July 17, 2007

VIA ALAMEDA COUNTY FTP SITE

Ms. Donna Drogos
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: **Site Investigation Report**
Former Exxon Station
5175 Broadway Street
Oakland, California
ACEH Fuel Leak Case No. RO0000139

Dear Ms. Drogos:

On behalf of Rockridge Heights, LLC, Pangea Environmental Services, Inc. has prepared this *Site Investigation Report* for the subject site. This report describes offsite soil borings upgradient and crossgradient from the source, the abandonment of four monitoring wells, and the installation of twelve monitoring wells.

If you have any questions or comments, please call me at (510) 435-8664 or email briddell@pangeaenv.com.

Sincerely,
Pangea Environmental Services, Inc.

Bob Clark-Riddell, P.E.
Principal Engineer

Attachment: *Site Investigation Report*

cc: Rockridge Heights, LLC, C/O Gary Feiner, 34 Schooner Hill, Oakland, California 94618
RWQCB – SF Bay Region, Cherie McCaulou, 1515 Clay Street, Oakland, California 94612
Vera Stanovich, 1956 Stratton Circle, Walnut Creek, California 94598
SWRCB Geotracker (Electronic copy)

SITE INVESTIGATION REPORT

Former Exxon Station
5175 Broadway
Oakland, California

July 17, 2007

Prepared for:

Rockridge Heights, LLC
C/O Gary Feiner
34 Schooner Hill
Oakland, California 94618

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TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

On behalf of Rockridge Heights, LLC, Pangea Environmental Services, Inc. (Pangea) prepared this *Site Investigation Report* (report) for the subject site. The scope of work was outlined in Pangea's *Addendum to Preliminary Results of Site Characterization: Proposed Additional Activities* (Addendum) dated November 8, 2006, which amended the report *Preliminary Results of Site Characterization: Proposed Additional Activities-former Exxon Station, 5175 Broadway, Oakland, California* dated May 8, 2006, and submitted to you by Golden Gate Tank Removal, Inc (GGTR) on behalf of the former property owner, Ms. Mojdeh Mehdizadeh. The final scope consisted of the following:

- Completion of offsite soil borings B-18 and B-19 to evaluate offstie groundwater contamination upgradient and crossgradient from the source.

- Destruction of monitoring wells MW-2, MW-3, STMW-4 and STMW-5 to eliminate potential dilution of groundwater samples and vertical contaminant migration due to the wells being screened across multiple water-bearing zones.

- Installation of twelve monitoring wells (MW-2C, MW-3A, MW-3C, MW-4A, MW-5A, MW-5B, MW-5C, MW-6A, MW-7B, MW-7C, MW-8A and MW-8C) to allow better determination of the vertical and lateral extent of contamination and site hydrogeology and refinement of the site conceptual model (SCM).

Pangea also attempted to advance soil borings B-16, B-17 and B-20 northeast and east of the site, respectively, but reached refusal and was unable to collect groundwater samples. The proposed offsite investigation work downgradient (south) of the property boundary, including soil gas sampling both at and south of the property boundary, has not yet been conducted because access to the adjacent southern property has not yet been obtained. Pangea hopes to complete this offsite well installation and soil gas sampling in the near future. The feasibility testing of dual-phase extraction (DPE) and air sparging (AS) conducted in April 2007 will be reported separately.

2.0 SITE BACKGROUND

2.1 Site Location and Description

The subject property is located at 5175 Broadway Street, at the southwest corner of the intersection of Broadway and Coronado Avenue in Oakland, California in Alameda County (Figure 1). The site is approximately 0.6 miles south-southeast of Highway 24 and approximately 2.3 miles east of Interstate 80 and the San Francisco Bay. The property is relatively flat lying, with a slight slope to the south-southwest, and lies

at an elevation of approximately 160 feet above mean sea level. Topographic relief in the area surrounding the site also slopes generally towards the south-southwest. The western site boundary is the top of an approximately 10 foot high retaining wall that separates the site from an adjacent apartment complex.

The property has been vacant since 1979 and was formerly occupied by an Exxon Service Station used for fuel sales and automobile repair. The site is approximately 13,200 square feet in area with about 10% of the area occupied by a vacant station/garage structure. The majority of the ground surface is paved with concrete and/or asphalt. Land use to the west and northwest is residential, including apartment buildings and single family homes. Properties to the northeast, east and south of the site are commercial. The site and adjacent properties are shown on Figure 2.

2.2 Summary of Previous Environmental Investigations

Environmental compliance work commenced when three 8,000-gallon steel single-walled USTs, associated piping, and a 500-gallon steel single-walled waste oil tank were removed in January 1990. Tank Protect Engineering, Inc. (TPE) conducted the tank removal and observed holes in all four tanks. Groundwater was reportedly observed to stabilize in the UST excavation between 10.5 and 11 feet bgs. Approximately 700 tons of contaminated soil was excavated during tank removal and was subsequently remediated and reused for onsite backfill by TPE. In April 1990, TPE installed and sampled monitoring wells MW-1, MW-2 and MW-3. In June 1991, Soil Tech Engineering (STE), subsequently renamed Environmental Soil Tech Consultants (ESTC), installed monitoring wells STMW-4 and STMW-5. Groundwater monitoring was conducted on the site intermittently until October 2002. Golden Gate Tank Removal (GGTR) performed additional assessment in January and February 2006, including collection of soil and/or groundwater samples from ten onsite soil borings. In June 2006, the property was purchased by Rockridge Heights, LLC. Pangea commenced quarterly groundwater monitoring at the site in July 2006.

2.3 Conduit Study

To evaluate the potential for contaminant migration via preferential pathways, GGTR surveyed subsurface utilities in the vicinity of the site and compared utility depths to groundwater depth in site monitoring wells. This survey was reported in the GGTR *Workplan for Additional Site Characterization* dated September 12, 2005. The report concluded that no utilities likely serve as preferential pathways for migration of contaminated groundwater.

2.4 Potential Receptors

A risk assessment study conducted by SOMA (*Conducting Human Health Risk Assessment*, dated February 17, 2004) concluded that the primary human health risk was inhalation by residential receptors of benzene volatilized from site groundwater, and that concentrations measured in site monitoring wells were below thresholds of concern for those receptors, with the exception of well STMW-4. In an October 6, 2004 letter, Alameda County Environmental Health (ACEH) requested modifications to the risk assessment method used by SOMA and consideration of soil exposure pathways not considered by SOMA in future risk assessment work. ACEH also indicated that further risk assessment efforts should be postponed until additional site characterization work was completed. In addition, the recent grab groundwater sampling data collected by GGTR indicated that chemicals of concern may be present at the downgradient edge of the site at concentrations exceeding those found in site monitoring wells. Therefore, Pangea concurs with the ACEH's statement that additional risk assessment should not be conducted until further downgradient characterization has been completed. It should also be noted that the high levels of petroleum hydrocarbons (230,000 ug/L TPHg, 13,000 ug/L benzene) detected in the GGTR grab groundwater sample (B-11) collected at the downgradient edge of the site significantly exceeded those concentrations previously detected onsite; these results increase the possibility that vapor intrusion hazards may be present for the residential pathway discussed by SOMA, or potentially for workers in commercial buildings, since the California Regional Water Quality Control Board (CRWQCB) Environmental Screening Levels (ESL) for the commercial or industrial land use vapor intrusion pathway is 540 µg/L for benzene in groundwater.

Land use at the site and adjacent buildings along Broadway is currently commercial, so, in the absence of an approved risk assessment, commercial ESLs are applicable for assessing of sampling data immediately downgradient (south) of the site. However, with residential properties located west of the site in the down/crossgradient direction, residential ESLs would apply to contaminants that might migrate west from the site. The Final ESLs for TPHg and benzene, the primary site contaminants, are the same for commercial and residential land use for shallow and deep soil where groundwater is a potential source of drinking water.

3.0 SITE INVESTIGATION ACTIVITIES

Pangea's site investigation included offsite boring installation, onsite well installation into shallow, intermediate and deeper soil/groundwater, and well abandonment, as described below.

***Soil Boring*:** Soil borings B-18 and B-19 were installed to evaluate groundwater contamination upgradient and crossgradient from the source. Pangea also attempted to advance soil borings B-16, B-17 and B-20 northeast and east of the site, but reached refusal and was unable to collect groundwater samples. These findings indicate that the resistant bedrock that crops out across Broadway east of the site is present in the shallow subsurface in the vicinity of the boring locations.

Well Abandonment: Monitoring wells MW-2, MW-3, STMW-4 and STMW-5 were previously installed with very long screen lengths, potentially resulting in dilution of groundwater samples, vertical contaminant migration, and difficulty in determining the vertical distribution of groundwater contamination. These wells were destroyed by overdrilling the well borings. The well borings were used to reconstruct new wells MW-2C, MW-3C, MW-4A and MW-5C, with shorter screened intervals targeted to the horizons of interest.

Onsite Well Installation: Twelve monitoring wells (MW-2C, MW-3A, MW-3C, MW-4A, MW-5A, MW-5B, MW-5C, MW-6A, MW-7B, MW-7C, MW-8A and MW-8C) were installed to allow better determination of the vertical and lateral extent of contamination and site hydrogeology, and refinement of the site conceptual model (SCM).

Feasibility Testing: DPE/AS testing conducted in April 2007 will be reported separately.

Pending Offsite Work: Pangea's November 8, 2006 Workplan Addendum also included the installation of offsite monitoring wells and soil borings downgradient (south) of the property boundary, and soil gas sampling onsite, south, and west of the property boundary. This work has been delayed because access to the adjacent southern, downgradient property could not be obtained. Pangea hopes to finally obtain access and conduct this work in the near future.

3.1 Pre-Drilling Activities

A comprehensive site Safety Plan was prepared to protect site workers and the plan was kept onsite during all field activities. Boring and well installation permits were obtained from the Alameda County Public Works Agency (ACPWA). Encroachment and excavation permits were obtained from the City of Oakland, and access agreements were obtained from nearby property owners west and east of the site. Copies of the permits are presented in Appendix A. The proposed drilling locations were marked and Underground Service Alert was notified at least 72 hours before the proposed field activities. Pangea cleared the offsite boring locations using a private line locator. Prior to drilling, concrete coring was performed for soil borings B-16 and B-18.

3.2 Drilling Procedures

All soil borings and monitoring wells were installed in general accordance with the procedures described in Pangea's Addendum dated November 8, 2006. All offsite borings were hand-augered to 5 ft below ground surface (bgs), when feasible, to help avoid subsurface utilities. Pangea retained RSI Drilling (RSI) of Woodland, California, to drill the borings and install the monitoring wells. The drilling was observed in the field by Pangea hydrologist Bryce Taylor and staff Greg Bentley, and supervised by Bob Clark-Riddell, a California Registered Civil Professional Engineer (P.E.). Soil characteristics such as color, texture, and

relative water contents were described in the field using the USCS classification system and entered onto a field boring log. Field screening of soil samples for potential hydrocarbons and volatile organic compounds included visual and olfactory observations and photo-ionization detector (PID) readings. Undisturbed soil samples were collected for laboratory analysis in acetate liners, and capped with Teflon tape and plastic end caps. All samples were shipped under chain of custody to McCampbell Analytical, Inc., a California-certified laboratory.

3.3 Soil Boring Installation

Drilling Activities

On January 23, March 16 and 19, and April 4, 2007, Pangea attempted to drill five soil borings (B-16, B-17, B-18, B-19 and B-20) to help evaluate subsurface conditions northeast, northwest, west and south of the site, respectively. Soil boring B-16 was advanced near the northwest corner of Broadway and Coronado Avenue. Boring B-18 was located in the street in front of the apartment complex at 5230 Coronado Avenue and boring B-19 was located in the backyard of the apartment complex. Borings B-17 and B-20 were located across Broadway from the site as shown on Figure 2.

Concrete coring was performed for borings B-16 and B-18. All borings were hand-augered to approximately 5 ft bgs to ensure that drilling activities did not damage unmarked utilities. After hand-augering, RSI drilled the borings using direct-push drilling methods to collect continuously cored soil samples. Boring B-18 was advanced to approximately 16 ft depth, temporary casing was installed and a groundwater sample was collected using a peristaltic pump with new polyethylene tubing. A hand auger was used to advance boring B-19 (whose surface elevation was approximately 10 ft below the ground surface elevation of the site due to the presence of a tall retaining wall separating the site from the apartment complex) to a depth of approximately 4.5 ft bgs, and a groundwater sample was then collected with a disposable bailer. Borings B-16, B-17 and B-20 reached direct-push refusal at approximately 12, 9 and 8.5 ft bgs, respectively, and no groundwater samples could be collected.

After evaluation of the importance of each boring to the investigation, Pangea decided to move the proposed location of boring B-20 further south and construct a monitoring well at this location if any field observations of hydrocarbons were observed. Pangea proposed a monitoring well since extensive drilling would be required to drill through the rock based on site conditions, and because a well would allow collection of repeatable data. Pangea negotiated a new access agreement with the property owner, Safeway, Inc., and began drilling boring B-20 on March 16 using a Powerprobe 9630 Hollow-Stem-Auger/Direct-Push combo rig, but reached refusal at approximately 7 ft bgs. On April 4 Pangea returned with a larger drill rig (CME 75), but again reached refusal at approximately 8.5 ft bgs after 3 hours of drilling, so attempts to complete the boring

or install a well were halted. Soil and water samples were collected from each boring in accordance with Pangea's Standard Operating Procedures for Soil Borings (Appendix B).

Soil from borings B-16, B-18 and B-20 consisted primarily of sandy gravel and clay underlain by mudstone to the total depth of each boring, while soil from boring B-19 consisted of sandy silt. No hydrocarbon odors or staining were observed in any of the borings. Boring logs for B-16, B-18, B-19 and B-20 are included in Appendix C.

Soil Boring Sampling and Analysis

No soil samples were collected from the borings, while grab groundwater samples were collected from borings B-18 and B-19. Groundwater samples were analyzed for TPHd by EPA Method 8015C, TPHg by modified EPA Method 8015C, and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert-butyl ether (MTBE) by EPA Method 8021B.

3.4 Monitoring Well Abandonment and Installation

On January 18, 19, 22, 23, 25, 26 and March 16, 2007, Pangea installed twelve monitoring wells (MW-2C, MW-3A, MW-3C, MW-4A, MW-5A, MW-5B, MW-5C, MW-6A, MW-7A, MW-7C, MW-8A and MW-8C) to help define the vertical and lateral extent of groundwater contamination. On January 18, 25, 26 and March 16, 2007, Pangea abandoned wells MW-2, MW-3, STMW-4 and STMW-5 to reduce the risk of vertical contaminant migration and improve the quality of monitoring data.

Well Drilling Activities

Monitoring wells MW-2, MW-3, STMW-4 and STMW-5 were abandoned by overdrilling with the appropriate size hollow-stem augers. After each casing was removed and all well construction materials had been drilled out, the open boreholes were used to install new wells MW-2C, MW-3C, MW-4A and MW-5C, respectively. Monitoring wells MW-3A, MW-5B, MW-6A, MW-7C and MW-8C were first continuously cored using direct-push drilling methods to evaluate soil lithology. After reaching the total depth or direct push refusal, each boring was reamed using the appropriate sized hollow-stem auger to facilitate the installation of the well. Shallower monitoring wells MW-5A, MW-7B and MW-8A were drilled adjacent to the other wells using the appropriately sized hollow-stem auger. Due to the prevalence of mudstone bedrock at the site, drilling was difficult and time consuming.

Soil Sampling During Well Installation

During drilling, soil samples were collected continuously for select wells to the total depth of each boring. Soil consisted primarily of brown clay and gravel to a depth of approximately 2 to 16 ft bgs, underlain by

mudstone. The observed soil type was similar to prior soil logging at the site, except that GGTR classified some of the fine-grained soil at the site as silt, while Pangea classified most of the fine-grained soil as clay. Boring logs and well construction diagrams for monitoring wells are included in Appendix C.

Select soil samples were analyzed for TPHg by modified EPA Method 8015C, and benzene, toluene, ethylbenzene, and xylenes (BTEX) and methyl tert-butyl ether (MTBE) by EPA Method 8021B. Soil samples collected from select wells in the vadose zone and capillary fringe were submitted for analysis

Well Construction

The monitoring wells were constructed of 2-inch diameter, 0.010-inch slotted and blank PVC casing. Monitoring wells MW-3A, MW-4A, MW-5A, MW-6A and MW-8A were screened in the shallow water-bearing zone, which is composed of clayey gravel, gravelly clay and mudstone to provide better assessment of contamination in this shallow zone. Monitoring wells in the "A" zone were screened between approximately 8 to 17 ft bgs. Monitoring well MW-5B was screened from approximately 17 to 20 ft bgs, while MW-7B was screened from approximately 15.5 to 18.5 ft bgs to assess contamination of intermediate-depth mudstone bedrock immediately below the surficial soils. Monitoring wells MW-2C, MW-3C, MW-5C, MW-7C and MW-8C were screened between approximately 18 to 27 ft bgs in deeper mudstone to provide better assessment of contamination at depth within the bedrock. The wells were protected by traffic-rated vaults and locking well caps. The soil characteristics and hydrogeology are detailed in the boring logs (Appendix C). Additional soil logging and sampling procedures are presented in Pangea's Standard Operating Procedures for soil borings in Appendix B.

Well Development & Sampling

Pangea retained Blaine Tech Services, Inc. (Blaine) of San Jose, California to develop the wells by surge block agitation and evacuation on February 14 through 16 and March 26. Groundwater evacuation continued until turbidity was reduced to below 100 Nephelometric Turbidity Units (NTU), the well dewatered, or 25 case volumes had been removed. All of the wells dewatered during development and were slow to recharge, except for well MW-6A, whose screen intercepts the former UST excavation backfill, and which was purged until 25 case volumes of groundwater had been removed. The investigation-derived waste generated during drilling and development was temporarily stored onsite DOT approved 55-gallon drums pending analysis. Additional well installation and development procedures are presented in Pangea's Standard Operating Procedures for monitoring wells in Appendix B. The well development field data sheets are presented in Appendix E. Groundwater samples from the newly installed wells were collected for analysis on March 9 and April 16, 2007.

4.0 SITE INVESTIGATION RESULTS

The following discussion of site geology, hydrogeology and sampling results is based on both prior investigations and data collected during the site assessment activities described above. The findings of the investigations are summarized on the report figures. Figure 3 presents groundwater elevation contours and hydrocarbon concentrations for shallow groundwater. Figures 4 and 5 present the distribution of elevated TPHg and benzene concentrations in shallow groundwater, respectively. Figure 6 presents groundwater elevation contours, hydrocarbon concentration data and the distribution of elevated TPHg and benzene concentrations in deep groundwater. Cross sections A-A', B-B' and C-C', showing soil type, groundwater depth, and the distribution of TPHg in groundwater, are shown on Figures 7, 8 and 9, respectively. Soil and groundwater analytical data are summarized on Tables 1 and 2. The laboratory analytical reports for samples collected during the investigation described above are included in Appendix D. The laboratory analytical reports for groundwater samples collected during routine quarterly monitoring are included in Pangea's *Groundwater Monitoring Report – First Quarter 2007* for the site.

4.1 Geology and Hydrogeology

Regional Geology and Hydrogeology

The site lies at the foot of the Oakland Hills on a low ridge composed of Cretaceous sandstone, siltstone, and serpentinite of the Franciscan Complex, as mapped by Graymer (2000). The bedrock is onlapped several hundred feet to the west and southwest of the site by Pleistocene and younger alluvial and fluvial deposits derived from westward flowing streams draining the hills to the east. The Hayward Fault, a major active regional fault of the San Andreas Fault system, lies 1.5 miles northeast of the site.

The site lies immediately east of the East Bay Plain groundwater basin. Most of the East Bay Plain is underlain by deep Tertiary depositional basins whose current depocenters are the San Francisco Bay (the San Francisco Basin) and San Pablo Bay (San Pablo Basin) (Figuers, 1998). The site lies on bedrock forming the eastern boundary of the San Francisco Basin. Groundwater in the San Francisco Basin is designated beneficial for municipal and domestic water supply and industrial process, service water, and agricultural water supply.

