′ 49.40520″ N	0.095	Adjusted
			Lon.	122° 10′ 56.28676″ W	0.089	
16	FC-3	2-FT E OF FENCE CORNER	Lat.	37° 44′ 49.17681″ N	0.064	Adjusted
			Lon.	122° 10′ 56.33727″ W	0.093	
17	MH-1	MANHOLE COVER IN STREET	Lat.	37° 44′ 49.41709″ N	0.011	Adjusted
			Lon.	122° 10′ 56.08137″ W	0.008	
			Elv.	21.09		
18	DI-1	CENTER OF STORM DI	Lat.	37° 44′ 49.61723″ N	0.009	Adjusted
			Lon.	122° 10′ 55.88474″ W	0.007	
			Elv.	20.56		

Appendix F

Previous Bore Logs and Groundwater Monitoring Well Construction Details,

Table F-1: Well Construction Details

Table F-1, Summary of Groundwater Well Construction Details
BEI Job No. 203004, Fiesta Beverage
966 89th Avenue, Oakland, California

Well ID	Installation Date	Bore Depth (feet, bgs)	Well Completion Depth (feet, bgs)	Screen Interval (feet, bgs)	Casing Diameter / Slot Size (inches)	Measured Depth June 12 or 13, 2006	DTW June 12 or 13, 2006	Consultant
MW-1	6/25/1993	26.5	25	12 - 25	2	Destroyed	5/8/2006	TPE
MW-2	6/24/1993	26.5	25	10 - 25	2	23.95	8.25	TPE
MW-3	6/24/093	25.0	25	10 - 25	2	24.87	8.62	TPE
MW-1R	5/9/2006	22.0	22	12 - 22	2	21.54	8.49	BEI
MW-4	5/9/2006	22.0	22	12 - 22	2	21.78	8.37	BEI
MW-5	5/8/2006	20.0	20	10 - 20	2	19.73	8.75	BEI
MW-6	5/8/2006	20.0	20	10 - 20	2	19.77	8.59	BEI
MW-7	6/2/2006	22.0	22	12 - 22	2	21.70	8.31	BEI
MW-8	6/2/2006	21.5	20	10 - 20	2	19.96	8.37	BEI
MW-9	6/2/2006	22.0	22	12 - 22	2	22.07	8.50	BEI

Notes: bgs = Below grade surface
DTW = Depth to water
TPE = Tank Protect Engineering
BEI = Blymyer Engineers, Inc.

LOG OF EXPLORATORY BORING

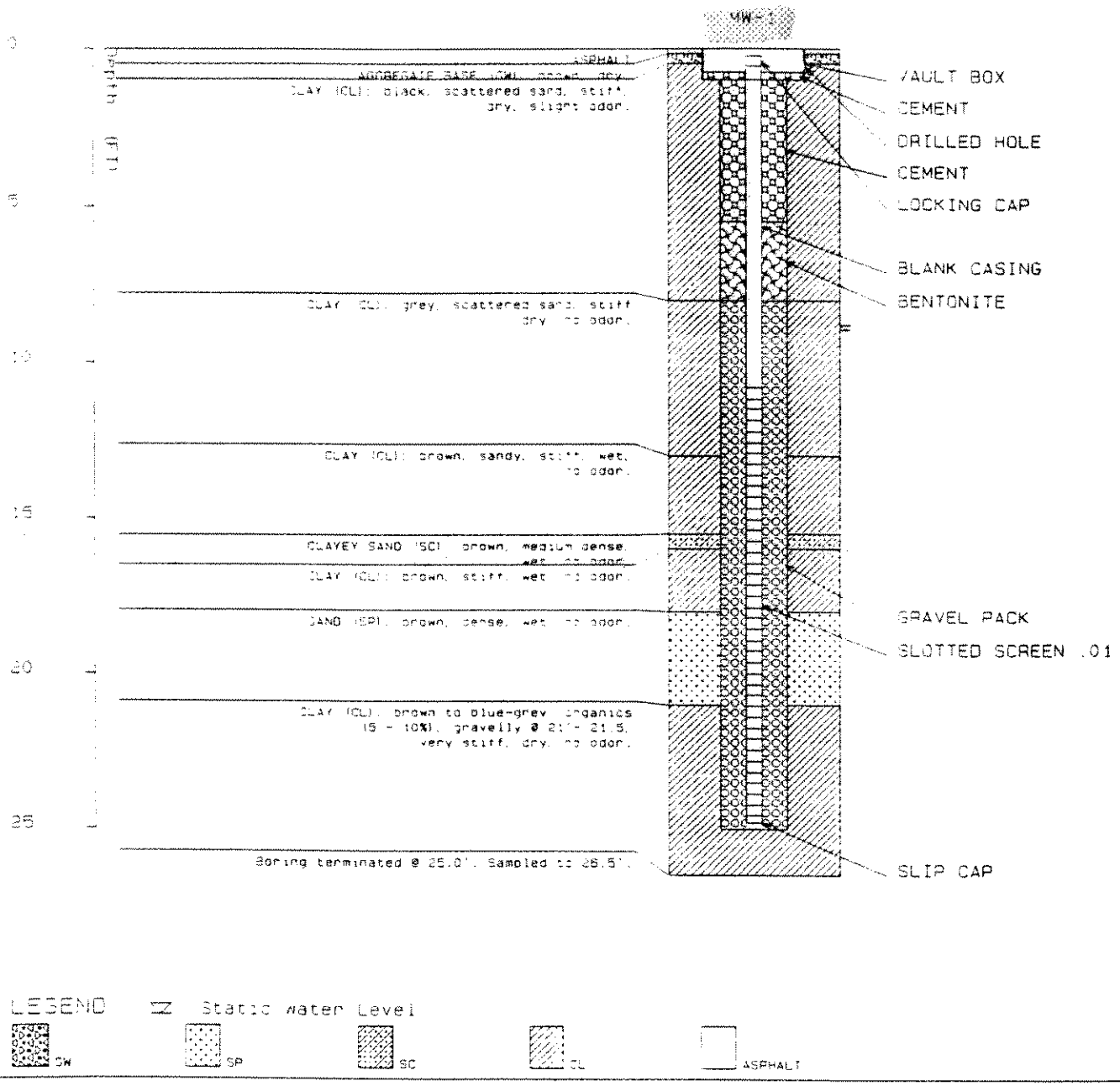
PROJECT NUMBER 354 BORING NO. MW-5

PROJECT NAME 366 39TH AVENUE, OAKLAND CA

BY JWH DATE 6-25-09 SURFACE ELEV. 13 FT

RECOVERY (IN)	PID (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVEL	DEPTH (FT)	LITHOLOGIC COLUMN	DESCRIPTION
						ASPHALT
						AGGREGATE BASE (GW), brown, dry.
						CLAY (CL): black, scattered sand, stiff, dry, slight odor
5/5/5		11		5		
						CLAY (CL): grey, scattered sand, stiff, dry, no odor
5/5/5		15		10		
						CLAY (CL): brown, sandy, stiff, wet, no odor
5/5/5		12		15		
						CLAYEY SAND (SC): brown, medium dense, wet, no odor
						CLAY (CL): brown, stiff, wet, no odor.
						SAND (SP): brown, dense, wet, no odor.
4/5/5		24		20		CLAY (CL): brown to blue-grey, organics (5 - 10%), gravelly @ 21'- 21.5', very stiff, dry, no odor.
						Boring terminated @ 25.0'. Sampled to 26.5'. Hole caved from 25.0' to 26.5'.
42/5/5		20		25		

REMARKS: Boring drilled with continuous-flight, hollow-stem, 8-inch O.D. augers. Samples collected in a 2.0-inch I.D. California sampler.



WELL ID MW-1

966 88TH AVENUE, OAKLAND CA

TANK PROTECT ENGINEERING

Figure :