Local Hydrogeology

Most of the site is underlain at relatively shallow depths by impermeable bedrock composed of fractured Cretaceous sandstone, serpentinite and siltstone of the Franciscan Complex. The bedrock is overlain by variable thicknesses (from 2 to 20+ feet) of native soil and artificial fill, consisting of unconsolidated clay,

silt, sand and gravel. Figures 7, 8 and 9 are geologic cross sections showing the distribution of these units in the subsurface. The locations of the geologic cross sections are shown on Figures 3 through 6.

Prior investigations indicate that the water table intersects the contact between the unconsolidated units and bedrock units, so in some areas shallow groundwater is present in both the unconsolidated units and the bedrock, and in other areas groundwater is present only within the bedrock. The only newly installed well where shallow groundwater was encountered during drilling was well MW-6A, drilled through the backfill of the former UST excavation, where it was encountered at approximately 8 ft bgs and was measured at a depth of 7.17 ft on March 26, 2007. This observation, and similar observations made during prior drilling of shallow wells at the site indicates that groundwater is present under unconfined conditions within the shallow soil/fill units, and possibly present under unconfined conditions within the shallowest portion of the underlying bedrock.

All of the other newly installed wells were installed into relatively impermeable clay or bedrock that did not yield evidence of the presence of groundwater during well installation, or were not logged because they were installed within the borings of existing monitoring wells. In general, past investigations have reported that the clay or bedrock sections do not yield appreciable volumes of groundwater, with the exception of thin zones within the bedrock. During drilling of the onsite monitoring wells for which the entire saturated zone is in bedrock (MW-1, MW-2 [now reconstructed as MW-2C] and MW-3 [now reconstructed as MW-3C]), prior consultants reported that bedrock yielded no water, with the exception of thin, discrete, slightly productive water-bearing zones encountered between 20 and 22 feet bgs in MW-1 and MW-2. Water levels rose substantially in these deep wells shortly after completion, and appear to define a southward to southwestward sloping piezometric surface. These observations indicate that the bedrock is relatively impermeable, and that the thin water-bearing zones within the bedrock are permeable layers or fracture zones (i.e. fracture porosity) of unknown continuity and orientation. Field observations of nearby bedrock outcrops east of the site on the opposite side of Broadway corroborate this interpretation. These thin zones are under confined or semiconfined conditions on the scale of the well borings, but may be unconfined at the scale of the site.

Groundwater Flow

Shallow Groundwater: Based on depth-to-water data collected March 26, 2007, elevation data and the inferred flow directions for shallow A-zone groundwater are shown on Figure 3. As shown on Figure 3, groundwater in A-zone groundwater appears to have mounded in the former UST excavation, and the apparent gradient radiates outwards towards the east, south and west, although regional groundwater flow is generally towards the south and southwest. This observation suggests that the unpaved former UST excavation has acted as a collector for rainwater during the rainy season, and that the asphalt pavement covering the remainder of the site serves to reduce infiltration elsewhere and likely directs rainwater to the unpaved UST excavation area. The current inferred flow direction in A-zone groundwater southwest of the

former UST excavation area is generally consistent with previous quarterly monitoring events, while the new A-zone wells provide additional data to infer the radial groundwater flow from the former UST area.

Deep Groundwater: Elevation data for both B-zone and C-zone groundwater and the inferred flow direction for C-zone groundwater are shown on Figure 6. The horizontal component of flow for the C-zone groundwater is westwards to southwestwards, as shown on Figure 6. The elevation of the piezometric surface for deep C-zone wells is lower than elevations for A-zone wells, indicating that a downward gradient is present. No previous data have been collected regarding the direction of flow of C-zone groundwater.

4.2 Soil Analytical Results

For the current investigation, the highest concentrations of TPHg (260 mg/kg) and benzene (0.31 mg/kg) in soil were detected in the boring for well MW-8A at a depth of 12 ft bgs. In general, the highest detected concentration of petroleum hydrocarbons in soil is between 9 to 12 ft bgs, with primarily non-detect concentrations in shallower soil samples, and hard bedrock (which was generally not sampled) present in most areas at greater depths. Soil analytical results are summarized on Table 1. The laboratory analytical report is included in Appendix D.

4.3 Hydrocarbon Distribution in Soil

Residual soil contamination detected in soil samples collected from onsite soil borings reported in the GGTR Report was generally less than ESLs for all soil samples except for those collected at a depth of 9 feet in borings B-3, B-4 and B-9. TPHg in these borings ranged from 140 to 180 mg/kg, slightly exceeding the ESL of 100 mg/kg. Benzene was detected at 0.65 mg/kg in B-3, exceeding the ESL of 0.044 mg/kg. Benzene was not detected in either B-4 or B-9, although the detection level for the samples collected at 9 feet bgs was 0.5 mg/kg due to sample dilution, so it is not known whether the ESL for benzene was exceeded in those borings. During the current investigation, only TPHg (260 mg/kg) and benzene (0.31 mg/kg) encountered at 12 feet bgs in MW-8A exceeded the ESLs. Based on the results of the soil boring program, residual vadose zone soil contamination only appears to exceed ESLs in samples that lie close to the water table elevation, suggesting that a zone of capillary fringe soil contamination at concentrations slightly exceeding ESLs is probably present throughout much of the site where groundwater impacts are present. Vadose zone soil is relatively uncontaminated and is unlikely to represent a significant threat to human health, although impacts to groundwater are likely to continue while capillary fringe soil contamination is present.

4.4 Groundwater Analytical Results

No contaminants were detected in either of the groundwater samples collected from borings B-18 and B-19. Groundwater samples were collected from new and existing site monitoring wells as part of the scheduled

first quarter 2007 groundwater monitoring event. Current and historical analytical results for both grab groundwater sampling and groundwater monitoring are summarized on Table 2. The laboratory analytical report for grab groundwater sampling from B-18 and B-19 is included in Appendix D. The laboratory analytical report for the first quarter 2007 groundwater monitoring event is presented separately in Pangea's first quarter 2007 groundwater monitoring report.

4.5 Hydrocarbon and Fuel Oxygenate Distribution in Groundwater

The primary contaminants at the site are total petroleum hydrocarbons as gasoline (TPHg) and benzene, which substantially exceed CRWQCB Tier 1 Final ESLs for groundwater that is a potential source of drinking water, as noted in the GGTR Report. Secondary contaminants that also exceed ESLs are toluene, ethylbenzene, xylenes, and 1,2-dichloroethane (EDC). In particular, TPHg concentrations throughout the site exceed the ceiling ESL of 5,000 µg/L, and benzene concentrations exceed the ESL of 540 µg/L for indoor air impacts.

Review of the historical groundwater concentration data (Table 2) indicates that although substantial concentration fluctuations have occurred in site wells since monitoring began in 1989, no consistent concentration trends have been observed, and concentration data collected in 2007 are generally of similar magnitude to concentration data collected at the beginning of monitoring. This observation suggests that groundwater velocities at the site are very low and that natural attenuation mechanisms have not been effective in reducing contaminant concentrations.

Free Product (SPH): A thin layer of SPH has been observed in well STMW-4 during the last three quarters of monitoring. The SPH was often discovered after initiating well purging but not during initial well gauging. SPH was also detected in newly installed deep well MW-3C after initiating well purging during the second quarter of 2007. One possible explanation of the discovery of SPH in these wells is that well purging induces SPH trapped within the fractured bedrock to enter the well casing. One possible explanation for SPH in well MW-3C is that dual phase extraction testing in that well in April 2007 induced downward migration of SPH into the well. No SPH have been detected in any other site wells, including well MW-4A, which was subsequently installed (though with a shallower screened interval) in the drilled out borehole of STMW-4.

Contaminant Distribution in Shallow Groundwater: As shown on Figures 4 and 5, *shallow* (A-zone) unconfined groundwater contains petroleum hydrocarbons at elevated concentrations in the following two primary areas near the former UST excavation: 1) a northern area in the vicinity of well MW-4A (the location where free product has previously been observed), and 2) a southwestern area in the vicinity of wells MW-3A and MW-8A and which extends to the southern site boundary in the vicinity of wells MW-7B and MW-7C. This distribution of hydrocarbons in shallow A-zone groundwater is tentatively interpreted to be due to the

mounding of groundwater within the uncapped former UST excavation during the rainy season, likely encouraging plume migration radially away from the excavation area into areas that are protected from infiltration by paved surfaces. The lack of elevated hydrocarbon concentrations in well MW-5A and boring B19, both located downgradient from the former UST excavation, is unexpected, and may be due to the presence of a thick, relatively impermeable clay section observed in boring logs of shallow soil in that area that impedes migration of contaminated groundwater in shallow soil in that area (Figure 9). It should also be noted that the northernmost extent of the northeasternmost area has not been completely defined, since boring B-4 contained elevated hydrocarbon concentrations. Similarly, the southward offsite extent of the southernmost area has not yet been defined, since boring B-11 contained elevated hydrocarbons.

Contaminant Distribution in Deeper Groundwater: As shown on Figure 6, the distribution of *deep* groundwater containing elevated concentrations of petroleum hydrocarbons differs significantly from the distribution of hydrocarbons in shallow groundwater. High levels of contamination within deeper (B- and C-zone) groundwater only appear to be present in the central and southern, downgradient portion of the site, based on elevated hydrocarbon concentrations detected in wells MW-3C, MW-7B and MW-7C. The hydrocarbon impact in the deeper wells may be explained by the apparent downward vertical gradient indicated by elevation data from the clustered shallow and deep wells. The lateral extent of the deeper contamination appears to be well defined, except in the downgradient, offsite direction. It should also be noted that because permeable zones within the bedrock are thin, and discrete permeable layers and fractures, the impacted groundwater within the bedrock shown on the cross sections (Figures 7, 8 and 9) is likely to be less extensive than depicted on the cross sections, and to be present only within narrow permeable preferential pathways within the shown impacted areas.

Vertical Distribution of Contaminants Based on New Well Data: Our evaluation of concentration data from abandoned wells and from the new well clusters suggest that the *shallow groundwater is <u>more</u> impacted than the deeper groundwater* for much of the site.

- In the impacted area *north* of the UST source area, benzene concentrations are higher in shallow A-zone well MW-4A (1,600 µg/L) than in deeper well MW-1 (maximum of 160 µg/L benzene within past 15 years) which is screened in the B- and C-zones. Comparison of these data to the recent maximum benzene concentrations of 960 µg/L (July 2006) and 1,600 µg/L (May 1999) in abandoned well STMW-4 (which was screened across the A- and B-zones) suggests that most of the well's groundwater contamination was from shallower soil/groundwater and that less water is present in the deeper, cleaner soil/bedrock to dilute the shallower impacted zone. This interpretation seems reasonable due to the presumed fractured groundwater flow within the bedrock where the deeper portion of well STMW-4 was screened.

- In the *western* downgradient area between the source area and the adjacent offsite residence (MW-8A/8B well pair), an elevated impact was detected in shallow well MW-8A (10,000 µg/L TPHg and 430 µg/L benzene), while an insignificant impact was detected in deeper well MW-8C (150 µg/L TPHg and 9.8 µg/L benzene) which is screened in bedrock.

- In the *southeastern* corner of the site and downgradient of the source (MW-5A/5B/5C well cluster), negligible contaminants were detected in A-zone well MW-5A, slightly greater but still negligible concentrations were detected in well MW-5B, and no hydrocarbons were detected in deep well MW-5C.

- In the source and *central* portion of the site (MW-3 well cluster), benzene concentrations are higher in shallow A-zone well MW-3A (3,800 µg/L) than in deep well MW-3C (1,200 µg/L). Benzene concentrations in wells MW-3A and MW-3C are higher than in abandoned well MW-3, which had a maximum benzene concentration of 770 µg/L within the past 15 years (MW-3 was screened across the A-, B- and C-zones). This data suggests that contaminants have migrated downward through bedrock fractures in this area so that deeper groundwater has been impacted in this area. However, since well MW-3 was reportedly installed dry due to low permeability and lack of water encountered during drilling, it is unlikely that significant contaminant mass is present at this location.

- The *deeper* groundwater zone within the fractured bedrock apparently has limited contaminant mass due to limited permeability and low water yield during well purging (wells MW-5B, MW-7B, MW-7C, and MW-8C all dewatered after purging 1 or 2 well volumes). These wells also produced little water during well development and DPE testing (reported separately).

MTBE Not a Concern: MTBE was *not* detected in sampled groundwater and it is not a compound of concern at this site.

5.0 CONCLUSIONS & RECOMMENDATIONS

Based on the above information, Pangea offers the following conclusions and recommendations:

- Knowledge of the lateral extent of hydrocarbon contamination has been significantly improved by the newly installed site monitoring wells. Hydrocarbon contaminated groundwater, including SPH, is primarily located in the shallower site subsurface (A-zone wells) in areas surrounding the former UST excavation. Infiltration of rainwater into the uncapped former UST excavation appears to have driven shallow contaminated groundwater laterally away from the excavation area, except in the downgradient (southward) direction where a thick clay section is present.

- The recent boring and well installation provided significant additional delineation of the vertical extent of contamination. Hydrocarbon-contaminated deep groundwater is present within thin fractures or other permeable zones within relatively impermeable site bedrock. The area of significant contamination in deeper groundwater lies at the southeastern portion of the site.

- Pangea recommends installing additional monitoring well locations downgradient of the site (Figure 10), as indicated in Pangea's November 8, 2006 Addendum, upon obtaining access to the southern downgradient property. However, since groundwater contaminant concentrations in well MW-5A, well MW-5C, and boring B19 were all lower than ESLs, and since concentrations of TPHg (14 µg/L) and benzene (1.3 µg/L) in MW-5B only slightly exceeded ESLs for drinking water sources (100 µg/L and 1.0 µg/L for TPHg and benzene, respectively), Pangea does not recommend installing the wells and the soil gas probe that were previously proposed to be installed downgradient (south) of the well MW-5A/5B/5C cluster. Therefore, Pangea recommends that only the wells and soil gas probes shown in Figure 10 be installed. The proposed "A zone" wells will be installed to intercept the water table, based on field observations (estimated to be screened approximately 10 to 15 feet bgs). The "C zone" wells are anticipated to be screened at approximately 20 to 25 feet bgs. These offsite wells will also help evaluate the downgradient effects of any future remediation conducted onsite.

- Pangea also recommends conducting soil gas sampling, as proposed in Pangea's November 8, 2006 Addendum, upon obtaining access to the southern downgradient property. The proposed soil gas sampling locations are shown on Figure 10. The proposed soil gas sampling will help evaluate the potential risk to human health due to potential vapor intrusion into indoor air.

- Pangea performed feasibility testing of dual-phase extraction (DPE) and air sparging (AS) to evaluate the effectiveness of DPE, AS, and associated techniques for remediating residual hydrocarbons beneath the site. Pangea will prepare a technical report documenting feasibility test results, evaluating remediation alternatives, and proposing interim remedial action.

6.0 REFERENCES

Figuers, S., 1998, Groundwater study and water supply history of the East Bay Plain, Alameda and Contra Costa Counties, California: Norfleet Consultants, June 15.

Graymer, R.W., 2000, Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa and San Francisco Counties, California, U.S. Geological Survey Miscellaneous Field Studies Map MF-2342, 1:50,000 scale. (http://geopubs.wr.usgs.gov/map-mf/mf2342/mf2342f.pdf).