LOG OF EXPLORATORY BORING

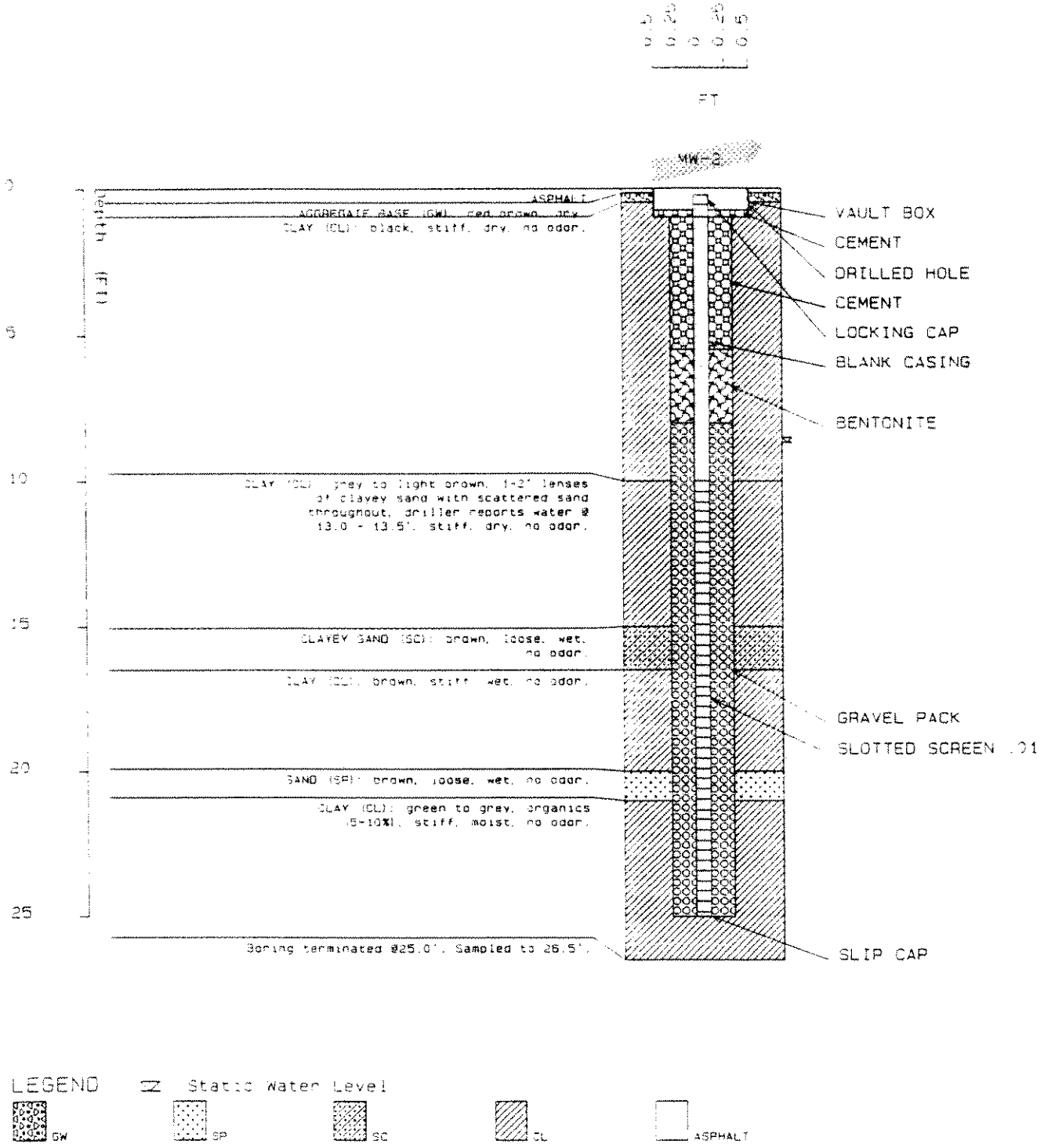
PROJECT NUMBER 364 BORING NO. MW-2

PROJECT NAME 966 89TH AVENUE, OAKLAND CA

BY CNH DATE 6/24/93 SURFACE ELEV. 18 FT

RECOVERY (FT/FT)	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
							ASPHALT
							AGGREGATE BASE (GW): red brown, dry.
							CLAY (CL): black, stiff, dry, no odor.
1.5/1.5		13		5			
1.5/1.5		11		10			CLAY (CL): grey to light brown, 1-2" lenses of clayey sand with scattered sand throughout, driller reports water @ 13.0' - 13.5' stiff, dry, no odor.
1.5/1.5		8		15			CLAYEY SAND (SC): brown, loose, wet, no odor.
							CLAY (CL): brown, stiff, wet, no odor.
1.2/1.5		7		20			SAND (SP): brown, loose, wet, no odor.
							CLAY (CL): green to grey, organics (5-10%), stiff, moist, no odor.
							Boring terminated @25.0'. Sampled to 26.5'. Hole caved from 25.0' to 26.5'.
1.0/1.5		12		25			

REMARKS: Boring drilled with continuous-flight hollow-stem, 8-inch O.D. augers. Samples collected in a 2.0-inch I.D. California sampler.



WELL ID : MW-2

966 89TH AVENUE, OAKLAND CA

TANK PROTECT ENGINEERING

Figure :

LOG OF EXPLORATORY BORING

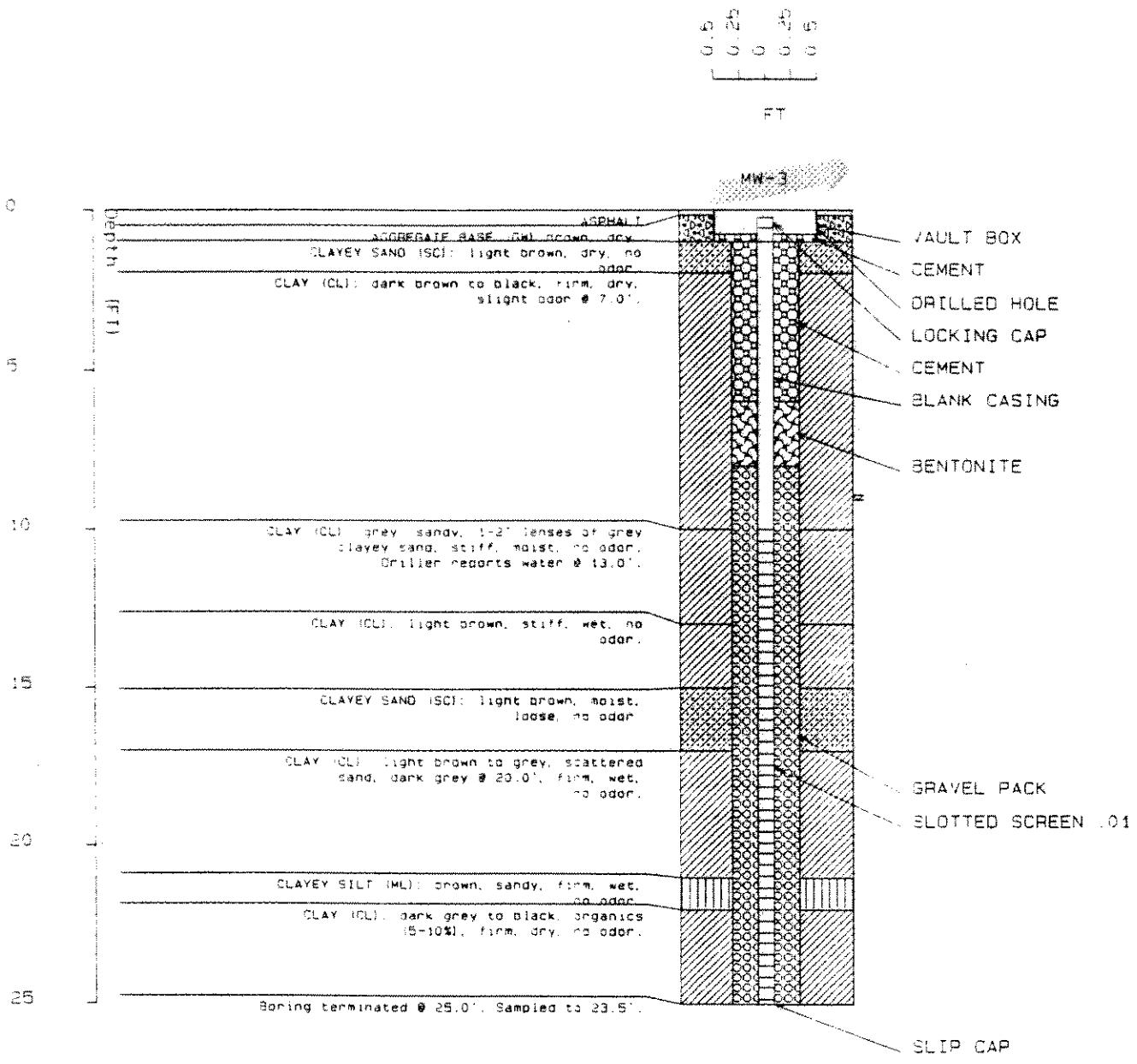
PROJECT NUMBER 264 BORING NO. MW-3

PROJECT NAME 966 89TH AVENUE, OAKLAND CA

BY CNH DATE 6/24/93 SURFACE ELEV. 19 FT

RECOVERY FT/FT	OVA (PPM)	PENETRATION (BLOWS/FT)	GROUND WATER LEVELS	DEPTH IN FT	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
							ASPHALT
							AGGREGATE BASE (GW) brown, dry.
							CLAYEY SAND (SC): light brown, dry, no odor.
				5			CLAY (CL): dark brown to black, firm, dry, slight odor @ 7.0'.
1.3/1.5		7					
			▽				
				10			
1.0/1.5		11					CLAY (CL): grey, sandy, 1-2" lenses of grey clayey sand, stiff, moist, no odor. Driller reports water @ 13.0'.
0/1.5		9					CLAY (CL): light brown, stiff, wet, no odor.
1.0/1.5		10					
76/1.5		8		15			CLAYEY SAND (SC): light brown, moist, loose, no odor.
1.2/1.5		6					CLAY (CL): light brown to grey, scattered sand, dark grey @ 20.0', firm, wet, no odor.
1.3/1.5		6					
1.2/1.5		4		20			CLAYEY SILT (ML): brown, sandy, firm, wet, no odor.
1.2/1.5		8					CLAY (CL): dark grey to black, organics (5-10%), firm, dry, no odor.
							Boring terminated @ 25.0'. Sampled to 23.5'.
				25			

REMARKS: Boring drilled with continuous-flight, hollow-stem, 8-inch O.D. augers. Samples collected in a 2.0-inch I.D. California and standard penetration sampler.



LEGEND ▽ Static Water Level

GW SC ML CL ASPHALT

WELL ID : MW-3

366 89TH AVENUE, OAKLAND CA

TANK PROTECT ENGINEERING

Figure :

EXPLORATORY BORING LOG

Project Number: 133
Project Name: 966 89th Street
Oakland, CA 94621

Boring Number: SB-1
Page Number: 1 of 1

By: ALLCAL PROPERTY SERVICES, INC Date: 11/30/99 Surface Elevation: NA

RECOVERY (in/in.)	VAPORS (ppm)	PENETRATION (blows/ft.)	GROUND-WATER LEVEL	DEPTH (ft.)	SAMPLES ANALYZED	SOIL TYPE	DESCRIPTION
							0 - .33 FT.: AGGREGATE BASE
48/48						CL	.33 - 4.0 FT.: CLAY (CL), BROWN, SOFT TO MEDIUM-FIRM, DAMP, NO ODOR.
				5			
48/48						CL	4.0 - 12.0 FT.: CLAY (CL), GREY, SOFT, DAMP, SLIGHT GASOLINE ODOR BEGINNING AT 6 FEET.
48/48				10			@ 10 FT.: STAINED GREEN
						CL	12.0 - 14.0 FT.: CLAY (CL), BROWN, SOFT, DAMP, SLIGHT ODOR.
48/48			▼	15		ML	14.0 - 16.0 FT.: CLAYEY SILT (ML), GREEN, MOIST TO SATURATED, GASOLINE ODOR.
							@ 16.0 FT.: SAND (SP), GREEN-BROWN, SATURATED, GASOLINE ODOR AND SHEEN.
							CONTINUOUSLY CORED TO 16 FT. DISCRETE WATER SAMPLER PUSHED FROM 16 TO 18 FEET.