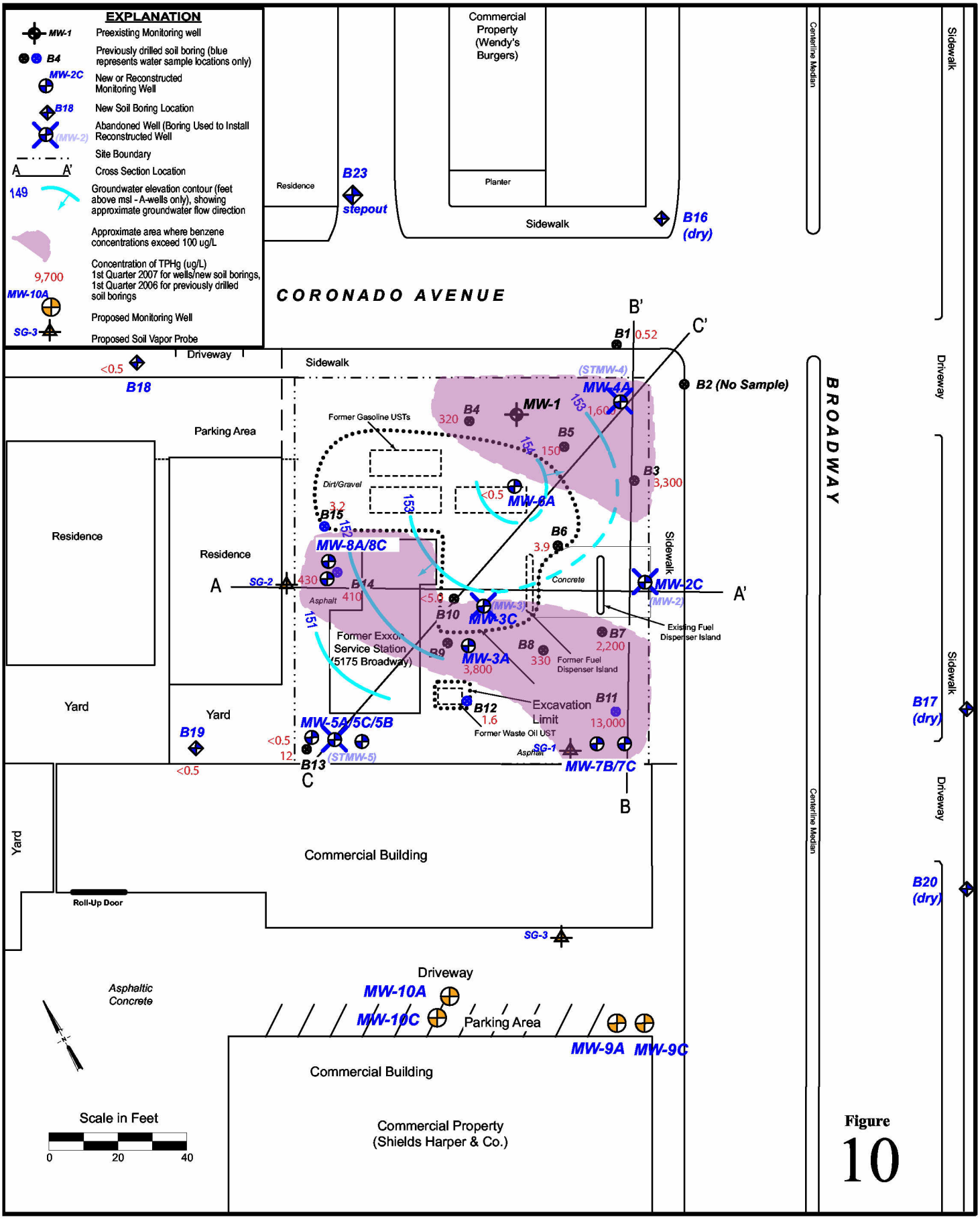


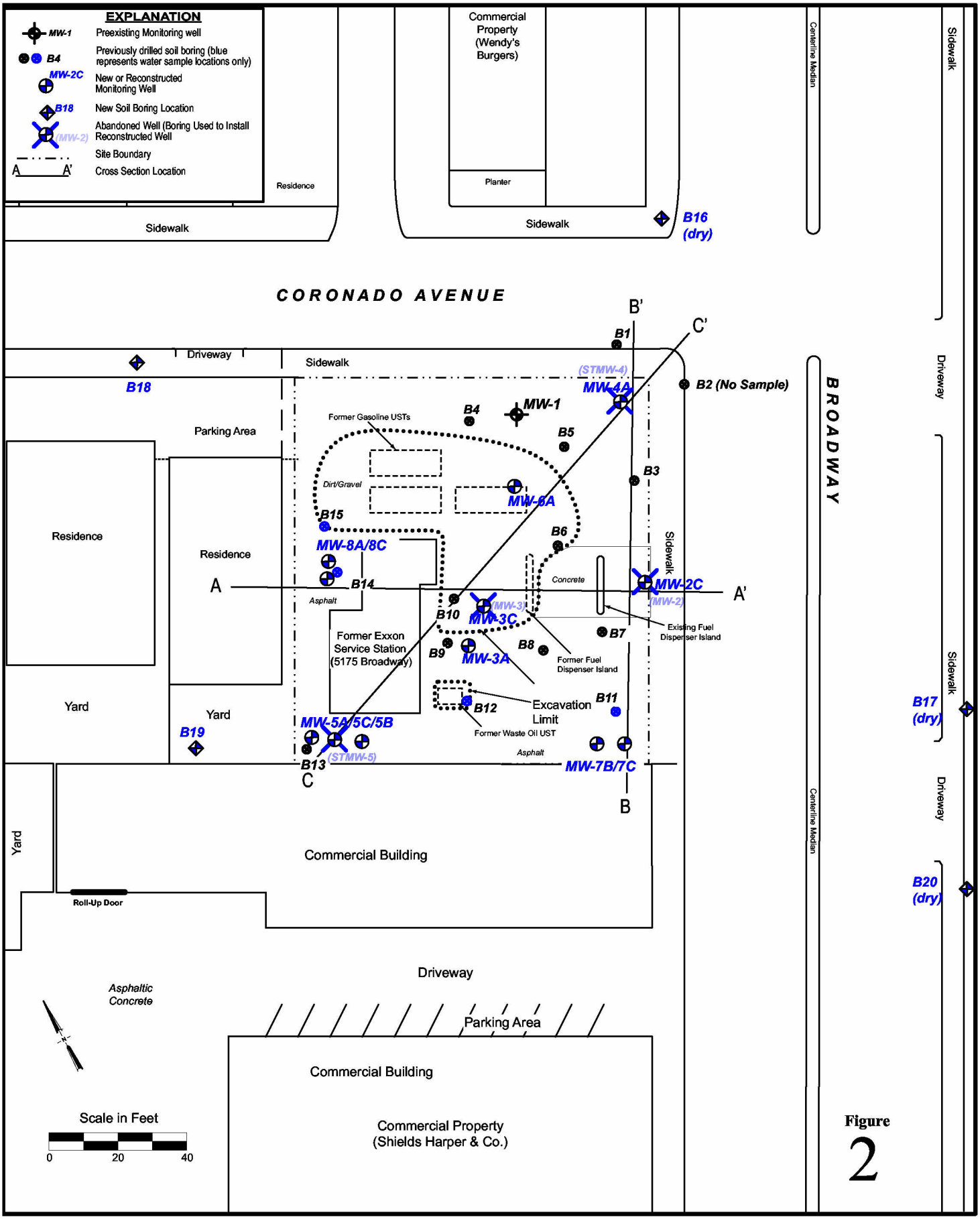
Figure 10

Proposed Well and Soil Vapor Probe Locations

Former Exxon Station
5175 Broadway
Oakland, California

PANGEA

Well install rpt\wp\pdf 6/06



Former Exxon Station
5175 Broadway
Oakland, California

Site Map Showing Locations of Soil Borings, Monitoring Wells and Cross Sections

PANGEA

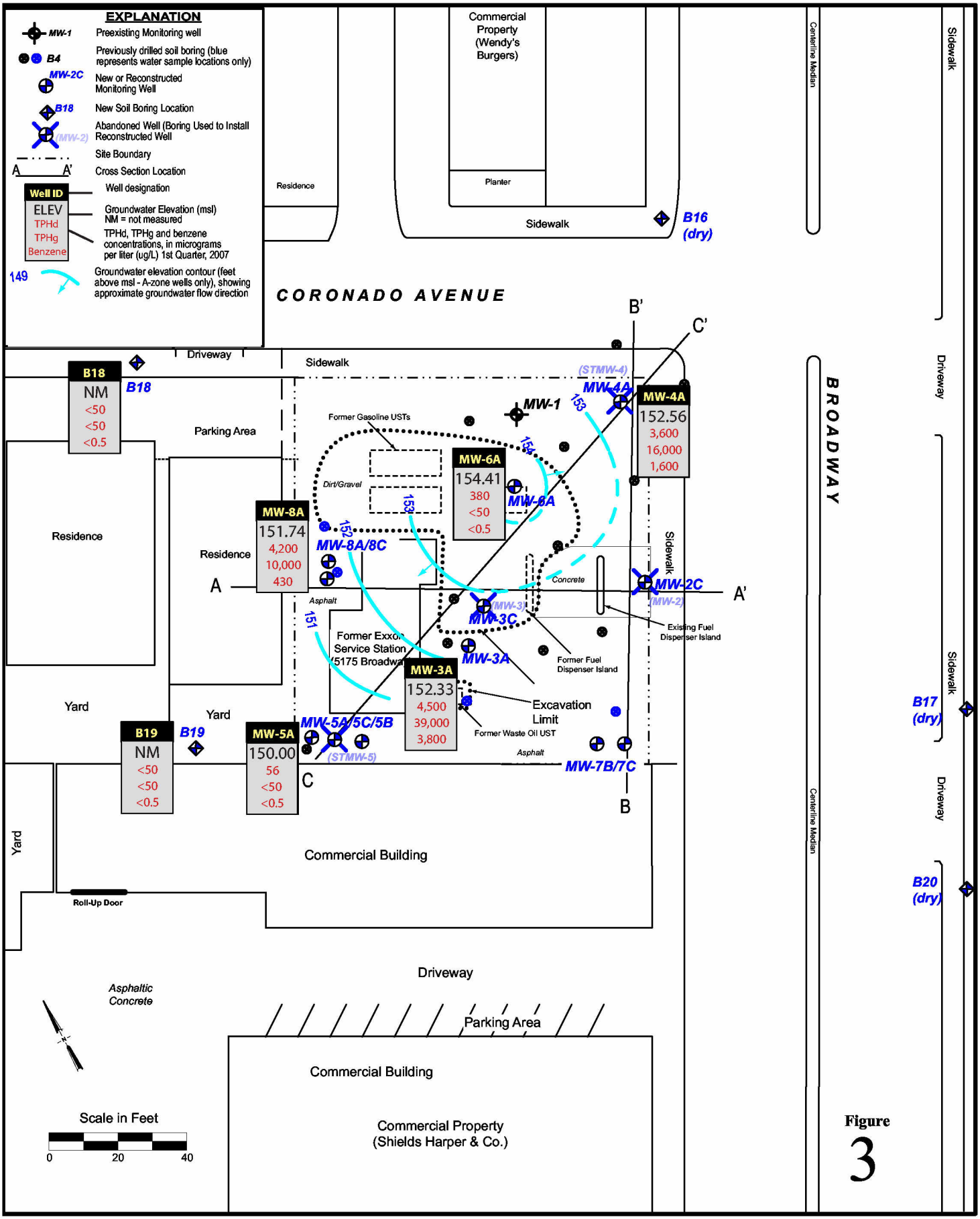


Figure 3

Well Install per map: 7/07

Former Exxon Station
5175 Broadway
Oakland, California

Groundwater Elevation and Hydrocarbon Concentration Map (Shallow)

PANGEA

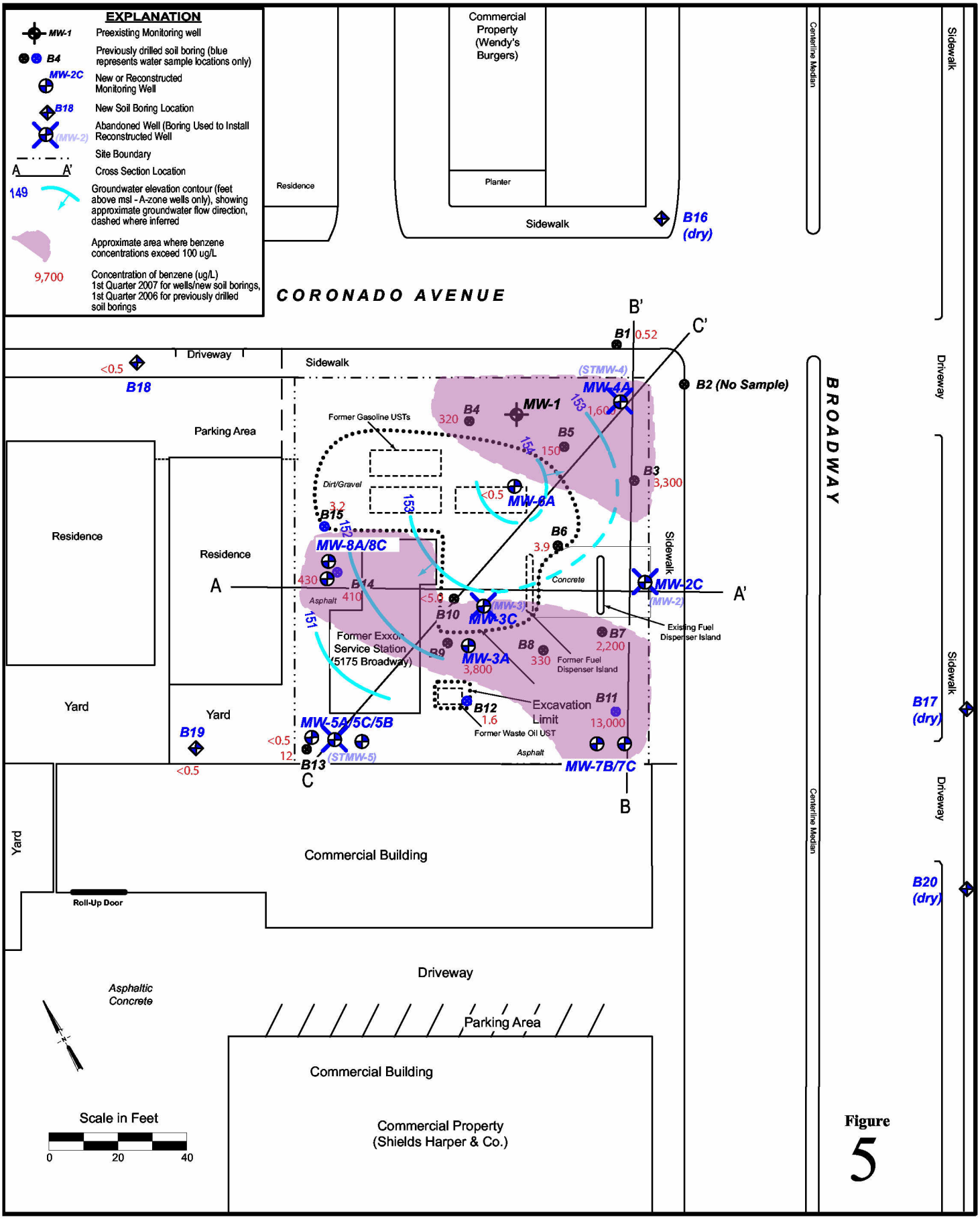


Figure 5

Well Install pre map - 7/07

Former Exxon Station
5175 Broadway
Oakland, California

Distribution of Benzene in Shallow Groundwater

PANGEA

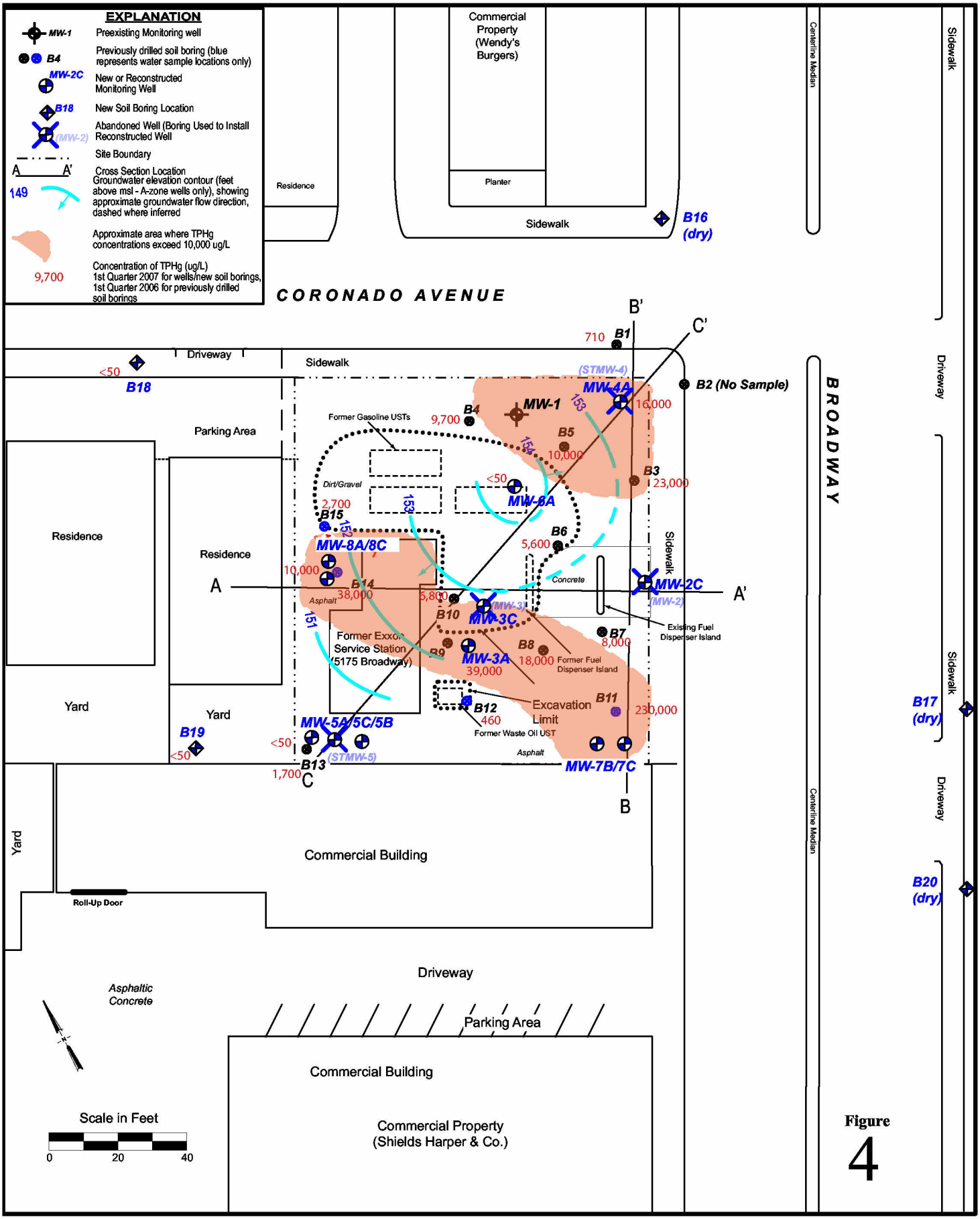


Figure 4

Distribution of TPHg in Shallow Groundwater

Former Exxon Station
5175 Broadway
Oakland, California

PANGEA

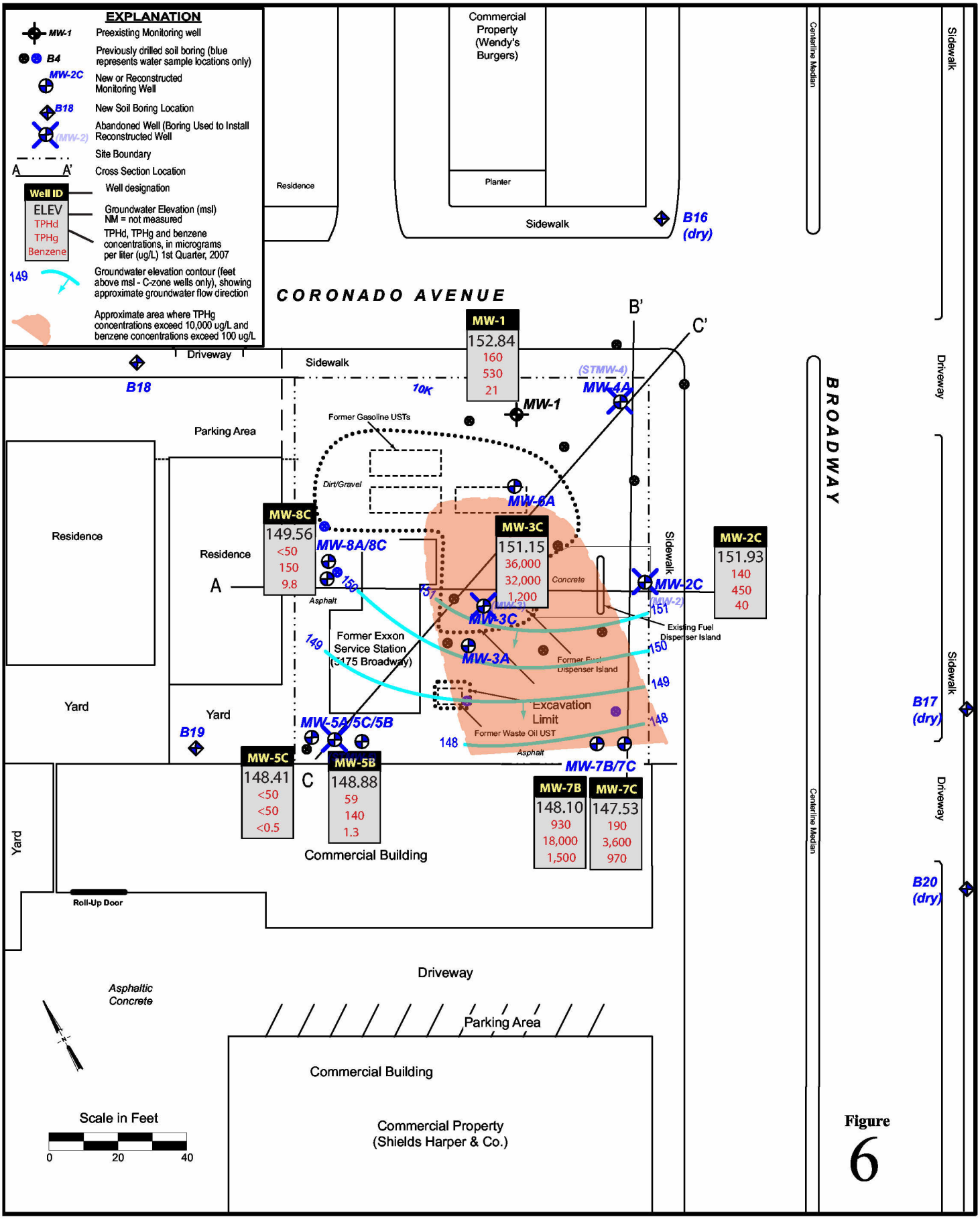


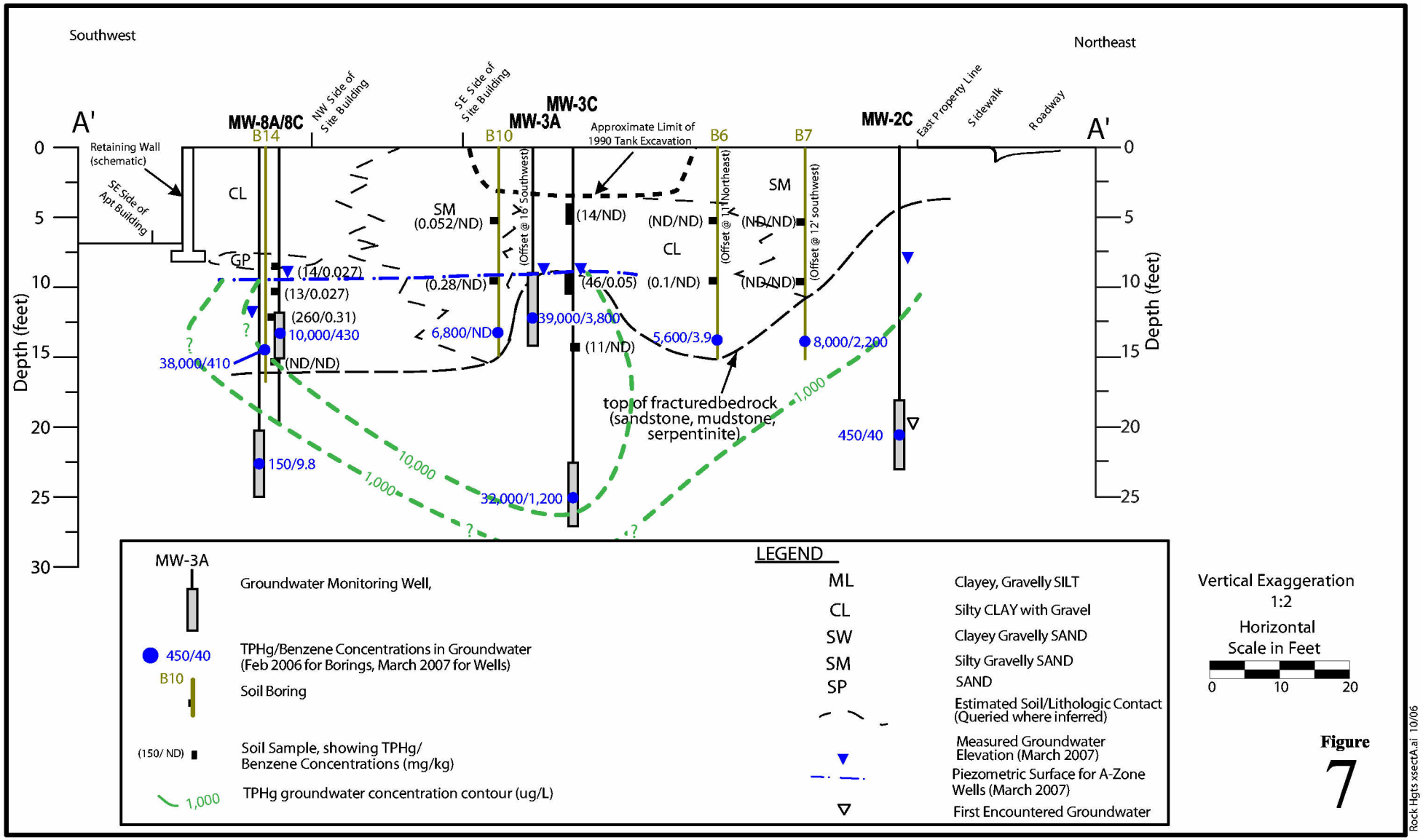
Figure 6

Former Exxon Station
5175 Broadway
Oakland, California

Groundwater Elevations, Hydrocarbon Concentrations and TPHg Distribution in Deep Groundwater