Remarks: BORING CONTINUOUSLY CORED WITH 2.0 - INCH O. D., DIRECT-PUSH, GEOPROBE SYSTEM. SAMPLES COLLECTED IN 1.75- BY 48 - INCH PETG LINER. BORING SEALED TO GROUND SURFACE WITH NEAT CEMENT.

EXPLORATORY BORING LOG

Project Number: 133

Project Name: 966 89th Street
Oakland, CA 94621

Boring Number: SB-2

Page Number: 1 of 1

By: ALLCAL PROPERTY SERVICES, INC Date: 11/30/99 Surface Elevation: NA

RECOVERY (in/in.)	VAPORS (ppm)	PENETRATION (blows/ft.)	GROUND-WATER LEVEL	DEPTH (ft.)	SAMPLES ANALYZED	SOIL TYPE	DESCRIPTION
							0 - .5 FT.: AGGREGATE BASE
48/48						CL	.5 - 4.0 FT.: CLAY (CL), BROWN, SOFT TO MEDIUM-FIRM, DAMP, NO ODOR.
				5			
48/48						CL	4.0 - 13.0 FT.: CLAY (CL), GREY, SOFT, MEDIUM-FIRM, GASOLINE ODOR BEGINNING AT 6 FEET.
48/48				10			@ 9 FT.: 3-INCH GRAVELLY LAYER. @ 10 FT.: SHELL FRAGMENTS.
48/48			▼	15		ML	13.0 - 16.0 FT.: CLAYEY SILT (ML), GREEN, MOIST TO SATURATED, GASOLINE ODOR.
							CONTINUOUSLY CORED TO 16 FT. DISCRETE WATER SAMPLER PUSHED FROM 16 TO 18 FEET.

Remarks: BORING CONTINUOUSLY CORED WITH 2.0 - INCH O. D., DIRECT-PUSH, GEOPROBE SYSTEM. SAMPLES COLLECTED IN 1.75- BY 48 - INCH PETG LINER. BORING SEALED TO GROUND SURFACE WITH NEAT CEMENT.

EXPLORATORY BORING LOG

Project Number: 133

Project Name: 966 89th Street
Oakland, CA 94621

Boring Number: SB-3 & 4

Page Number: 1 of 1

By: ALLCAL PROPERTY SERVICES, INC Date: 11/30/99

Surface Elevation: NA

RECOVERY (in/in.)	VAPORS (ppm)	PENETRATION (blows/ft.)	GROUND-WATER LEVEL	DEPTH (ft.)	SAMPLES ANALYZED	SOIL TYPE	DESCRIPTION
				5			NO SOIL LOGGED. DISCRETE WATER SAMPLER PUSHED TO 18 FEET BELOW GRADE. SCREEN EXPOSED FROM 16 TO 18 FEET FOR COLLECTION OF WATER SAMPLES.
				10			
				15			

Remarks:

BLYMYER ENGINEERS, INC.

Soil Bore Log: GP1

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	Geoprobe
Date Drilled:	September 27, 2004	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	1.75 inch
Drilling Company	Gregg Drilling	Total Drilled Depth	20.0 feet
Driller	Vince P.	Bore Angle	30 degrees

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: Not available; 15.5 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					6 inches concrete	Concrete	
1		10			Dark Brown SILTY CLAY (native); with medium brown SAND, medium grained (FILL); damp (saw cut)	CL	
2		0.3			Dark green brown SILTY CLAY; damp; aged gasoline odor apparent		
3						CL	
4							
5		5					
6				GP1-6	Dark brown SILTY CLAY, with caliche nodules to 1/8-inch and subrounded fine pebbles; damp to moist		
7		297					
8						CL	
9							
10							
11					Mottled dark brown and dark green SILTY CLAY; moist; odor apparent		
12							
13						CL	
14							
15							
16		221		GP1-15.5	Medium green SILTY CLAY; odor apparent; moist to wet (groundwater at 13.5 ft vertically oriented).	CL	
17					No recovery 16 to 20 feet bgs.		
18							
19							
20							
21					Bottom of bore: 20 feet (Vertical Total Depth : 17.5 feet)		

(Grouted upon completion)

PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1738
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Soil Bore Log: GP2

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	Geoprobe
Date Drilled:	September 27, 2004	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	1.75 inch
Drilling Company	Gregg Drilling	Total Drilled Depth	20.0 feet
Driller	Vince P.	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: 10.5 feet; 15.5 feet

(Grouted upon completion)

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					3 inches asphalt	Asphalt	
1					Dark Brown to Black SILTY CLAY ; damp		
2							
3		37					
4		629					
5							
6						CL	
7							
8							
9							
10							
11		485					
12				GP2-11.5	Dark brown SILTY CLAY; with slight greenish mottling; damp; odor apparent	CL	
13							
14							
15				GP2-15	Mottled light green and light brown SILTY CLAY, moist to wet	CL	
16		19.1					
17					Grades light brown	CL	
18					Light brown CLAYEY SAND, fine grained; with black organic carbon (native); wet	SC	
19				GP2-19	Light brown CLAYEY SILT; wet	ML	
20					Bottom of bore: 20 feet		
21							

PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1738
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Soil Bore Log: GP3

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	Geoprobe
Date Drilled:	September 27, 2004	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	1.75 inch
Drilling Company	Gregg Drilling	Total Drilled Depth	16.0 feet
Driller	Vince P.	Bore Angle	30 degrees

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: Not available; 15.0 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					7 inches concrete	Concrete	
1					Medium Brown SILTY CLAY, with 1/4-inch subrounded pebbles; damp (saw cut)		
2							
3		0.1					
4							
5							
6						CL	
7							
8							
9							
10							
11					Grades light olive brown SILTY CLAY; damp; no odor		
12		0.1					
13						CL	
14		0.1					
15				GP3-14.5			
16				GP3-15.5	Light brown CLAYEY SILT, with 5% black organic carbon (native); wet (groundwater at 13.0 feet vertically oriented)	ML	
17							
18							
19							
20							
21							

Bottom of bore: 16 feet
(Vertical Total Depth: 13.75 feet)

(Grouted upon completion)

PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Soil Bore Log: GP4

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	Geoprobe
Date Drilled:	September 27, 2004	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	1.75 inch
Drilling Company	Gregg Drilling	Total Drilled Depth	16.0 feet
Driller	Vince P.	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: ▼ 13.5 feet; ▽ 14.5 feet

(Grouted upon completion)

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					2 inches asphalt	Concrete	
1					Dark olive brown SILTY CLAY; damp	CL	
2					Dark brown to black SILTY CLAY; damp; no odor		
3							
4							
5				GP4-5			
6							
7						CL	
8		0.1					
9							
10							
11		0.1					
12				GP4-11.5	Greenish black SILTY CLAY; moist		
13		267				CL	
14		33		GP4-14	Grades light greenish brown SILTY CLAY; very moist to wet	CL	
15					Grades light brown SANDY CLAY; wet	CL	
16					Bottom of bore: 16 feet		
17							
18							
19							
20							
21							

PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Soil Bore Log: GP5

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	Geoprobe
Date Drilled:	September 27, 2004	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	1.75 inch
Drilling Company	Gregg Drilling	Total Drilled Depth	16.0 feet
Driller	Vince P.	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: ▼ 13.0; ▽ 15.0 feet

(Grouted upon completion)

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					4 inches asphalt	Asphalt	
1					Black SILTY CLAY; damp		
2		10			Odor at 2 ft		
3							
4							
5						CL	
6				GP5-6			
7		17					
8							
9							
10					Grades medium olive brown SILTY CLAY; with greener mottles; moist		
11		289		GP5-11		CL	
12		116					
13				GP5-12.5	Greenish brown SILTY CLAY; moist to very moist	CL	
14							
15					Grades light greenish brown SANDY CLAY; wet	CL	
16					Bottom of bore: 16 feet		
17							
18							
19							
20							
21							

PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1738
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Soil Bore Log: GP6

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	: 203004	Drilling Equipment	: Geoprobe
Date Drilled:	: September 27, 2004	Sample Method	: Continuous Sleeve
Logged By	: Mark Detterman	Soil Bore Diameter	: 1.75 inch
Drilling Company	: Gregg Drilling	Total Drilled Depth	: 16.0 feet
Driller	: Vince P.	Bore Angle	: No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: Not available; 12.5 feet

(Grouted upon completion)

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					4 inches asphalt	Asphalt	
1					Dark greenish black SILTY CLAY; damp; odor		
2							
3		87					
4						CL	
5							
6		22		GP6-6			
7							
8							
9					Grades olive-green brown SILTY CLAY; moist to wet		
10							
11		473				CL	
12				GP6-11.5			
13		153					
14				GP6-13.5	Grades lighter brown with green mottles SILTY CLAY, 5% fine grained sand; wet	CL	
15					Grades light brown SANDY CLAY; wet	CL	
16					Bottom of bore: 16 feet		
17							
18							
19							
20							
21							

PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1738
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Soil Bore Log: GP7

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	: 203004	Drilling Equipment	: Geoprobe
Date Drilled:	: September 27, 2004	Sample Method	: Continuous Sleeve
Logged By	: Mark Detterman	Soil Bore Diameter	: 1.75 inch
Drilling Company	: Gregg Drilling	Total Drilled Depth	: 16.0 feet
Driller	: Vince P.	Bore Angle	: No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: Not available; 12.0 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					4 inches asphalt	Asphalt	
1					Dark greenish black SILTY CLAY; damp; odor		
2		40					
3				GP7-2.5		CL	
4							
5							
6							
7					Black SILTY CLAY; moist; odor		
8				GP7-7.5		CL	
9					Grades medium olive brown SILTY CLAY; moist; odor		
10						CL	
11							
12				GP7-11.5	Light brown CLAYEY SAND, fine grained; wet		
13							
14		0.1				SC	
15							
16					Bottom of bore: 16 feet		
17							
18							
19							
20							
21							

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PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1738
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Soil Bore Log: GP8

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	Geoprobe
Date Drilled:	September 27, 2004	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	1.75 inch
Drilling Company	Gregg Drilling	Total Drilled Depth	16.0 feet
Driller	Vince P.	Bore Angle	No

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: Not available; 12.0 feet

(Grouted upon completion)