PANGEA

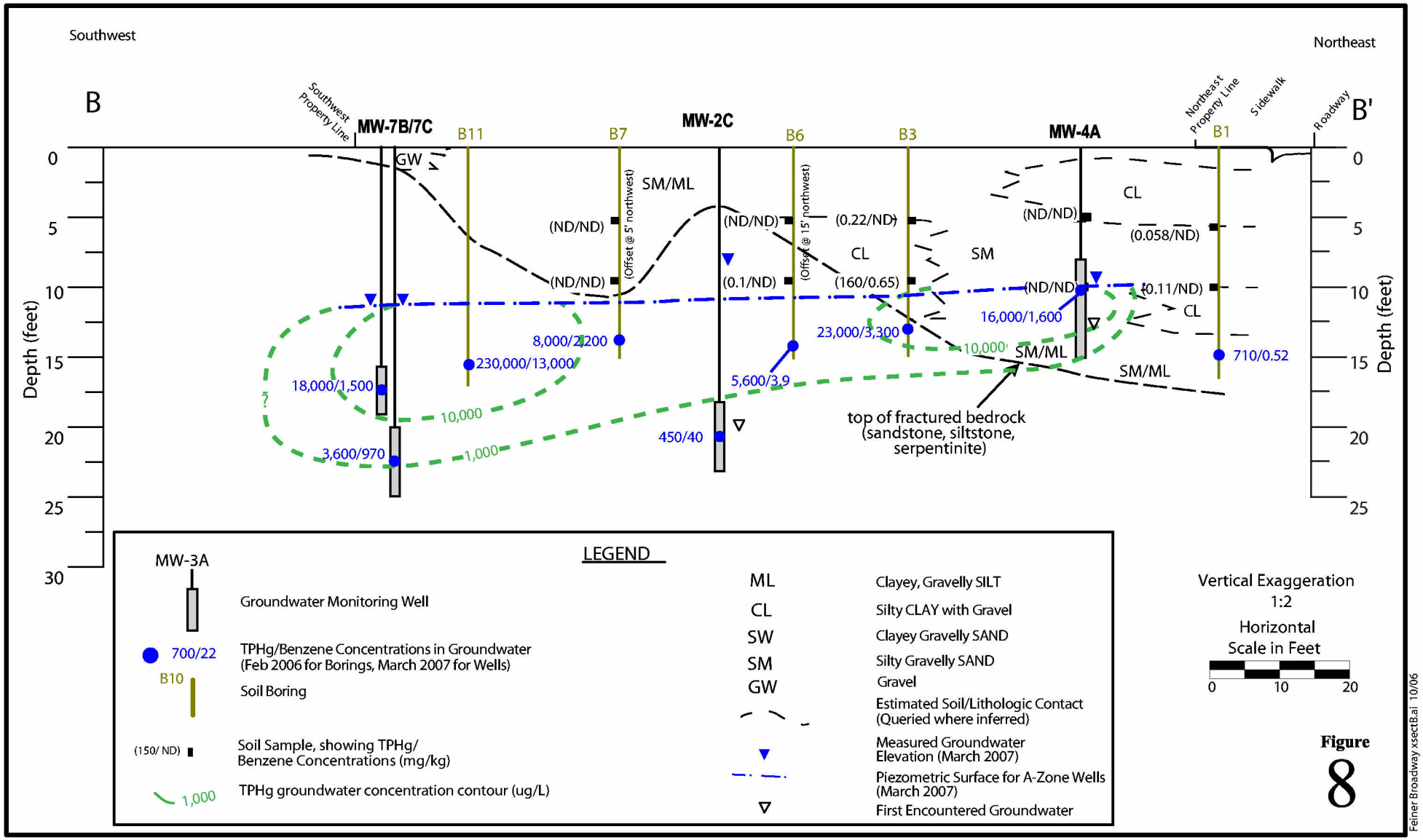
Well Assessment Report 7/07



Former Exxon Station
5175 Broadway
Oakland, California

Geologic Cross Section A-A'

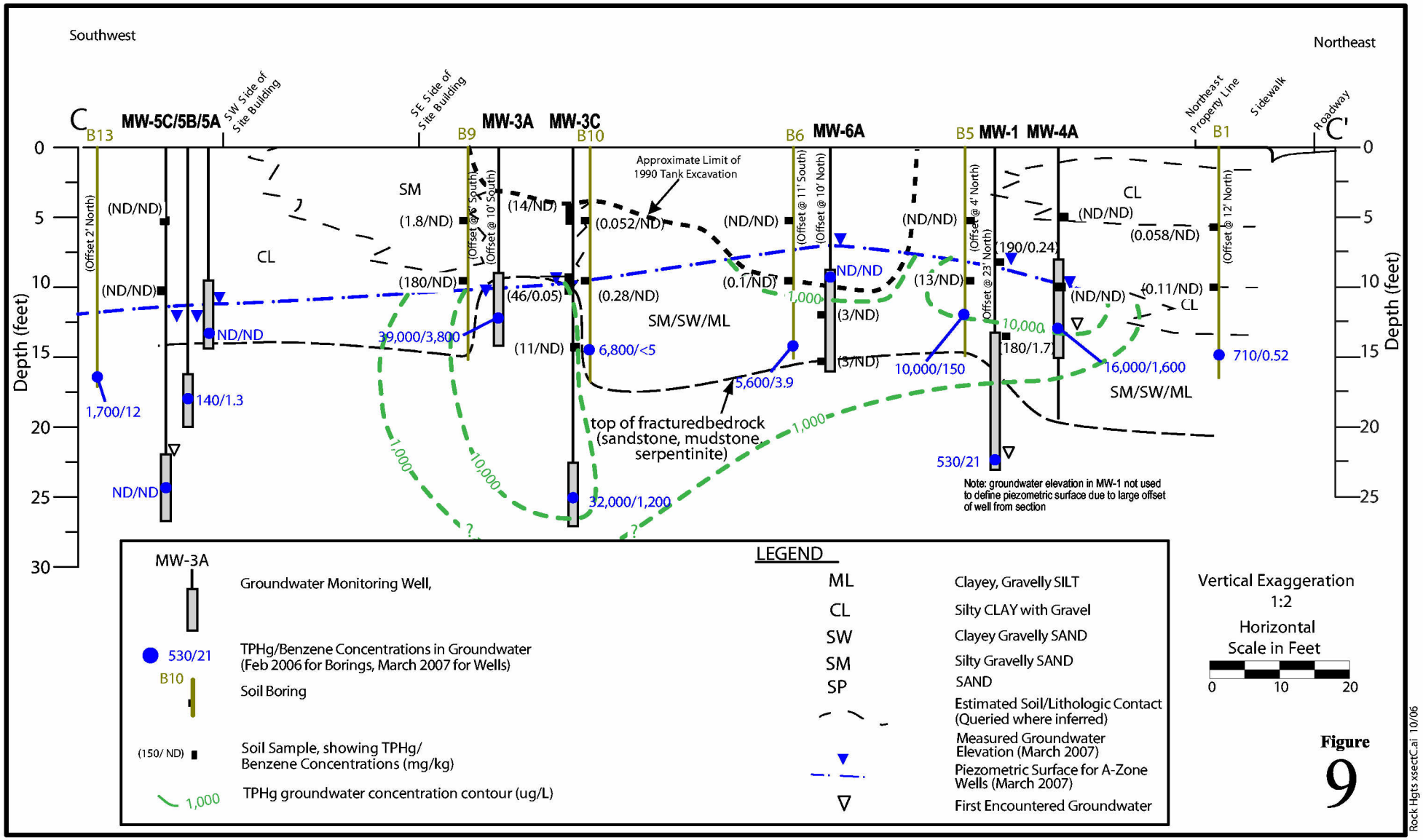
PANGEA



Former Exxon Station
5175 Broadway
Oakland, California

Geologic Cross Section B-B'

PANGEA



Former Exxon Station
5175 Broadway
Oakland, California

Geologic Cross Section C-C'

PANGEA

Table 1. Soil Analytical Data - Rockridge Heights, 5175 Broadway, Oakland, California

Sample ID	Date Sampled	Sample Depth (ft bgs)	TPHd (mg/kg)	TPHg (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	TBA (mg/kg)
Commercial ESL, drinking water			**100**	**100**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**0.073**
Commercial ESL, non-drinking water			500	400	0.38	9.3	32	11	5.6	110
Commercial ESL, vapor pathway			NV	NV	0.51	310	390	420	5.6	NV
WELL INSTALLATION & BORINGS - 2007										
MW-6B-12	1/22/2007	12.0	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
MW-6B-15	1/22/2007	15.0	--	3	<0.5	0.0087	<0.5	<0.5	<5.0	--
MW-8A-8.5	1/22/2007	8.5	--	14	0.027	0.027	0.013	0.072	<5.0	--
MW-8A-10	1/22/2007	10.0	--	13	0.027	<0.5	<0.5	0.039	<5.0	--
MW-8A-12	1/22/2007	12.0	--	**260**	**0.31**	0.16	0.083	0.73	<0.25	--
MW-8A-15	1/22/2007	15.0	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
BORINGS - 2006										
B1-6	2/1/2006	6.0	<100	0.058	<0.005	<0.005	<0.005	<0.01	<0.005	--
B1-10	2/1/2006	10.0	<100	0.11	<0.005	<0.005	<0.005	<0.01	<0.005	--
B2-6	2/1/2006	6.0	--	0.15	<0.005	<0.005	<0.005	<0.01	<0.005	--
B2-9	2/1/2006	9.0	--	<0.05	<0.005	<0.005	<0.005	<0.01	<0.005	--
B3-5	2/6/2006	5.0	--	0.22	<0.005	<0.005	<0.005	<0.01	<0.005	--
B3-9	2/6/2006	9.0	--	**160**	<0.65	<0.500	<0.500	<1.000	<0.500	--
B4-5	2/6/2006	5.0	--	<0.05	<0.005	<0.005	<0.005	<0.01	<0.005	--
B4-9	2/6/2006	9.0	--	**140**	<0.500	<0.500	0.66	<1.000	<0.500	--
B5-5	2/6/2006	5.0	--	<0.05	<0.005	<0.005	<0.005	<0.01	<0.005	--
B5-9	2/6/2006	9.0	<2.5	13	<0.25	<0.25	<0.25	<0.5	<0.25	--
B6-5	2/6/2006	5.0	--	<0.05	<0.005	<0.005	<0.005	<0.01	<0.005	--
B6-9	2/6/2006	9.0	<2.5	0.10	<0.005	<0.005	<0.005	<0.01	<0.005	--
B7-5	2/6/2006	5.0	--	<0.05	<0.005	<0.005	<0.005	<0.01	<0.005	--
B7-9	2/6/2006	9.0	<2.5	<0.05	<0.005	<0.005	<0.005	<0.01	<0.005	--
B8-5	2/6/2006	5.0	--	0.053	<0.005	<0.005	<0.005	<0.01	<0.005	--
B8-9	2/6/2006	9.0	--	22	<0.25	<0.25	<0.25	<0.5	<0.25	--
B9-5	2/6/2006	5.0	--	1.8	<0.005	<0.005	<0.005	<0.01	<0.005	--
B9-9	2/6/2006	9.0	<2.5	**180**	<0.500	<0.500	<0.500	<1.000	<0.500	--
B10-5	2/6/2006	5.0	--	0.052	<0.005	<0.005	<0.005	<0.01	<0.005	--
B10-9	2/6/2006	9.0	--	0.28	<0.005	<0.005	<0.005	<0.01	<0.005	--
WELL INSTALLATION - 1990 & 1991										
MW-1	4/17/1990	8.0-8.5	--	**190**	**0.24**	0.21	0.92	0.6	--	--
MW-1	4/17/1990	13.5-14	--	**180**	**1.7**	1.4	2.4	**6.4**	--	--
MW-2	4/24/1990	3.0-4.5	--	≤5	0.0061	0.005	0.0057	0.026	--	--
MW-2	4/24/1990	8.0-9.0	--	≤5	0.006	0.005	0.0089	0.013	--	--
MW-3	4/17/1990	4.0-5.5	--	14	≤5.0	≤5.0	≤5.0	0.1	--	--
MW-3	4/17/1990	9.0-10.0	--	46	**0.05**	≤5.0	0.4	0.2	--	--
MW-3	4/17/1990	14.0-14.5	--	11	≤5.0	≤5.0	≤5.0	0.1	--	--
STMW-4	6/21/1991	5.0	--	≤5	≤5.0	≤5.0	≤5.0	≤5.0	--	--
STMW-4	6/21/1991	10.0	--	≤5	≤5.0	≤5.0	≤5.0	≤5.0	--	--
STMW-5	6/21/1991	5.0	--	≤5	≤5.0	≤5.0	≤5.0	≤5.0	--	--
STMW-5	6/21/1991	10.0	--	≤5	≤5.0	≤5.0	≤5.0	≤5.0	--	--

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Table 1. Soil Analytical Data - Rockridge Heights, 5175 Broadway, Oakland, California

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Commercial ESL, drinking water			**100**	**100**	**0.044**	**2.9**	**3.3**	**2.3**	**0.023**	**0.073**
Commercial ESL, non-drinking water			500	400	0.38	9.3	32	11	5.6	110
Commercial ESL, vapor pathway			NV	NV	0.51	310	390	420	5.6	NV
TANK REMOVAL & OVEREXCAVATION										
S-1-W	1/10/1990	7.0	10	≤5	≤5.0	≤5.0	≤5.0	≤5.0	--	--
S-2-N	1/10/1990	10.0	--	**970**	≤5.0	≤5.0	13	15	--	--
S-3-N	1/10/1990	10.0	--	**120**	≤5.0	≤5.0	≤5.0	≤5.0	--	--
S-3-S	1/10/1990	10.0	--	**930**	≤5.0	≤5.0	≤5.0	14	--	--
S-4-N	1/10/1990	10.0	--	12	≤5.0	≤5.0	≤5.0	0.13	--	--
S-4-S	1/10/1990	10.0	--	55	≤5.0	≤5.0	≤5.0	0.8	--	--
L1-L4 (water)	1/10/1990	10.5	--	6.9	**0.053**	≤5.0	≤5.0	0.81	--	--
S-P-1	1/31/1990	2.0-3.0	--	≤5	≤5.0	≤5.0	≤5.0	≤5.0	--	--
S-P-2	1/31/1990	2.0-3.0	--	≤5	≤5.0	≤5.0	≤5.0	≤5.0	--	--
S-P-3	1/31/1990	2.0-3.0	--	34	≤5.0	≤5.0	≤5.0	≤5.0	--	--

Abbreviations and Methods:

Commercial ESL, drinking water = Table A - Environmental Screening Levels for Shallow Soil (<3 meters) where groundwater **is** a current or potential source of drinking water, as established by the RWQCB-SFBR, Interim Final February 2005 (Revised November 2006).

Commercial ESL, non-drinking water = Table B - Environmental Screening Levels for Shallow Soil (<3 meters) where groundwater is **not** current or potential source of drinking water, as established by the RWQCB-SFBR, Interim Final February 2005 (Revised November 2006).

Commercial ESL, Vapor Pathway / Intrusion Into Building Concerns = Table A-2 Environmental Screening Levels for Soil (<3 meters) where groundwater **is** a current or potential source of drinking water, as established by the RWQCB-SFBR, Interim Final February 2005 (Revised November 2006).

7.1 = Concentrations in **bold** are soil exceeding the commercial ESL protective of groundwater as a drinking water resource.

NV = No ESL value, use soil gas ESL and compare to soil gas concentrations.

ft bgs = feet below ground surface.

mg/kg = milligrams per kilogram.

TPHd = Total petroleum hydrocarbons as diesel by modified EPA Method 8015C.

TPHg = Total petroleum hydrocarbons as gasoline by modified EPA Method 8015C.

Benzene, toluene, ethylbenzene, and xylenes by EPA Method 8020.

MTBE = Methyl tertiary butyl ether by EPA Method 8260.

-- = Not collected, not analyzed, or not applicable.

ND = Not detected above laboratory reporting limits.

See analytical report for notes.

Table 2. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA

Well ID *TOC Elev* *(ft)*	Date Sampled	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved Oxygen mg/L
					←				µg/L				→	
Commercial ESL, drinking water					**100**	**100**	**1**	**40**	**30**	**20**	**5**	**--**	**0.50**	**--**
Commercial ESL, non-drinking water					640	500	46	130	290	100	1,800	--	200	--
Commercial ESL, vapor pathway					NV	NV	540	380,000	170,000	160,000	24,000	--	200	--
GRAB GROUNDWATER SAMPLING - 2007														
B-18	01/23/07	--	--	7.1	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
B-19	03/19/07	--	--	4	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
GRAB GROUNDWATER SAMPLING - 2006														
B1-W	02/01/06	--	--	9.5	<84	**710**	(0.52)	(0.59)	(<0.50)	(0.66)	<1.0	<5.0	<0.50	--
B3-W	02/08/06	--	--	9.63	<280	**23,000**	**(3,300)**	**(660)**	**(170)**	**(910)**	<50	380	<25	--
B4-W	02/08/06	--	--	8.24	--	**9,700**	**(320)**	(13)	**(200)**	**(180)**	<20	1,300	**12**	--
B5-W	02/08/06	--	--	6.96	--	**10,000**	**(150)**	(11)	**(210)**	**(190)**	<10	<50	<5.0	--
B6-W	02/06/06	--	--	12.1	--	**5,600**	**(3.9)**	(3.1)	**(54)**	**(61)**	<5.0	<25	<2.5	--
B7-W	02/08/06	--	--	11.72	--	**8,000**	**(2,200)**	**(300)**	**(240)**	**(830)**	<20	<100	**53**	--
B8-W	02/08/06	--	--	9.97	--	**18,000**	**(330)**	**(53)**	**(440)**	**(1,200)**	<20	<100	**11**	--
B10-W	02/06/06	--	--	13.3	--	**6,800**	(<5.0)	(5.7)	**(170)**	**(69)**	<10	<50	<5.0	--
B11-W	02/10/06	--	--	14.3	--	**230,000**	**(13,000)**	**(19,000)**	**(960)**	**(20,000)**	<200	<1,000	**150**	--
B12-W	02/03/06	--	--	7.92	--	**460**	**(1.6)**	(2.1)	(1.6)	(3.5)	<1.0	<5.0	**0.62**	--
B13-W	02/03/06	--	--	11.67	<60	**1,700**	**(12)**	(9.4)	(18)	**(22)**	<5.0	<25	<2.5	--
B14-W	02/06/06	--	--	13.1	--	**38,000**	**(410)**	(25)	**(290)**	**(95)**	<50	<250	<25	--
B15-W	02/01/06	--	--	8.75	<620	**2,700**	**(3.2)**	(2.7)	(22)	(4.3)	<5.0	<25	<2.5	--
GROUNDWATER MONITORING WELLS														
MW-1	04/30/89	--	--	--	--	**200**	**18**	5	2	12	--	--	--	--
(97.71)	05/17/90	--	88.45	9.26	--	**--**	--	--	--	--	--	--	--	--
	09/26/90	--	87.79	9.92	--	**1,300**	**55**	31	**120**	**100**	--	--	--	--
	01/14/91	--	88.17	9.54	--	**3,100**	**350**	**83**	**86**	**130**	--	--	--	--
(102.04)	07/03/91	--	92.62	9.42	--	**580**	**32**	**41**	**40**	**55**	--	--	--	--
	11/11/91	--	92.59	9.45	--	**330**	**20**	2	2	11	--	--	--	--
(101.83)	03/04/92	--	93.90	7.93	--	**810**	**11**	5	10	**23**	--	--	--	--
	06/02/92	--	92.85	8.98	--	**2,200**	**93**	32	**40**	**120**	--	--	--	--
	09/28/92	--	92.54	9.29	--	**2,900**	**24**	**78**	19	**37**	--	--	--	--
	01/11/93	--	94.27	7.56	--	**1,700**	**5.7**	6	11	**28**	--	--	--	--
	08/15/94	--	92.64	9.19	--	**2,000**	**120**	3	6	16	--	--	--	--
(97.50)	11/07/96	--	88.77	8.73	**270**	**1,200**	**3**	1.1	1.5	3.8	<0.5	--	--	--
	02/12/97	--	89.58	7.92	<50	**1,800**	**13**	5.7	4.8	17	<0.5	--	--	--
	06/16/97	--	88.46	9.04	<50	**330**	**27**	<0.5	<0.5	1.2	<0.5	--	--	--
	09/30/97	--	89.94	7.56	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
(97.50)	01/27/98	--	89.54	7.96	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--

Table 2. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA

Well ID *TOC Elev* *(ft)*	Date Sampled	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved Oxygen mg/L
					← µg/L →									
Commercial ESL, drinking water					**100**	**100**	**1**	**40**	**30**	**20**	**5**	**--**	**0.50**	**--**
Commercial ESL, non-drinking water					640	500	46	130	290	100	1,800	--	200	--
Commercial ESL, vapor pathway					NV	NV	540	380,000	170,000	160,000	24,000	--	200	--
MW-1	04/24/98	--	89.52	7.98	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
(continued)	08/17/98	--	88.52	8.98	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	11/16/98	--	88.60	8.90	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	02/16/99	--	88.86	8.64	<50	**110**	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	05/17/99	--	89.00	8.50	--	**280**	**1.1**	0.6	<0.5	<0.5	<0.5	--	--	--
	08/17/99	--	88.26	9.24	86	**790**	**5.6**	4.3	4.5	11	<5.0	--	--	--
	11/17/99	--	87.06	10.44	--	**1,300**	**3.6**	1.9	2.7	6.6	<1.0	--	--	--
	02/17/00	--	89.02	8.48	--	**580**	**1.1**	2.3	3.6	4.9	<5.0	--	--	--
	05/17/00	--	89.26	8.24	--	**1,500**	**130**	6.8	6.1	<5.0	<5.0	--	--	--
	08/17/00	--	88.73	8.77	--	**550**	**160**	<25	<25	**<25**	<25	--	--	--
	11/15/00	--	88.46	9.04	--	**130**	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
	02/16/01	--	89.90	7.60	--	**400**	**26**	<5.0	<5.0	<5.0	<5.0	--	--	--
	01/11/02	--	89.42	8.08	**160**	**600**	**74**	**53**	14	**52**	**110**	--	--	--
(161.03)	07/01/02	--	152.01	9.02	**280**	**670**	**25**	<5.0	<5.0	<5.0	<5.0	--	--	--
	10/04/02	--	151.29	9.74	**520**	**1,800**	**130**	7.8	8.1	14	<5.0	--	--	--
	07/28/06	--	151.93	9.10	86	**250**	**42**	1.7	1.4	3.1	<1.0	51	**1.5**	0.21
	10/16/06	--	151.98	9.05	**110**	**390**	**16**	<0.5	1.5	2.2	<0.5	41	**1.6**	0.17
(161.10)	01/09/07	--	152.90	8.20	**160**	**530**	**21**	1.7	2.8	5.1	--	--	--	0.22
	03/26/07	--	152.84	8.26	--	--	--	--	--	--	--	--	--	--
MW-2	04/30/89	--	--	--	--	**230**	**39**	18	5	**23**	--	--	--	--
(97.78)	05/17/90	--	87.78	10.00	--	--	--	--	--	--	--	--	--	--
	09/29/90	--	86.95	10.83	--	**850**	**970**	5	25	**47**	--	--	--	--
	01/14/91	--	87.15	10.63	--	**3,100**	**30**	**52**	24	**34**	--	--	--	--
(102.02)	07/03/91	--	91.94	10.08	--	**1,590**	**30**	**52**	24	**34**	--	--	--	--
	11/11/91	--	91.81	10.21	--	**960**	**320**	15	4	**29**	--	--	--	--
	03/04/92	--	93.32	8.70	--	**1,500**	**9.5**	8.4	9.8	**22**	--	--	--	--
	06/02/92	--	92.50	9.52	--	**2,800**	**84**	**41**	**59**	**95**	--	--	--	--
	09/28/92	--	91.93	10.09	--	**1,600**	**47**	20	**47**	**97**	--	--	--	--
	01/11/93	--	93.50	8.52	--	**2,500**	**8.6**	10	17	**32**	--	--	--	--
(97.49)	08/15/94	--	87.58	9.91	--	**6,000**	**450**	**60**	**100**	**95**	--	--	--	--
	11/07/96	--	87.47	10.02	**780**	**4,200**	**25**	4.9	8.1	14	<0.5	--	--	--
	02/12/97	--	88.58	8.91	**5,700**	**1,800**	**16**	3.1	3.4	8.8	<0.5	--	--	--
	06/16/97	--	87.74	9.75	<50	**2,500**	**22**	5.1	7.8	11	<0.5	--	--	--
	09/30/97	--	89.60	7.89	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	01/27/98	--	89.11	8.38	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	04/24/98	--	88.81	8.68	**1,400**	**2,100**	**18**	6.5	4.8	**21**	<0.5	--	--	--
	08/17/98	--	87.75	9.74	<50	**2,900**	**5.1**	4.5	5.8	17	<0.5	--	--	--
	11/16/98	--	87.35	10.14	<50	**1,400**	**2.1**	1.9	2.3	4.8	<0.5	--	--	--

Table 2. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA

Well ID *TOC Elev* *(ft)*	Date Sampled	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved Oxygen mg/L
					←				µg/L				→	
Commercial ESL, drinking water					**100**	**100**	**1**	**40**	**30**	**20**	**5**	**--**	**0.50**	**--**
Commercial ESL, non-drinking water					640	500	46	130	290	100	1,800	--	200	--
Commercial ESL, vapor pathway					NV	NV	540	380,000	170,000	160,000	24,000	--	200	--
MW-2	02/16/99	--	88.57	8.92	<50	**1,600**	**82**	16	<2.5	**40**	**59**	--	--	--
(continued)	05/17/99	--	88.23	9.26	--	**8,200**	**43**	**73**	**140**	**100**	<250	--	--	--
	08/17/99	--	87.45	10.04	**260**	**2,900**	**20**	**81**	17	**38**	<5.0	--	--	--
	11/17/99	--	85.97	11.52	<50	**2,600**	**7**	3.7	5.3	12.9	<1.0	--	--	--
	02/17/00	--	87.99	9.50	--	**1,700**	**3.2**	6.8	11	12.3	<5.0	--	--	--
	05/17/00	--	88.65	8.84	--	**3,800**	**450**	**65**	**110**	**80**	<25	--	--	--
	08/17/00	--	88.99	8.50	--	**4,300**	**440**	<50	**78**	<50	<50	--	--	--
	11/15/00	--	87.55	9.94	--	**5,800**	**320**	**41**	**78**	**64**	**<25**	--	--	--
	02/16/01	--	88.97	8.52	--	**2,200**	**110**	20	**38**	**33**	<5.0	--	--	--
	01/11/02	--	88.67	8.82	**620**	**3,100**	**280**	**86**	**84**	**110**	<50	--	--	--
(160.98)	07/01/02	--	151.34	9.64	**940**	**2,600**	**300**	29	**45**	**27**	<10	--	--	--
	10/04/02	--	150.46	10.52	**390**	**4,000**	**440**	**66**	**140**	**120**	<25	--	--	--
	07/28/06	--	150.96	10.02	**340**	**1,300**	**150**	9.9	6	18	<0.5	3.6	<0.5	0.17
	10/16/06	--	150.45	10.53	76	**150**	**16**	1.0	3.5	2.2	<0.5	1.2	<0.5	0.19
	01/09/07	--	151.65	9.33	84	**210**	**27**	2.6	8.1	6.8	--	--	--	0.14
MW-3	04/30/90	--	--	--	--	**56,000**	**3,600**	**8,600**	**1,300**	**7,200**	--	--	--	--
(98.14)	05/17/90	--	85.72	12.42	--	--	--	--	--	--	--	--	--	--
	09/26/90	--	84.64	13.50	--	**54,000**	**5,100**	**420**	**1,600**	**8,000**	--	--	--	--
	01/14/91	--	85.56	12.58	--	**35,000**	**2,600**	**6,600**	**1,500**	**5,700**	--	--	--	--
(102.46)	07/03/91	--	90.38	12.08	--	**33,000**	**4,120**	**4,300**	**1,400**	**4,800**	--	--	--	--
	11/11/91	--	90.17	12.29	--	**57,000**	**3,900**	**8,400**	**2,100**	**14,000**	--	--	--	--
(102.18)	03/04/92	--	91.92	10.26	--	**57,000**	**720**	**870**	**81**	**3,100**	--	--	--	--
(97.94)	06/02/92	--	86.54	11.40	--	**50,000**	**240**	**240**	**220**	**740**	--	--	--	--
	09/28/92	--	85.30	12.64	--	**64,000**	**110**	**93**	**97**	**250**	--	--	--	--
	01/11/93	--	87.84	10.10	--	**68,000**	**210**	**280**	**360**	**990**	--	--	--	--
	08/15/94	--	85.74	12.20	--	**50,000**	**870**	**1,200**	**1,300**	**3,000**	--	--	--	--
	11/07/96	--	85.54	12.40	**470**	**68,000**	**33**	27	**63**	**120**	<0.5	--	--	--
	02/12/97	--	87.71	10.23	**3,500**	**25,000**	**39**	**43**	15	**91**	<0.5	--	--	--
	06/16/97	--	86.15	11.79	<50	**9,700**	**26**	29	**45**	**81**	<0.5	--	--	--
	09/30/97	--	88.54	9.40	**1,600**	**6,000**	**43**	36	12	11	<0.5	--	--	--
	01/27/98	--	88.14	9.80	**560**	**380**	**5.7**	4.1	1.7	9.1	<0.5	--	--	--
	04/24/98	--	88.04	9.90	**680**	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	08/17/98	--	86.48	11.46	<50	**16,000**	**200**	18	**31**	**82**	<0.5	--	--	--
	11/16/98	--	85.54	12.40	<50	**68,000**	**86**	**54**	**69**	**130**	<0.5	--	--	--
	02/16/99	--	87.22	10.72	<50	**33,000**	**270**	**110**	<5.0	**770**	**170**	--	--	--
	05/17/99	--	87.40	10.54	--	**72,000**	**280**	**230**	**320**	**890**	<250	--	--	--
	08/17/99	--	85.99	11.95	**1,800**	**20,000**	**51**	**41**	**61**	**130**	<5.0	--	--	--
	11/17/99	--	84.34	13.60	--	**1,700**	**39**	22	**31**	**84**	<1.0	--	--	--

Table 2. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA

Well ID	Date		Groundwater	Depth									Dissolved
TOC Elev	Sampled	SPH	Elevation	to Water	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Oxygen
(ft)		(ft)	(ft)	(ft)	← µg/L →									mg/L
Commercial ESL, drinking water					**100**	**100**	**1**	**40**	**30**	**20**	**5**	**--**	**0.50**	**--**
Commercial ESL, non-drinking water					640	500	46	130	290	100	1,800	--	200	--
Commercial ESL, vapor pathway					NV	NV	540	380,000	170,000	160,000	24,000	--	200	--
MW-3	02/17/00	--	87.26	10.68	--	**8,800**	**16**	**39**	**74**	**90**	<5.0	--	--	--
(continued)	05/17/00	--	87.69	10.25	--	**22,000**	**300**	**260**	**410**	**940**	<5.0	--	--	--
	08/17/00	--	86.10	11.84	--	**15,000**	**230**	**140**	**470**	**750**	<50	--	--	--
	11/15/00	--	86.12	11.82	--	**12,000**	**250**	**210**	**390**	**700**	<25	--	--	--
	02/16/01	--	88.26	9.68	--	**7,400**	**40**	**72**	**700**	**250**	<25	--	--	--
	01/11/02	--	88.36	9.58	**1,900**	**9,300**	**230**	**200**	**290**	**580**	<25	--	--	--
(161.43)	07/01/02	--	150.29	11.14	**5,200**	**13,000**	**230**	**220**	**450**	**890**	<13	--	--	--
	10/04/02	--	148.61	12.82	**4,900**	**11,000**	**280**	**170**	**450**	**730**	<25	--	--	--
	07/28/06	--		Not Sampled - Unable to locate well										
	10/16/06	--		Not Sampled - Unable to locate well										
	01/09/07	--		Not Sampled - Unable to locate well										
	01/22/07	--	149.81	11.62	**93,000**	**34,000**	**770**	**250**	**760**	**2,000**	<1,000	**--**	**--**	**--**
STMW-4	07/03/91	--	92.58	11.00	--	**3,100**	**610**	**62**	**39**	**150**	--	--	--	--
(103.58)	11/11/91	--	92.50	11.08	--	**3,600**	**990**	15	2.6	**180**	--	--	--	--
(101.08)	03/04/92	--	91.64	9.44	--	**5,000**	**35**	20	22	**71**	--	--	--	--
(98.80)	06/02/92	--	88.48	10.32	--	**13,000**	**140**	**45**	**63**	**210**	--	--	--	--
	09/28/92	--	88.04	10.76	--	**40,000**	**35**	20	**48**	**110**	--	--	--	--
	01/11/93	--	89.52	9.28	--	**24,000**	**26**	**88**	**92**	**280**	--	--	--	--
	08/15/94	--	88.26	10.54	--	**9,000**	**500**	34	**46**	**130**	--	--	--	--
	11/07/96	--	88.43	10.37	**180**	**13,000**	**40**	2.9	7.8	19	<0.5	--	--	--
	02/12/97	--	89.44	9.36	**5,700**	**5,300**	**95**	5.3	5.9	18	<0.5	--	--	--
	06/16/97	--	88.40	10.40	<50	**5,300**	**37**	6.2	1.7	11	<0.5	--	--	--
	09/30/97	--	90.30	8.50	<50	**2,700**	**42**	7.7	5.7	**26**	<0.5	--	--	--
	01/27/98	--	89.90	8.90	**300**	**3,000**	**60**	17	12	**49**	<0.5	--	--	--
	04/24/98	--	89.30	9.50	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	08/17/98	--	88.44	10.36	<50	**29,000**	**36**	24	**59**	**160**	<0.5	--	--	--
	11/16/98	--	88.24	10.56	<50	**13,000**	**26**	21	20	**41**	--	--	--	--
	02/16/99	--	89.16	9.64	<50	**32,000**	**660**	16	16	**150**	<100	--	--	--
	05/17/99	--	88.84	9.96	--	**13,000**	**1600**	30	**45**	**78**	<250	--	--	--
	08/17/99	--	88.16	10.64	**990**	**12,000**	**260**	22	**33**	**72**	<5.0	--	--	--
	11/17/99	--	86.78	12.02	--	**7,900**	**21**	12	17	**40**	<1.0	--	--	--
	02/17/00	--	89.48	9.32	--	**4,900**	**8.9**	21	**38**	**50**	<5.0	--	--	--
	05/17/00	--	89.15	9.65	--	**9,600**	**840**	<50	**61**	**<50**	<50	--	--	--
	08/17/00	--	88.46	10.34	--	**5,100**	**680**	<50	**62**	**<50**	<50	--	--	--
	11/15/00	--	88.28	10.52	--	**3,900**	**640**	<25	26	**27**	<25	--	--	--
	02/16/01	--	89.60	9.20	--	**5,700**	**560**	<25	<25	**<25**	<25	--	--	--
	01/11/02	--	89.22	9.58	**930**	**4,900**	**560**	**59**	25	**<25**	<250	--	--	--
(162.13)	07/01/02	--	151.85	10.28	**6,700**	**6,700**	**470**	18	**32**	**45**	<13	--	--	--