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					4 inches asphalt	Asphalt	
1					Black SILTY CLAY, with shades of green; damp; odor	CL	
2							
3		76					
4					Grades black SILTY CLAY; with caliche nodules 1/8 to 1/4-inch; moist; odor	CL	
5							
6							
7		473		GP8-6.5			
8					Grades medium brown mottled with dark olive green SILTY CLAY; moist; odor	CL	
9							
10							
11		440					
12				GP8-11.5	Grades dark brown SILTY CLAY to CLAYEY SILT; wet	CL	
13							
14							
15					Grades light brown SANDY CLAY, with fine grained sand (10%) and black organic carbon; wet	CL	
16					Bottom of bore: 16 feet		
17							
18							
19							
20							
21							

PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1789
CERTIFIED ENGINEERING GEOLOGIST
2-8-05
STATE OF CALIFORNIA

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BLYMYER ENGINEERS, INC.

Soil Bore Log: GP9

Former Fiesta Beverage
960 & 966 89th Avenue, Oakland, CA

Job Number:	203004	Drilling Equipment	Geoprobe
Date Drilled:	September 27, 2004	Sample Method	Continuous Sleeve
Logged By	Mark Detterman	Soil Bore Diameter	1.75 inch
Drilling Company	Gregg Drilling	Total Drilled Depth	16.0 feet
Driller	Vince P.	Bore Angle	10 degrees

Sample Recovery: Collected; Retained; Analyzed; Unrecovered

Water Level: Not available; 12.5 feet

Depth in Feet	Blow Count	PID	Sample Recovery	Sample No.	DESCRIPTION	USCS	GRAPHIC
0					2 inches asphalt	Asphalt	
1					Black SILTY CLAY; damp; no odor		
2		1.1					
3							
4						CL	
5							
6							
7					Grades medium brown SILTY CLAY; moist; no odor		
8		0.5					
9						CL	
10							
11					Grades mottled medium brown and dark olive brown SILTY CLAY; moist; odor		
12		347		GP9-11.5		CL	
13					Mottled Dark brown and dark greenish brown SILTY CLAY; wet		
14						CL	
15		267			Dark olive green SANDY CLAY; wet		
16				GP9-15.5	Bottom of bore: 16 feet (Total Vertical Depth: 15.75 feet)	CL	
17							
18							
19							
20							
21							

(Grouted upon completion)

PROFESSIONAL GEOLOGIST
MARK E. DETTERMAN
No. 1788
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

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Appendix G

Remedial Alternative Cost Estimate Worksheets

COST ESTIMATE SUMMARY

Former Fiesta Beverage Facility
966 89th Avenue
Oakland, California

MONITORED NATURAL ATTENUATION (MNA)

Task	Supplier	Quantity	Unit Cost	Units	Total Cost
QUARTERLY MONITORING, REPORTING AND CLOSURE COSTS					
Quarterly Monitoring (4 quarters; year 1)					
Staff Professional	BEI	32	$80	hrs.	$2,560
Sampling Equipment and Supplies, Travel, Shipping	Vendor	4	$450	LS	$1,800
Purge Water Disposal (4-drums)	Vendor	1	$845	LS	$845
Analytical - GW (9 wells: 8015/8020 & EDF)	Vendor	4	$500	LS	$2,000
GW Quarterly Reports	BEI	4	$3,500	LS	$14,000
					$21,205
Eighteen Years Quarterly Groundwater Monitoring					$596,547
Eighteen Years Semi-Annual Groundwater Monitoring					$298,274
Site Closure					
Closure Report	BEI	1	$5,000	LS	$5,000
Agency Consultation	BEI	24	$150	LS	$3,600
					$8,600
Groundwater Monitoring Well Abandonment					
Well Destruction	Sub	1	$10,000	LS	$10,000
Disposal Cost	Ven/Sub	1	$8,000	LS	$8,000
					$18,000
Quarterly Monitoring				**Total Cost**	**$623,147**
Semi Annual Monitoring				**Total Cost**	**$324,874**

TOTAL ESTIMATED COST (No Contingency) **$623,147**
TOTAL ESTIMATED COST (No Contingency) **$324,874**

GW monitoring period based on MW-1 biodegradation curve
17-yrs to reach benzene at 1 ppb plus one-year confirmation monitoring

COST ESTIMATE SUMMARY

Former Fiesta Beverage Facility
966 89th Avenue
Oakland, California

MONITORED NATURAL ATTENUATION (MNA)
Cost of Groundwater Monitoring Indexed for Inflation
Cumulative Cost with 5% Inflation

Year	Cost	Cumulative Cost
1	$21,205	$21,205
2	$22,265	$43,470
3	**$23,379**	**$66,849**
4	$24,547	$91,396
5	$25,775	$117,171
6	$27,064	$144,235
7	$28,417	$172,651
8	$29,838	$202,489
9	$31,329	$233,818
10	$32,896	$266,714
11	$34,541	$301,255
12	$36,268	$337,523
13	$38,081	$375,604
14	$39,985	$415,589
15	$41,984	$457,573
16	$44,084	$501,657
17	$46,288	$547,945
18	**$48,602**	**$596,547**
19	$51,032	$647,580
20	$53,584	$701,164