Table 2. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA

Well ID *TOC Elev* *(ft)*	Date Sampled	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved Oxygen mg/L
					←				µg/L				→	
Commercial ESL, drinking water					**100**	**100**	**1**	**40**	**30**	**20**	**5**	**--**	**0.50**	**--**
Commercial ESL, non-drinking water					640	500	46	130	290	100	1,800	--	200	--
Commercial ESL, vapor pathway					NV	NV	540	380,000	170,000	160,000	24,000	--	200	--
STMW-4	10/04/02	--	151.05	11.08	**2,900**	**13,000**	**590**	26	**65**	**110**	<25	--	--	--
(continued)	07/28/06	0.04	151.53	10.60	**39,000**	**25,000**	**960**	21	**73**	**130**	<5.0	65	<5.0	0.22
	10/16/06	0.06	151.30	10.83	**14,000**	**14,000**	**790**	28	**81**	**130**	<5.0	30	<5.0	0.26
	01/09/07	0.03	152.20	9.93			**Not Sampled - SPH**							0.24
STMW-5	07/03/91	--	88.70	13.29	--	**690**	**99**	**81**	19	**98**	--	--	--	--
(101.99)	11/11/91	--	87.99	14.00	--	**410**	**61**	2.4	1.4	20	--	--	--	--
(101.36)	03/04/92	--	89.56	11.80	--	**460**	**13**	6.5	11	18	--	--	--	--
	06/02/92	--	88.30	13.06	--	**1,800**	**27**	20	21	**43**	--	--	--	--
	09/28/92	--	87.32	14.04	--	**1,500**	**14**	6.1	18	**22**	--	--	--	--
	01/11/93	--	89.75	11.61	--	**800**	**1.8**	3	3.1	9.4	--	--	--	--
	08/15/94	--	87.51	13.85	--	**3,000**	**320**	**62**	**34**	**220**	--	--	--	--
(97.14)	11/07/96	--	83.47	13.67	**330**	**1,200**	**11**	1.7	4.4	13	<0.5	--	--	--
	02/17/97	--	85.07	12.07	**3,700**	**1,000**	**11**	17	1.7	9.7	<0.5	--	--	--
	06/19/97	--	83.81	13.33	**2,300**	**950**	**7.4**	1	1	7.2	<0.5	--	--	--
	09/30/97	--	85.90	11.24	**1,100**	**710**	**5.8**	4	1	1	<0.5	--	--	--
	01/27/98	--	85.50	11.64	**1,100**	**340**	**2**	1.8	1.6	8.2	<0.5	--	--	--
	04/24/98	--	85.30	11.84	<50	**3,300**	**12**	9.4	8.5	**37**	<0.5	--	--	--
	08/17/98	--	83.94	13.20	<50	**5,300**	**26**	17	14	**39**	<0.5	--	--	--
	11/16/98	--	83.40	13.74	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--	--	--
	02/16/99	--	84.92	12.22	<50	**950**	**150**	3.8	1.4	14	**11**	--	--	--
	05/17/99	--	84.56	12.58	--	**2,800**	**67**	9.4	<2.5	16	**30**	--	--	--
	08/17/99	--	83.66	13.48	**230**	**2,800**	**18**	17	18	**36**	<5.0	--	--	--
	11/17/99	--	82.26	14.88	--	**1,600**	**3.9**	2.3	3.2	7.5	<1.0	--	--	--
	02/17/00	--	84.58	12.56	--	**770**	**1.5**	3.2	5.8	7	<5.0	--	--	--
	05/17/00	--	85.06	12.08	--	**4,500**	<25	<25	<25	**<25**	**<25**	--	--	--
	08/17/00	--	83.58	13.56	--	**2,900**	**170**	**64**	**100**	**250**	<10	--	--	--
	11/15/00	--	83.86	13.28	--	**2,100**	**120**	24	**40**	**54**	<5.0	--	--	--
	02/16/01	--	85.54	11.60	--	**850**	**58**	9.8	9.4	18	<5.0	--	--	--
	01/11/02	--	85.42	11.72	<50	**920**	**76**	16	16	**28**	**13**	--	--	--
(160.65)	07/01/02	--	147.51	13.14	**1,500**	**4,300**	**71**	14	14	**36**	<5.0	--	--	--
	10/04/02	--	146.13	14.52	60	**1,400**	**71**	17	26	**35**	<5.0	--	--	--
	07/28/06	--	147.30	13.35	**370**	**700**	**22**	4.3	1.2	6.6	<0.5	<0.5	<0.5	0.24
	10/16/06	--	146.91	13.74	**240**	**590**	**14**	1.6	1.3	3.2	<0.5	<0.5	<0.5	0.21
	01/09/07	--	148.19	12.46	**180**	**390**	**30**	3.2	1.8	3.2	--	--	--	0.17
MW-2C	03/09/07	--	152.24	8.41	**140**	**450**	**40**	9.3	2.9	16	<10	--	--	--
(160.65)	03/26/07	--	151.93	8.72	--	--	--	--	--	--	--	--	--	--

Table 2. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA

Well ID *TOC Elev* *(ft)*	Date Sampled	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved Oxygen mg/L
					←				µg/L				→	
Commercial ESL, drinking water					**100**	**100**	**1**	**40**	**30**	**20**	**5**	**--**	**0.50**	**--**
Commercial ESL, non-drinking water					640	500	46	130	290	100	1,800	--	200	--
Commercial ESL, vapor pathway					NV	NV	540	380,000	170,000	160,000	24,000	--	200	--
MW-3A	03/09/07	--	152.20	9.35	**4,500**	**39,000**	**3,800**	**220**	**830**	**2,800**	<500	--	--	--
(161.55)	03/26/07	--	152.33	9.22	--	--	--	--	--	--	--	--	--	--
MW-3C	03/26/07	--	151.15	10.64	--	--	--	--	--	--	--	--	--	--
(161.79)	04/16/07	--	150.87	10.92	**36,000**	**32,000**	**1,200**	**710**	**600**	**1,900**	<500	--	--	--
MW-4A	03/09/07	--	152.88	9.56	**3,600**	**16,000**	**1,600**	36	**37**	**150**	<250	--	--	--
(162.44)	03/26/07	--	152.56	9.88	--	--	--	--	--	--	--	--	--	--
MW-5A	03/09/07	--	150.40	10.42	56	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
(160.82)	03/26/07	--	150.00	10.82	--	--	--	--	--	--	--	--	--	--
MW-5B	03/09/07	--	146.42	15.08	59	**140**	**1.3**	0.77	<0.5	1.6	<5.0	--	--	--
(161.50)	03/26/07	--	148.88	12.62	--	--	--	--	--	--	--	--	--	--
MW-5C	03/09/07	--	148.12	12.91	<50	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
(161.03)	03/26/07	--	148.41	12.62	--	--	--	--	--	--	--	--	--	--
MW-6A	03/09/07	--	154.91	6.67	**380**	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--	--	--
(161.58)	03/26/07	--	154.41	7.17	--	--	--	--	--	--	--	--	--	--
MW-7B	03/09/07	--	147.97	11.18	**930**	**18,000**	**1,500**	**1,600**	**140**	**1,800**	<600	--	--	--
(159.15)	03/26/07	--	148.10	11.05	--	--	--	--	--	--	--	--	--	--
MW-7C	03/09/07	--	145.44	13.09	**190**	**3,600**	**970**	**100**	12	**90**	<120	--	--	--
(158.53)	03/26/07	--	147.53	11.00	--	--	--	--	--	--	--	--	--	--
MW-8A	03/09/07	--	152.05	9.52	**4,200**	**10,000**	**430**	18	<10	**88**	<100	--	--	--
(161.57)	03/26/07	--	151.74	9.83	--	--	--	--	--	--	--	--	--	--
MW-8C	03/09/07	--	149.18	12.15	<50	**150**	**9.8**	1.3	2.0	3.9	<5.0	--	--	--
(161.33)	03/26/07	--	149.56	11.77	--	--	--	--	--	--	--	--	--	--

Table 2. Groundwater Analytical Data - Former Exxon Station, 5175 Broadway, Oakland, CA

Well ID *TOC Elev* *(ft)*	Date Sampled	SPH (ft)	Groundwater Elevation (ft)	Depth to Water (ft)	TPHd	TPHg	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	DIPE	1,2-DCA	Dissolved Oxygen mg/L
					←				µg/L				→	
Commercial ESL, drinking water					**100**	**100**	**1**	**40**	**30**	**20**	**5**	--	**0.50**	--
Commercial ESL, non-drinking water					640	500	46	130	290	100	1,800	--	200	--
Commercial ESL, vapor pathway					NV	NV	540	380,000	170,000	160,000	24,000	--	200	--

Abbreviations:

Commercial ESL, drinking water = Table A - Environmental Screening Levels for Shallow Soil (<3 meters) where groundwater **is** a current or potential source of drinking water, as established by the RWQCB-SFBR, Interim Final February 2005 (Revised November 2006).

Commercial ESL, non-drinking water = Table B - Environmental Screening Levels for Shallow Soil (<3 meters) where groundwater is a<u>not</u> current or potential source of drinking water, as established by the RWQCB-SFBR, Interim Final February 2005 (Revised November 2006).

Commercial ESL, Vapor Intrusion / Pathway Into Building Concerns = Table F-1A Environmental Screening Levels for Soil (<3 meters) where groundwater **is** a current or potential source of drinking water, as established by the RWQCB-SFBR, Interim Final February 2005 (Revised November 2006).

NV = No ESL value, use soil gas ESL and compare to soil gas concentrations.

7.1 = Concentrations in **bold** are soil exceeding the commercial ESL protective of groundwater as a drinking water resource.

µg/L = micrograms per liter - approximately equal to parts per billion = ppb

mg/L = milligrams per liter - approximately equal to parts per million = ppm

SPH = Separate-phase hydrocarbons encountered in well (value in parentheses is thickness in feet)

Groundwater elevation is calculated according to the relationship: groundwater elevation = TOC (elevation) - (depth to water) + (0.8)(SPH thickness)

TPHg = Total petroleum hydrocarbons as gasoline by EPA Method 8015Cm.

TPHd = Total petroleum hydrocarbons as diesel by EPA Method 8015C.

BTEX by EPA Method 8021B.(Concentrations in parentheses are by EPA Method 8260B).

MTBE = Methyl tertiary-butyl ether by EPA Method 8260B prior to January 1, 2007. MTBE analyses after January 1, 2007 by EPA Method 8021B.

DIPE = Diisopropyl ether by EPA Method 8260B.

1,2-DCA = 1,2-Dichloroethane by EPA Method 8260B.

APPENDIX A

Permits

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: 01/09/2007 By jamesy

Permit Numbers: W2007-0010 to W2007-0020
Permits Valid from 01/17/2007 to 02/28/2007

Application Id: 1167786724530
City of Project Site: Oakland
Site Location: 5175 Broadway
5230 Coronado
5151 Broadway
5130 Broadway
Project Start Date: 01/17/2007
Completion Date: 02/28/2007

Applicant: Pangea Environmental Services, Inc. - Morgan Gillies
1710 Franklin Street, Suite 200, Oakland, CA 94612
Phone: 408-910-1783

Property Owner: Heights, LLC Rockridge
34 Shooner Hill, Oakland, CA 94618
Phone: --

Client: ** same as Property Owner **

Total Due: $3200.00
Receipt Number: WR2007-0010 **Total Amount Paid:** $3200.00
Payer Name : Robert Clark-Riddell Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Well Construction-Monitoring-Monitoring - 7 Wells
Driller: RSI Drilling, Inc. - Lic #: 802334 - Method: hstem

Work Total: $2100.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2007-0010	01/09/2007	04/17/2007	MW-10A	8.00 in.	2.00 in.	9.00 ft	15.00 ft
W2007-0011	01/09/2007	04/17/2007	MW-2B	8.00 in.	2.00 in.	17.00 ft	23.00 ft
W2007-0012	01/09/2007	04/17/2007	MW-4A-(MW-4)	8.00 in.	2.00 in.	7.00 ft	15.00 ft
W2007-0013	01/09/2007	04/17/2007	MW-5A-(MW-5)	8.00 in.	2.00 in.	8.00 ft	14.00 ft
W2007-0014	01/09/2007	04/17/2007	MW-5B	8.00 in.	2.00 in.	15.00 ft	20.00 ft
W2007-0015	01/09/2007	04/17/2007	MW-5C	8.00 in.	2.00 in.	21.00 ft	27.00 ft
W2007-0016	01/09/2007	04/17/2007	MW-9A	8.00 in.	2.00 in.	9.00 ft	15.00 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. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. 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. Drill out & Replace with New Well

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

7. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 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.

8. 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.

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

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

11. 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.

12. Well MW-4 (Destroy) Replace MW-4A-Condition #5
Well MW-5 (Destroy) Replace MW-5A-Condition #5
Note: Two State DWR-188 forms needed.

Borehole(s) for Investigation-Environmental/Monitorinig Study - 5 Boreholes
Driller: RSI Drilling, Inc. - Lic #: 802334 - Method: hstem **Work Total: $200.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2007-0017	01/09/2007	04/17/2007	5	6.25 in.	25.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or

with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site.

2. Boreholes shall not be left open for a period of more than 24 hours. All boreholes left open more than 24 hours will need approval from Alameda County Public Works Agency, Water Resources Section. All boreholes shall be backfilled according to permit destruction requirements and all concrete material and asphalt material shall be to Caltrans Spec or County/City Codes. No borehole(s) shall be left in a manner to act as a conduit at any time.

3. 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.

4. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 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.

5. 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.

6. Permit is valid only for the purpose specified herein. No changes in construction procedures, as described on this permit application. Boreholes shall not be converted to monitoring wells, without a permit application process.

Well Destruction-Monitoring - 3 Wells
Driller: RSI Drilling, Inc. - Lic #: 802334 - Method: hstem **Work Total: $900.00**

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth	State Well #	Orig. Permit #	DWR #
W2007-0018	01/09/2007	04/17/2007	MW-2	10.00 in.	4.00 in.	6.00 ft	23.00 ft			
W2007-0019	01/09/2007	04/17/2007	STMW-4	8.00 in.	4.00 in.	6.00 ft	19.50 ft			
W2007-0020	01/09/2007	04/17/2007	STMW-5	8.00 in.	2.00 in.	7.00 ft	24.00 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. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County an Traffic Safety Plan for any lane closures or detours planned. 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. 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.

5. Applicant shall contact Vicky Hamlin for an inspection time at 510-670-5443 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. 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.

7. 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.

8. Remove well by excavation. After the seal has set, backfill the remaining hole with concrete or compacted material to match existing.

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: 01/09/2007 By jamesy

Permit Numbers: W2007-0021
Permits Valid from 01/17/2007 to 02/28/2007

Application Id: 1168299112637
City of Project Site: Oakland
Site Location: 5175 Broadway
Project Start Date: 01/17/2007
Completion Date: 02/28/2007

Applicant: Pangea Environmental Services, Inc. - Morgan Gillies
1710 Franklin St., Suite200, Oakland, CA 94612
Phone: 408-910-1783

Property Owner: Rockridge Heights, LLC
34 Schooner Hill, Oakland, CA 94618
Phone: --

Client: ** same as Property Owner **

Total Due: $200.00
Receipt Number: WR2007-0011 **Total Amount Paid:** $200.00
Payer Name : Robert Clark-Riddell Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Remedian Well Construction-Extraction - 8 Wells
Driller: RSI Drilling, Inc. - Lic #: 802334 - Method: hstem

Work Total: $200.00

Specifications

Permit #	Issued Date	Expire Date	Owner Well Id	Hole Diam.	Casing Diam.	Seal Depth	Max. Depth
W2007-0021	01/09/2007	04/17/2007	MW-3A	8.00 in.	2.00 in.	7.00 ft	16.00 ft
W2007-0021	01/09/2007	04/17/2007	MW-3B	8.00 in.	2.00 in.	19.00 ft	25.00 ft
W2007-0021	01/09/2007	04/17/2007	MW-6A	8.00 in.	2.00 in.	7.00 ft	16.00 ft
W2007-0021	01/09/2007	04/17/2007	MW-6B	8.00 in.	2.00 in.	19.00 ft	25.00 ft
W2007-0021	01/09/2007	04/17/2007	MW-7A	8.00 in.	2.00 in.	5.00 ft	16.00 ft
W2007-0021	01/09/2007	04/17/2007	MW-7B	8.00 in.	2.00 in.	19.00 ft	25.00 ft
W2007-0021	01/09/2007	04/17/2007	MW-8A	8.00 in.	2.00 in.	7.00 ft	16.00 ft
W2007-0021	01/09/2007	04/17/2007	MW-8B	8.00 in.	2.00 in.	19.00 ft	25.00 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. 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 contact Vicky Hamlin for an inspection time at 510-670-5443 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.

5. Minimum seal depth (Neat Cement Seal) is 2 feet below ground surface (BGS).

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

7. 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.

CITY OF OAKLAND
Community & Economic Development Agency
250 Frank H. Ogawa Pl, Oakland CA, 94612
Phone: (510)238-3587 FAX: (510)238-2263

PAYMENT RECEIPT

Application#: X0700093	Payment#: 001
APPLICATION FEE	$61.00
EXCAVATION PERMIT	$300.00
RECORDS MANAGEMENT FEE (	$34.30
TECHNOLOGY ENHANCEMENT FE	$18.95
Subtotal:	$414.25
Application#: OB070080	Payment#: 001
APPLICATION FEE	$61.00
OBSTRUCTION PERMIT	$120.00
RECORDS MANAGEMENT FEE (	$17.20
TECHNOLOGY ENHANCEMENT FE	$9.50
Subtotal:	$207.70
Application#: X0700092	Payment#: 001
APPLICATION FEE	$61.00
EXCAVATION PERMIT	$300.00
RECORDS MANAGEMENT FEE (	$34.30
TECHNOLOGY ENHANCEMENT FE	$18.95
Subtotal:	$414.25
Sales Tax:	$.00
****** TOTAL PAID:	$1,036.20
Check Payment:	$1,000.00
Credit Card Sale :	$36.20
VISA Card# **********3887	Exp 0508
Auth# 054626 Ref# R02-099511-070116	

Payor: GILLIES/MORGAN K
Date: 01/16/07 Time: 15:07:51
By: DLR Register R02 Receipt# 099511

****
ORIGINAL RECEIPT REQUIRED FOR REFUND
****

Applicant: _____ 1/16/07

Issued by: _____

OAKLAND • Community and Economic Development Agency
2nd Floor, Oakland, CA 94612 • Phone (510) 238-3443 • FAX (510) 238-2263

Parcel# 014 -1241-005-01 Appl# OB070080

way Loc 1; and on Coronado Av Loc 2 Permit Issued 01/16/07
meters on Broadway B-5203;-5205 and
do Av at the metered rate

Nbr of meters: 4
Expiration: 01/23/07

SHORT TERM METERED

Applicant Phone# Lic# License Classes--

(510)568-2424 C57 A

(408)910-1783

$207.70 TOTAL PAID AT ISSUANCE
$61.00 Applic $120.00 Permit
$.00 Process $17.20 Rec Mgmt
$.00 Gen Plan $.00 Invstg
$.00 Other $9.50 Tech Enh

OF OAKLAND

OB SITE

ansportation Services every 30 days or whenever deviated
lan.

Date: 01/16/07 Amt Paid: $1,036.20
By: DLR Register R02 Receipt# 099511

PTS100-01 UPDATE/QUERY PROJECT INFORMATION 7/03/07 11:13:59
Next Option: 101

Applic#* X0700093 Type: 1
Date Filed: 01/16/07 Disposition: I ISSUED 01/16/07

	NUMBER	STREET NAME	SUFFIX*	SUITE	ASSESSOR PARCEL#
Site addr: 1)	5175	BROADWAY			014 -1241-005-01
2)					
3)					

Prcl Cond: X Cond Aprvl: Viol: X

Proj Descr: soil boring on Broadway Loc 1; and on Coronado Av Loc 2
plus reserve parking meters on Broadway B-5203;-5205 and
two spaces on Coronado Av at the metered rate

Insp Div: DPW-CONS Dist:

		Lic#	Phone#	Applicant
Track:				
Owner:	CHOOBINEH MARYAM TR ETAL			
Contractor:	RESONANTSONIC	802334	(530)668-2424	X
Arch/Engr:				
Agent:	PANGEA ENVIRONM/M GILLIES		(408)910-1783	

Applicant Addr: 220 N EAST ST. No Fee:
City/State: WOODLAND CA Zip: 95776 Wrkrs Comp* NO
Other Related Applic#s: X0700092 OB070080

F3=Ext F5=Chg F6=Add F7=Fwd F8=Bck F11=Fnd F12=Prv F23=Dsc F24=Com
807 Press ENTER to view page 2 data

PTS100-01 UPDATE/QUERY PROJECT INFORMATION 7/03/07 11:14:27
Next Option: 101

Applic#* OB070080 Type: 1
Date Filed: 01/16/07 Disposition: I ISSUED 01/16/07

	NUMBER	STREET NAME	SUFFIX*	SUITE	ASSESSOR PARCEL#
Site addr: 1)	5175	BROADWAY			014 -1241-005-01
2)					
3)					

Prcl Cond: X Cond Aprvl: Viol: X

Proj Descr: soil boring on Broadway Loc 1; and on Coronado Av Loc 2
plus reserve parking meters on Broadway B-5203;-5205 and
two spaces on Coronado Av at the metered rate

Insp Div: ENG-SVCS Dist:

		Lic#	Phone#	Applicant
Track:				
Owner:	CHOOBINEH MARYAM TR ETAL			
Contractor:	RESONANTSONIC	802334	(530)668-2424	X
Arch/Engr:				
Agent:	PANGEA ENVIRONM/M GILLIES		(408)910-1783	

Applicant Addr: 220 N EAST ST. No Fee:
City/State: WOODLAND CA Zip: 95776 Wrkrs Comp* NO
Other Related Applic#s: X0700093 X0700092

F3=Ext F5=Chg F6=Add F7=Fwd F8=Bck F11=Fnd F12=Prv F23=Dsc F24=Com
807 Press ENTER to view page 2 data

PTS100-01 UPDATE/QUERY PROJECT INFORMATION 7/03/07 11:14:38
Next Option: 101

Applic#* X0700092 Type: 1
Date Filed: 01/16/07 Disposition: I ISSUED 01/16/07

	NUMBER	STREET NAME	SUFFIX*	SUITE	ASSESSOR PARCEL#
Site addr: 1)	5175	BROADWAY			014 -1241-005-01
2)					
3)					

Prcl Cond: X Cond Aprvl: Viol: X

Proj Descr: soil boring on Broadway Loc 1; and on Coronado Av Loc 2
plus reserve parking meters on Broadway B-5203;-5205 and
two spaces on Coronado Av at the metered rate

Insp Div: DPW-CONS Dist:

		Lic#	Phone#	Applicant
Track:				
Owner:	CHOOBINEH MARYAM TR ETAL			
Contractor:	RESONANTSONIC	802334	(530)668-2424	X
Arch/Engr:				
Agent:	PANGEA ENVIRONM/M GILLIES		(408)910-1783	

Applicant Addr: 220 N EAST ST. No Fee:
City/State: WOODLAND CA Zip: 95776 Wrkrs Comp* NO
Other Related Applic#s: X0700093 OB070080

F3=Ext F5=Chg F6=Add F7=Fwd F8=Bck F11=Fnd F12=Prv F23=Dsc F24=Com
807 Press ENTER to view page 2 data

APPENDIX B

Pangea's Standard Operating Procedures for Soil Borings
And Monitoring Wells

STANDARD FIELD PROCEDURES FOR SOIL BORINGS

This document describes Pangea Environmental Services' standard field methods for drilling and sampling soil borings. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Objectives

Soil samples are collected to characterize subsurface lithology, assess whether the soils exhibit obvious hydrocarbon or other compound vapor odor or staining, estimate ground water depth and quality, and to submit samples for chemical analysis.

Soil Classification/Logging

All soil samples are classified according to the Unified Soil Classification System by a trained geologist, scientist or engineer working under the supervision of a California Registered Engineer, California Registered Geologist (RG) or a Certified Engineering Geologist (CEG). The following soil properties are noted for each soil sample:

- Principal and secondary grain size category (i.e. sand, silt, clay or gravel)
- Approximate percentage of each grain size category,
- Color,
- Approximate water or product saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e. cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Boring and Sampling

Soil borings are typically drilled using hollow-stem augers or hydraulic-push technologies. At least one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples are collected near the water table and at lithologic changes. With hollow-stem drilling, samples are collected using lined split-barrel or equivalent samplers driven into undisturbed sediments beyond the bottom of the borehole. With hydraulic-push drilling, samples are typically collected using acetate liners. The vertical location of each soil sample is determined by measuring the distance from the middle of the soil sample tube to the end of the drive rod used to advance the split barrel sampler. All sample depths use the ground surface immediately adjacent to the boring as a datum. The horizontal location of each boring is measured in the field from an onsite permanent reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned prior to drilling and between borings to prevent cross-contamination. Sampling equipment is washed between samples with trisodium phosphate or an equivalent EPA-approved detergent.

Sample Storage, Handling and Transport

Sampling tubes or cut acetate liners chosen for analysis are trimmed of excess soil and capped with Teflon tape and plastic end caps. Soil samples are labeled and stored at or below 4°C on either crushed or dry ice, depending upon local regulations. Samples are transported under chain-of-custody to a State-certified analytic laboratory.

Field Screening

Soil samples collected during drilling will be analyzed in the field for ionizable organic compounds using a photo-ionization detector (PID) with a 10.2 eV lamp. The screening procedure will involve placing an undisturbed soil sample in a sealed container (either a zip-lock bag, glass jar, or a capped soil tube). The container will be set aside, preferably in the sun or warm location. After approximately fifteen minutes, the head space within the container will be tested for total organic vapor, measured in parts per million on a volume to volume basis (ppmv) by the PID. The PID instrument will be calibrated prior to boring using hexane or isobutylene. PID measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Water Sampling

Water samples collected from borings are either collected from the open borehole, from within screened PVC inserted into the borehole, or from a driven Hydropunch-type sampler. Groundwater is typically extracted using a bailer, check valve and/or a peristaltic pump. The ground water samples are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory.

Pangea often performs electrical conductivity (EC) logging and/or continuous coring to identify potential water-bearing zones. Hydropunch-type sampling is then performed to provide discrete-depth grab groundwater sampling within potential water-bearing zones for vertical contaminant delineation. Hydropunch-type sampling typically involves driving a cylindrical sheath of hardened steel with an expendable drive point to the desired depth within undisturbed soil. The sheath is retracted to expose a stainless steel or PVC screen that is sealed inside the sheath with Neoprene O-rings to prevent infiltration of formation fluids until the desired depth is attained. The groundwater is extracted using tubing inserted down the center of the rods into the screened sampler.

Duplicates and Blanks

Blind duplicate water samples are collected usually collected only for monitoring well sampling programs, at a rate of one blind sample for every 10 wells sampled. Laboratory-supplied trip blanks accompany samples collected for all sampling programs to check for cross-contamination caused by sample handling and transport. These trip blanks are analyzed if the internal laboratory QA/QC blanks contain the suspected field contaminants. An equipment blank may also be analyzed if non-dedicated sampling equipment is used.

Grouting

If the borings are not completed as wells, the borings are filled to the ground surface with cement grout poured or pumped through a tremie pipe.

Waste Handling and Disposal

Soil cuttings from drilling activities are usually stockpiled onsite on top of and covered by plastic sheeting. At least four individual soil samples are collected from the stockpiles for later compositing at the analytic laboratory. The composite sample is analyzed for the same constituents analyzed in the borehole samples. Soil cuttings are transported by licensed waste haulers and disposed in secure, licensed facilities based on the composite analytic results.

Ground water removed during sampling and/or rinsate generated during decontamination procedures are stored onsite in sealed 55 gallon drums. Each drum is labeled with the drum number, date of generation, suspected contents, generator identification and consultant contact. Disposal of the water is based on the analytic results for the well samples. The water is either pumped out using a vacuum truck for transport to a licensed waste treatment/disposal facility or the individual drums are picked up and transported to the waste facility where the drum contents are removed and appropriately disposed.

STANDARD FIELD PROCEDURES FOR MONITORING WELLS

This document describes Pangea Environmental Services' standard field methods for drilling, installing, developing and sampling groundwater monitoring wells. These procedures are designed to comply with Federal, State and local regulatory guidelines. Specific field procedures are summarized below.

Well Construction and Surveying

Groundwater monitoring wells are installed in soil borings to monitor groundwater quality and determine the groundwater elevation, flow direction and gradient. Well depths and screen lengths are based on groundwater depth, occurrence of hydrocarbons or other compounds in the borehole, stratigraphy and State and local regulatory guidelines. Well screens typically extend 10 to 15 feet below and 5 feet above the static water level at the time of drilling. However, the well screen will generally not extend into or through a clay layer that is at least three feet thick.

Well casing and screen are flush-threaded, Schedule 40 PVC. Screen slot size varies according to the sediments screened, but slots are generally 0.010 or 0.020 inches wide. A rinsed and graded sand occupies the annular space between the boring and the well screen to about one to two ft above the well screen. A two feet thick hydrated bentonite seal separates the sand from the overlying sanitary surface seal composed of Portland type I, II cement.

Well-heads are secured by locking well-caps inside traffic-rated vaults finished flush with the ground surface. A stovepipe may be installed between the well-head and the vault cap for additional security. The well top-of-casing elevation is surveyed with respect to mean sea level and the well is surveyed for horizontal location with respect to an onsite or nearby offsite landmark.

Well Development

Wells are generally developed using a combination of groundwater surging and extraction. Surging agitates the groundwater and dislodges fine sediments from the sand pack. After about ten minutes of surging, groundwater is extracted from the well using bailing, pumping and/or reverse air-lifting through an eductor pipe to remove the sediments from the well. Surging and extraction continue until at least ten well-casing volumes of groundwater are extracted and the sediment volume in the groundwater is negligible. This process usually occurs prior to installing the sanitary surface seal to ensure sand pack stabilization. If development occurs after surface seal installation, then development occurs 24 to 72 hours after seal installation to ensure that the Portland cement has set up correctly.

All equipment is steam-cleaned prior to use and air used for air-lifting is filtered to prevent oil entrained in the compressed air from entering the well. Wells that are developed using air-lift evacuation are not sampled until at least 24 hours after they are developed.

Groundwater Sampling

Depending on local regulatory guidelines, three to four well-casing volumes of groundwater are purged prior to sampling. Purging continues until groundwater pH, conductivity, and temperature have stabilized. Groundwater samples are collected using bailers or pumps and are decanted into the appropriate containers supplied by the analytic laboratory. Samples are labeled, placed in protective foam sleeves, stored on crushed ice at or below 4°C, and transported under chain-of-custody to the laboratory. Laboratory-supplied trip blanks accompany the samples and are analyzed to check for cross-contamination. An equipment blank may be analyzed if non-dedicated sampling equipment is used.

APPENDIX C

Boring Logs & Well Construction Diagrams

PANGEA
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-2C

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/25/07 **COMPLETED** 1/25/07
GROUND ELEVATION _____ **HOLE SIZE** 10"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 10"
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0						**For representative lithology see boring log for well MW-2 from Tank Protect Engineering dated April 24, 1990.** **(Well MW-2 was drilled out and well MW-2C was constructed in the drilled out borehole.)**
23.0						Bottom of hole at 23.0 feet.

WELL DIAGRAM

TOTAL WELL LOG FEINER MW-2C.GPJ GINT US.GDT 7/3/07

PANGEA
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-3A

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/19/07 **COMPLETED** 1/19/07
GROUND ELEVATION ___ **HOLE SIZE** 8"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Dual Tube Direct Push/Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0						0.3 Asphalt 0.5 Baserock
				CL		**Clay with gravel (CL)**; dark brown; 60-70% medium to high plasticity fines; 20-30% fine gravel to 1/2"; dry.
				GP		3.0 **Poorly-graded Gravels (GP)**; red and green; 60-70% coarse gravels to 1"; 30-40% fine- to coarse-grain sand; loose; dry.
5				CL		4.0 **Clay (CL)**; black; 90-100% medium plasticity fines; no odor; soft. **Clay (CL)**; green; 90-100% medium plasticty fines; hydrocarbon odor; soft. **Clay with gravel (CL)**; greenish brown; 70-80% medium plasticity fines; 20-30% fine gravels to 1/2"; trace fine-grain sand; hydrocarbon odor; dry.
10						9.5 **Mudstone**; grey; easily broken with fingers; difficult to drill; dry.
						13.0 Direct Push Refusal Not logged.
						14.0 *(Pilot boring was advanced to 13' using direct push drilling method. Boring was reamed with an 8" hollow stem auger to facilitate the installation of the well.)* Bottom of hole at 14.0 feet.

WELL DIAGRAM: Concrete; Cement; Bentonite; #2/12 Sand; 0.010 slotted 2" Schedule 40 PVC

TOTAL WELL LOG FEINER MW-3A.GPJ GINT US.GDT 7/3/07

Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-3C

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 3/16/07 **COMPLETED** 3/16/07
GROUND ELEVATION _____ **HOLE SIZE** 10"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 10"
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						For representative lithology see boring log for well MW-3 from Tank Protect Engineering dated April 17, 1990. (Well MW-3 was drilled out and well MW-3C was constructed in the drilled out borehole.)	Concrete Cement Bentonite #2/12 Sand 0.010 slotted 2" Schedule 40 PVC
5							
10							
15							
20							
25							

TOTAL WELL LOG FEINER MW-3C.GPJ GINT US.GDT 7/3/07

(Continued Next Page)

PANGEA
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-3C

CLIENT Feiner **PROJECT NAME** Rockridge Heights

PROJECT NUMBER 1145.001 **PROJECT LOCATION** 5175 Broadway

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
25							
						27.0	
						Bottom of hole at 27.0 feet.	

PANGEA
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-4A

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/26/07 **COMPLETED** 1/26/07
GROUND ELEVATION _____ **HOLE SIZE** 10"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 10"
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0							
5						**For representative lithology, see boring log for well STMW-4 from Soil Tech Engineering, Inc. dated June 21, 1991.** **(Well STMW-4 was drilled out and well MW-4A was constructed in the drilled out borehole.)**	Concrete Cement Bentonite #2/12 Sand
10							
15							0.010 slotted 2" Schedule 40 PVC Bentonite
						19.5 Bottom of hole at 19.5 feet.	

TOTAL WELL LOG FEINER MW-4A.GPJ GINT US.GDT 7/3/07

Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-5A

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/26/07 **COMPLETED** 1/26/07
GROUND ELEVATION _____ **HOLE SIZE** 10"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 10"
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						**See boring log for well MW-5B for representative lithology.**	Concrete
5							Cement
10							Bentonite #2/12 Sand 0.010 slotted 2" Schedule 40 PVC
						14.0 Bottom of hole at 14.0 feet.	

PANGEA
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-5B

CLIENT Feiner **PROJECT NAME** Rockridge Heights

PROJECT NUMBER 1145.001 **PROJECT LOCATION** 5175 Broadway

DATE STARTED 1/18/07 **COMPLETED** 1/18/07 **GROUND ELEVATION** _____ **HOLE SIZE** 8"

DRILLING CONTRACTOR RSI **GROUND WATER LEVELS:**

DRILLING METHOD Dual Tube Direct Push/Hollow Stem Auger **AT TIME OF DRILLING** ---

LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell **AT END OF DRILLING** ---

NOTES _____ **AFTER DRILLING** ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0						
						0.3 Asphalt
						0.5 Baserock
				CL		**Gravelly Clay (CL)**; brown; 40-50% medium plasticity fines; 40-50% fine gravel to 3/4"; stiff; dry.
5						**Gravelly Clay (CL)**; black; 40-50% medium plasticity fines; 40-50% fine gravel to 3/4"; hydrocarbon odor; loose; moist.
						8.0
				GC		**Gravel (GC)**; grey; 95-100% coarse gravel to 1"; no hydrocarbon odor; dry.
10						10.0
				CL		**Gravelly Clay (CL)**; black; 50-60% medium plasticity fines; 40-50% fine gravel to 3/4"; moist; hydrocarbon odor.
						12.0
				GC		**Clayey Gravel (GC)**; 70-80% gravel (shale); 20-30% medium plasticity fines; dry; no hydrocarbon odor.
						14.0
15						**Mudstone**; grey; easily broken with fingers; dry; diffcult to drill through.
						Direct Push Refusal
						19.0
						Not logged.
20						20.0
						(Pilot boring was advanced to 19' using direct push method. Boring was reamed with an 8" hollow stem auger to facilitate the installation of the well.)
						Bottom of hole at 20.0 feet.

WELL DIAGRAM: Concrete; Cement; Bentonite; #2/12 Sand; 0.010 slotted 2" Schedule 40 PVC

TOTAL WELL LOG FEINER MW-5B.GPJ GINT US.GDT 7/3/07

Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-5C

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/18/07 **COMPLETED** 1/18/07
GROUND ELEVATION _____ **HOLE SIZE** 8"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 8"
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
0						For representative lithology see boring log for well MW-5B and well STMW-5 from Soil Tech Engineering, Inc. dated June 21, 1991. (Well STMW-5 was drilled out and well MW-5C was constructed in the drilled out borehole.)	Concrete Cement Bentonite #2/12 Sand 0.010 slotted 2"
5							
10							
15							
20							
25							

TOTAL WELL LOG FEINER MW-5C.GPJ GINT US.GDT 7/3/07

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Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-5C

CLIENT Feiner **PROJECT NAME** Rockridge Heights

PROJECT NUMBER 1145.001 **PROJECT LOCATION** 5175 Broadway

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
25							Schedule 40 PVC
						27.0 Bottom of hole at 27.0 feet.	

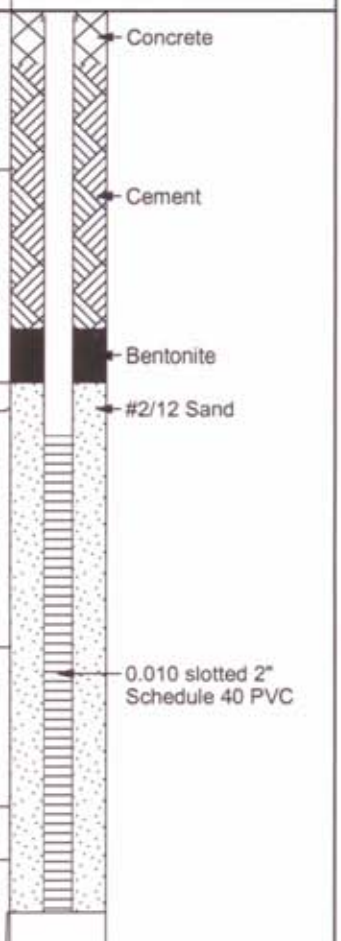
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-6A

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/22/07 **COMPLETED** 1/22/07
GROUND ELEVATION ___ **HOLE SIZE** 8"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 8"/ Direct Push
▽ **AT TIME OF DRILLING** 7.5 ft
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0				GP		**Poorly-graded Gravels (GP)**; brown; 60-70% fine gravels to 3/4"; 30-40% medium-grain sand; dry; loose.
3.0						
				CL		**Gravelly Clay (CL)**; 60-70% medium plasticity fines; 30-40% fine gravels; moist.
5						
7.0						
				GW		▽ **Well-graded Gravel (GW)**; 90-100% fine gravels to 3/4"; dry; loose.
7.5						
				CL		**Gravelly Clay (CL)**; brown; 60-70% medium plasticity fines; 30-40% fine gravels; wet.
10						
12.0						
	MW-6A-12			SW		**Well-graded Gravelly Sand (SW)**; grey with green; 60-70% fine-grain sands; 30-40% fine gravel; trace fines; wet.
15	MW-6A-15					
15.0						
						Mudstone; grey; easily broken with fingers; dry; difficult to drill. Direct push refusal
16.0						
						Not logged.
17.0						*(Pilot boring was advanced to 16' using direct push drilling method. Boring was reamed with an 8" hollow stem auger to facilitate the installation of the well.)*
						Bottom of hole at 17.0 feet.

WELL DIAGRAM



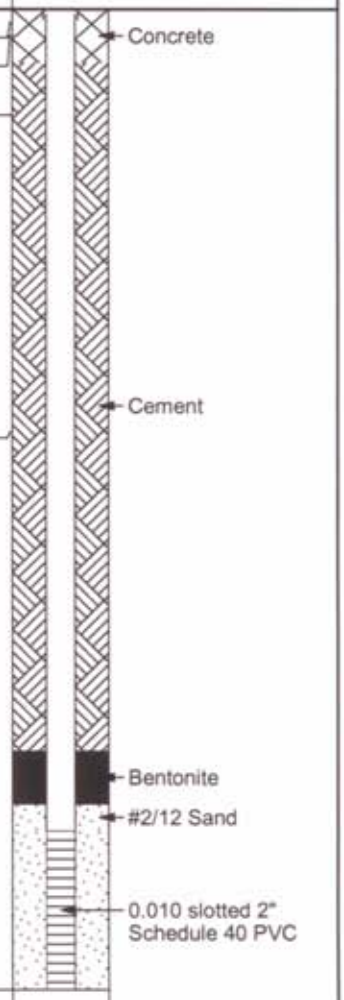
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

BORING NUMBER MW-7B

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/19/07 **COMPLETED** 1/19/07
GROUND ELEVATION ___ **HOLE SIZE** 8"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 8"/ Direct Push
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					0.3 Asphalt
					0.5 Baserock
			GC		**Well-graded Gravel (GW)**; 90-100% fine gravels to 3/4"; dry; loose.
					2.0 **Mudstone.**
5					
					8.0 Direct push refusal
					Soil logged from cuttings.
					Mudstone.
10					
15					
					(Pilot boring was advanced to 8' using direct push drilling method. Boring was reamed with an 8" hollow stem auger to facilitate the installation of the well.)
					18.5 Bottom of hole at 18.5 feet.