COST ESTIMATE SUMMARY

Former Fiesta Beverage Facility
966 89th Avenue
Oakland, California

GROUNDWATER PUMP and TREAT

TASK		Estimated Cost
Preconstruction		
Design Plans, Bid Documents		$18,980
Work Plan		$6,960
Permitting (RWQCB, Bldg Dept, Utility Dist.)		$9,000
	Subtotal	**$34,940**
Construction		
Pump and Treat System- Plant		$26,600
System Installation		$9,200
Trenching, Utility Connection and Security		$40,520
System Start-up		$16,100
Construction Oversight		$12,000
	Subtotal	**$104,420**
System Operation and Maintenance (1-year only)		
Labor & Utilities		$55,256
System Monitoring and Reporting		$22,100
Maintenance Equipment and Carbon		$14,100
	Subtotal	**$91,456**
Reporting		
Quarterly Monitoring 3-years		$66,849
Closure Activities and Agency Consultation		$5,600
P&T System and Well Abandonment		$15,000
	Subtotal	**$87,449**

Estimated Cost: Pump & Treat Groundwater Extraction System	**$318,265**
Total Estimated Cost with Contingency at 15%	**$366,005**

Assumes 2 gpm extraction rate, with system 75% operational	788,400	gal/yr
TPH-G plume volume - approximately 350,000 gallons	2.25	plume volumes/yr

Assume groundwater to be extracted equals three plume volumes, approximately 1.5-years operation

COST ESTIMATE SUMMARY

Former Fiesta Beverage Facility
966 89th Avenue
Oakland, California

AIR SPARGING_SOIL VAPOR RECOVERY

TASK		Estimated Cost
Preconstruction		
Design Plans, Bid Documents		$17,720
Work Plan		$6,760
Permitting (RWQCB, Bldg.Dept, Utility Dist.)		$3,500
	Subtotal	**$27,980**
Costruction		
Air Sparge_Soil Vapor Extraction System- Plant		$65,000
System Installation		$17,400
Trenching, Utility Connection and Security		$17,000
System Start-up		$11,300
Construction Oversight		$8,000
	Subtotal	**$118,700**
System Operation and Maintenance (1-year only)		
Labor & Utilities		$33,638
System Monitoring and Reporting		$20,300
Maintenace Equipment and Carbon		$20,100
	Subtotal	**$74,038**
Reporting		
Quarterly Groundwater Monitoring (3-years)		$66,900
Closure Report and Agency Consultation		$3,200
AS_SVE System and Well Abandonment		$25,000
	Subtotal	**$95,100**

Estimated Cost: Air Sparging_Soil Vapor Extraction System	**$315,818**
Total Estimated Cost with Contingency at 15%	**$363,190**

COST ESTIMATE SUMMARY

Former Fiesta Beverage Facility
966 89th Avenue
Oakland, California

DUAL PHASE EXTRACTION

TASK		Estimated Cost
Preconstruction		
Design Plans, Bid Documents		$17,720
Work Plan		$6,760
Permitting (RWQCB, Bldg.Dept, Utility Dist.)		$6,000
	Subtotal	**$30,480**
Costruction		
DPE system- Plant		$76,200
System Installation		$22,400
Trenching, Utility Connection and Security		$17,520
System Start-up		$11,300
Construction Oversight		$8,000
	Subtotal	**$135,420**
System Operation and Maintenance (1-year only)		
Labor & Utilities		$87,840
System Monitoring and Reporting		$23,500
Maintenace Equipment and Carbon		$20,100
	Subtotal	**$131,440**
Reporting		
Quarterly Monitoring (3-years)		$66,900
Closure Report and Agency Consultation		$3,200
DPE System and Well Abandonment		$25,000
	Subtotal	**$95,100**

Estimated Cost: Dual Phase Extraction System	**$392,440**
Total Estimated Cost with Contingency at 15%	**$451,306**

COST ESTIMATE SUMMARY

Former Fiesta Beverage Facility
966 89th Avenue
Oakland, California

Enhanced Insitu Remediation (RegenOx and ORC_Injection)

TASK		Estimated Cost
Preconstruction		
Design Plans, Bid Documents		$5,000
Work Plan		$6,760
Permitting (RWQCB, Bldg. Dept, Utility Dist.)		$3,500
	Subtotal	**$15,260**
Costruction		
RegenOx-ORC Injection		$78,400
System Installation		$0
Trenching, Utility Connection and Security		$0
System Start-up		$0
Construction Oversight		$0
	Subtotal	**$78,400**
System Operation and Maintenance		
Labor & Utilities		$0
System Monitoring- Bacterial Population		$3,600
Maintenance - BioAugmentation		$11,300
	Subtotal	**$14,900**
Reporting		
Quarterly Groundwater Monitoring (3-years)		$66,900
Remedial Implementation Report		$17,260
	Subtotal	**$84,160**
Site Closure Activities		
Closure Report and Agency Consultation		$3,200
Well Abandonment		$8,000
Waste Disposal		$5,000
	Subtotal	**$16,200**

Estimated Cost: EIR - RegenOx and ORC Injection	**$208,920**
Total Estimated Cost with Contingency at 15%	**$240,258**