BORING DIAGRAM



Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

BORING NUMBER MW-7C

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/19/07 **COMPLETED** 1/19/07
GROUND ELEVATION ___ **HOLE SIZE** 8"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 8"
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES ___
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BORING DIAGRAM
0					See boring log for well MW-7B for representative lithology.	Concrete
5						
10						Cement
15						
18.5						Bentonite
20					Soil logged from cuttings. **Mudstone.**	#2/12 Sand
25					25.0	0.010 slotted 2" Schedule 40 PVC

Bottom of hole at 25.0 feet.

BH COPY FEINER MW-7C.GPJ GINT US.GDT 7/16/07

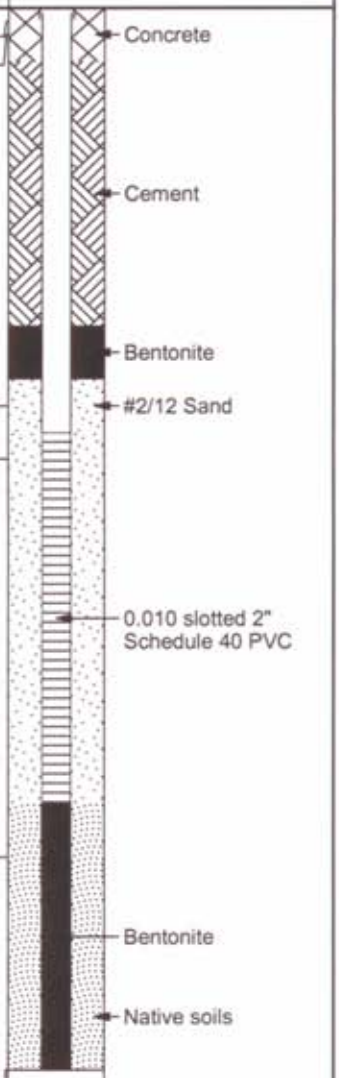
PANGEA
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

WELL NUMBER MW-8A

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/22/07 **COMPLETED** 1/22/07
GROUND ELEVATION _____ **HOLE SIZE** 8"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Direct Push - Dual Tube
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	BLOW COUNTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0						0.3 Asphalt 0.5 Baserock
				CL		**Clay with gravel (CL)**; brown; 70-80% medium to high plasticity fines; 20-30% fine gravel to 3/4"; dry; stiff.
5						
						7.5
				GP		**Poorly-graded Gravels (GP)**; grey; 60-70% fine gravels to 3/4"; 30-40% fine- to medium-grain sand; dry; loose. 8.5
	MW-8A-8.5			CL		**Clay (CL)**; black; 90-95% medium to high plasticity fines; 5-10% coarse-grain sand; moist to wet; soft; hydrocarbon odor.
10	MW-8A-10					
	MW-8A-12					**Gravelly Clay (CL)**; grey; 60-70% medium to high plasticity fines; 30-40% coarse-grain sand to fine gravels; moist; soft; hydrocarbon odor.
15	MW-8A-15					**Gravelly Clay (CL)**; brown; 60-70% medium to high plasticity fines; 30-40% fine gravels; dry; stiff; hydrocarbon odor.
						16.0
						Mudstone; grey; easily broken with fingers; difficult to drill; dry.
20						20.0 Direct push refusal.
						(Pilot boring was advanced to 20' using direct push drilling method. The boring was partially backfilled with bentonite and a small layer of sand prior to reaming the boring with an 8" hollow stem auger to facilitate the installation of the well.)
						Bottom of hole at 20.0 feet.

WELL DIAGRAM



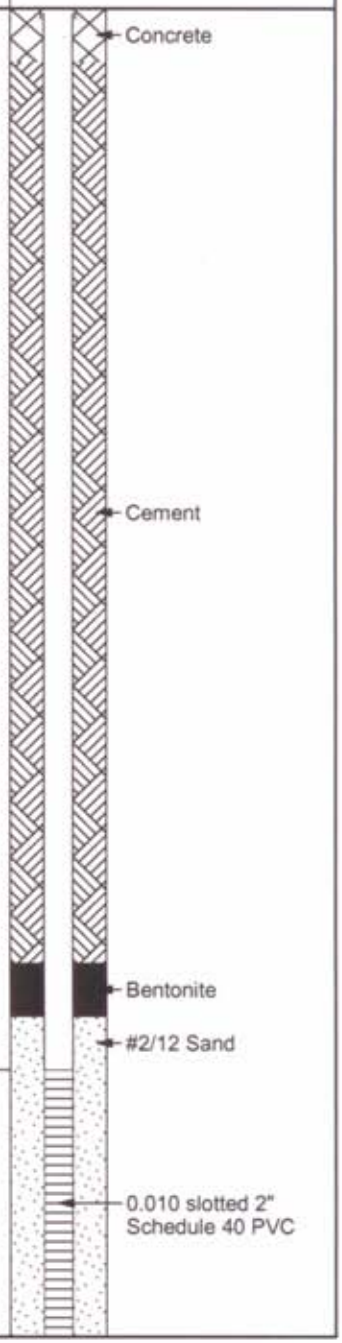
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

BORING NUMBER MW-8C

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/26/07 **COMPLETED** 1/26/07
GROUND ELEVATION _____ **HOLE SIZE** 8"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger - 8"
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES _____
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0					See boring log for well MW-8A for representative lithology.
20.0					Soil logged from cuttings. **Mudstone.**
25.0					

BORING DIAGRAM



Bottom of hole at 25.0 feet.

BH COPY FEINER MW-8C.GPJ GINT US.GDT 7/16/07

Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

BORING NUMBER B-16

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/23/07 **COMPLETED** 1/23/07
GROUND ELEVATION ___ **HOLE SIZE** 8"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Macrocore Direct Push
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES Hand augered to 4'.
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BORING DIAGRAM
0					0.5 Concrete Coring	
			GP		**Sandy Gravel (GP)**; hand augering.	
5					**Sandy Gravel (GP)**; 60-70% fine gravels to 1/2"; 25-30% fine- to medium-grain sand; 5-10% low plasticity fines; dry; loose.	Portland Cement
			GC		6.0 6.5 **Clayey Gravel (GC)**; 60-70% fine gravels to 3/4"; 30-40% low plasticity fines; dry.	
10					**Mudstone**; grey; easily broken with fingers; difficult to drill; dry.	
					12.0 Refusal	
					Bottom of hole at 12.0 feet.	

Pangea Environmental Services, Inc.
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Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

BORING NUMBER B-17

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/23/07 **COMPLETED** 1/23/07
GROUND ELEVATION ___ **HOLE SIZE** 2.25"
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Direct Push - Dual Tube
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES Hand augered to 4'.
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BORING DIAGRAM
0					Not logged.	
					3.0	
5			GP		**Sandy Gravel (GP)**; brown; 60-70% fine gravel; 30-40% medium-grain sand; dry; loose. **Sandy Gravel (GP)**; grey; 70-80% fine to coarse gravel to 1"; 20-30% fine sand; dry; loose.	Portland Cement
					7.0	
					Mudstone; grey; easily broken with fingers; difficult to drill; dry.	
					9.0 Refusal	
					Bottom of hole at 9.0 feet.	

Pangea Environmental Services, Inc.
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Fax: 510-836-3709

BORING NUMBER B-18

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 1/23/07 **COMPLETED** 1/23/07
GROUND ELEVATION ___ **HOLE SIZE** ___
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Direct Push - Dual Tube
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING 7.1 ft
NOTES Hand augered to 4'.
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BORING DIAGRAM
0					Concrete Coring	
					1.0	
			GP		**Sandy Gravel (GP)**; hand augering.	
					Sandy Gravel (GP); brown; 60-70% fine gravel; 30-40% fine-grain sand; tight.	
					4.0	
5			CL		**Clay (CL)**; black; 90-95% medium to high plasticity fines; trace coarse-grain sand; soft; wet.	
					Clay (CL); brown; 90-95% medium to high plasticity fines; trace coarse-grain sand; stiff; moist. ▼	
					8.0	Portland Cement
					No recovery.	
10						
15						
					16.0	
					Refusal	
					(@16' Set temporary casing and collected grab groundwater sample.)	
					Bottom of hole at 16.0 feet.	

PANGEA
Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

BORING NUMBER B-19

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5230 Cornado Avenue
DATE STARTED 3/19/07 **COMPLETED** 3/19/07
GROUND ELEVATION _____ **HOLE SIZE** 2"
DRILLING CONTRACTOR - -
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger
▽ **AT TIME OF DRILLING** 4.0 ft
LOGGED BY Greg Bentley **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BORING DIAGRAM
0	B-19-1		ML		**Sandy Silt (ML)**; dark brown; 75% non-plastic fines; 20% fine- to coarse-grain sand; 5% fine gravel; moist.	Backfilled with soil cuttings
					▽ @4' Wet.	
4.5	B-19-4				*(Boring terminated @4.5' and a grab groundwater sample was collected using a disposable bailer.)*	
					Bottom of hole at 4.5 feet.	

Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612
Telephone: 510-836-3700
Fax: 510-836-3709

BORING NUMBER B-20

CLIENT Feiner
PROJECT NAME Rockridge Heights
PROJECT NUMBER 1145.001
PROJECT LOCATION 5175 Broadway
DATE STARTED 3/16/07 **COMPLETED** 4/4/07
GROUND ELEVATION ___ **HOLE SIZE** ___
DRILLING CONTRACTOR RSI
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger
AT TIME OF DRILLING ---
LOGGED BY Bryce Taylor **CHECKED BY** Bob Clark-Riddell
AT END OF DRILLING ---
NOTES Hand augered to 4'.
AFTER DRILLING ---

DEPTH (ft bgs)	SAMPLE TYPE NUMBER	PID (ppm)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	BORING DIAGRAM
0					Not logged.	
					4.0	
5			GP		**Sandy Gravel (GP)**; brown; 60-70% fine gravel; 30-40% medium-grain sand; dry; loose.	Soil cuttings
					7.0	
					Mudstone; grey; easily broken with fingers; difficult to drill; dry.	
					8.5	
					Refusal @8.5'.	
					(On March 16, 2007 attempted boring with power probe 9630 Hollow Stem Auger/Direct Push Combo rig. Hit refusal at approximately 7' bgs. On April 5, 2007 attempted boring at same location with CME75 rig. Hit refusal at approximately 8.5' bgs.)	
					Bottom of hole at 8.5 feet.	

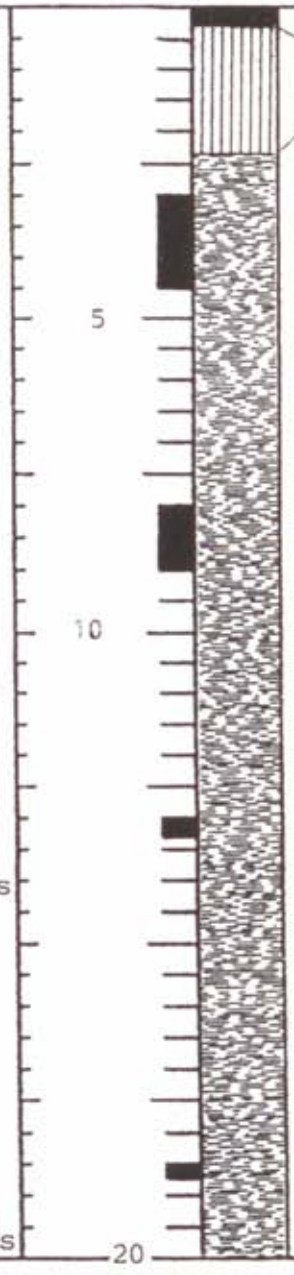
LOG OF EXPLORATORY BORING

PROJECT NUMBER 104 BORING NO MW-2

PROJECT NAME 5175 Broadway, Oakland, California PAGE 1 Of 2

BY J. Mrakovich DATE 4/24/90 SURFACE ELEV 156 ±

Recovery (ft/ft)	PID (ppm)	Penetration (blws/ft)	DESCRIPTION
			Concrete
			Clayey silt (ML), mottled yellow-brown and olive brown, damp, slight odor.
			Claystone, mottled yellow-brown with minor blue-green, highly fractured (blocky), upper 9-inches weathered to a clayey consistency, very dense, damp, no odor.
1.25/1.5		97	
			@ 8.0' color change to include more blue-green, slight gasoline odor.
1.0/1.0		84	
			@ 10.0' hard drilling 10-12 feet, strong gasoline odor while drilling.
.42/.42		80 for 5 inches	@ 13.0-13.4' insufficient sample for analysis, no odor.
.25/.25		50 for 3 inches	@ 18.0-18.25' insufficient sample for analysis, no odor.



REMARKS

Boring drilled with continuous-flight hollow-stem 10-inch O.D. (6.625-inch I.D.). Samples collected in a 3-inch O.D. modified California sampler.

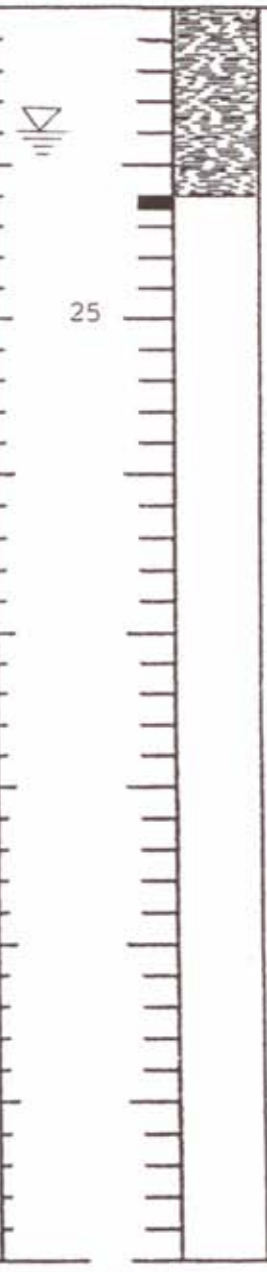
LOG OF EXPLORATORY BORING

PROJECT NUMBER 104 BORING NO MW-2

PROJECT NAME 5175 Broadway, Oakland, California PAGE 2 Of 2

BY J. Mrakovich DATE 4/24/90 SURFACE ELEV 156 ±

Recovery (ft/ft)	PID (ppm)	Penetration (blws/ft)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
.17/.17		50 for 2 inches		25			@ 23.0-23.17' insufficient sample for analysis, no odor. Boring terminated at 23 feet. Sampled to 23.17 feet.

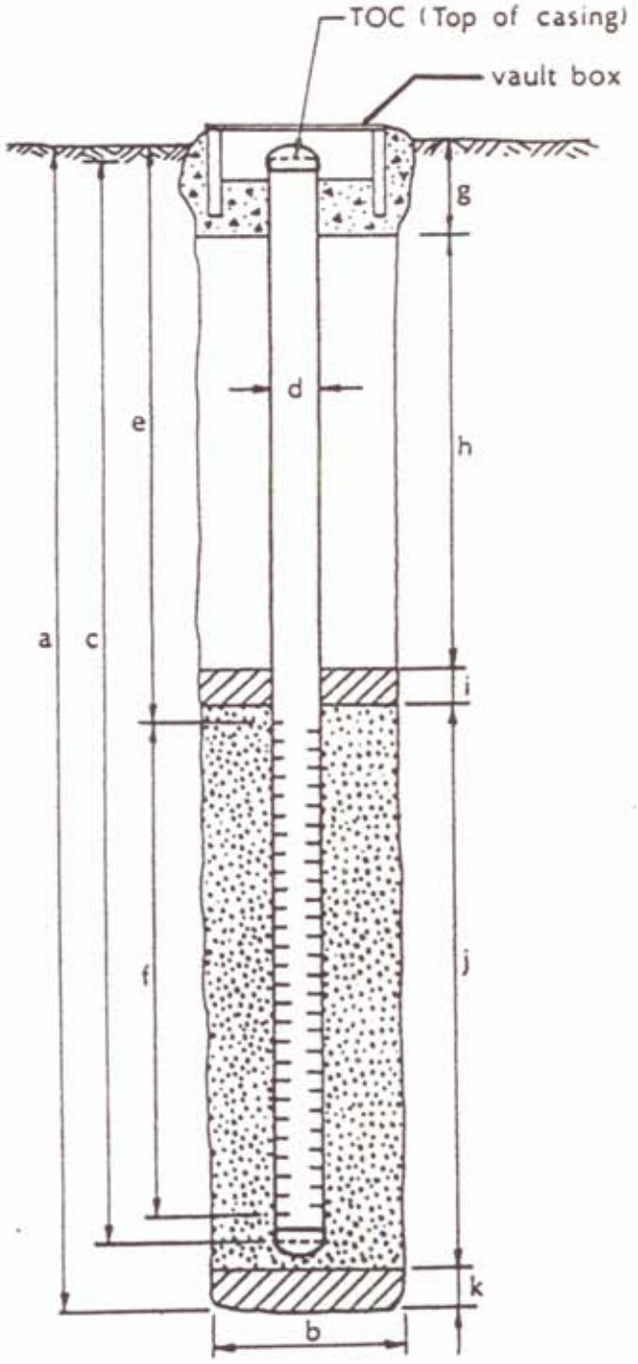


REMARKS

WELL DETAILS

PROJECT NUMBER 104
PROJECT NAME 5175 Broadway
LOCATION Oakland, CA
WELL PERMIT NO. 90222

BORING / WELL NO. MW-2
TOP OF CASING ELEV. 154.97
GROUND SURFACE ELEV. 156 ±
DATUM Mean sea level
INSTALLATION DATE 4/24/90



EXPLORATORY BORING

a. Total depth 23.0 ft.
b. Diameter 10 in.
Drilling method Hollow-stem auger

WELL CONSTRUCTION

c. Total casing length 23.0 ft.
Material Schedule 40 PVC
d. Diameter 4 in.
e. Depth to top perforations 8.0 ft.
f. Perforated length 15.0 ft.
Perforated interval from 23.0 to 8.0 ft.
Perforation type Machine slot
Perforation size .020-inch
g. Surface seal 1.0 ft.
Seal material Concrete
h. Backfill 4.0 ft.
Backfill material Cement
i. Seal 1.0 ft.
Seal material Bentonite
j. Gravel pack 17.0 ft.
Pack material 8x20 filter sand
k. Bottom seal 0.0 ft.
Seal material N/A

LOG OF EXPLORATORY BORING

PROJECT NUMBER 104 BORING NO. MW-3

PROJECT NAME 5175 Broadway, Oakland, California PAGE 1 Of 2

BY J. Mrakovich DATE 4/17/90 SURFACE ELEV 156 ±

Recovery (ft/ft)	PID (ppm)	Penetration (blws/ft)	Depth in Ft.	Description
				Fill: Clayey, gravelly, sand (SW), dark brown and black. Hard object encountered at 3 feet, dry, no odor.
				Silty clay (CL), black, slightly damp, firm, slight gasoline odor.
1.5/1.5		7	5	
				@ 7.0'color change to grey, gasoline odor, damp.
1.5/1.5		75	10	Claystone, yellow-brown, weathered to a clayey consistency, damp, strong gasoline odor.
				Claystone/serpentine, mottled green and dark brown, weathered, highly fractured, very dense, damp, strong gasoline odor.
.5/.5		50 for 6 inches	15	@ 14.0'-14.5', slight gasoline odor, damp.
.33/.33		50 for 4 inches	20	@ 19.0'-19.33', slight gasoline odor, insufficient sample for analysis, moist.

REMARKS

Boring drilled with continuous hollow-stem 10-inch O.D. augers (6.625-inch I.D.). Samples collected in a 3-inch O.D. modified California sampler.

LOG OF EXPLORATORY BORING

PROJECT NUMBER 104 BORING NO. MW-3

PROJECT NAME 5175 Broadway, Oakland, California PAGE 2 Of 2

BY J. Mrakovich DATE 4/17/90 SURFACE ELEV 156 ±

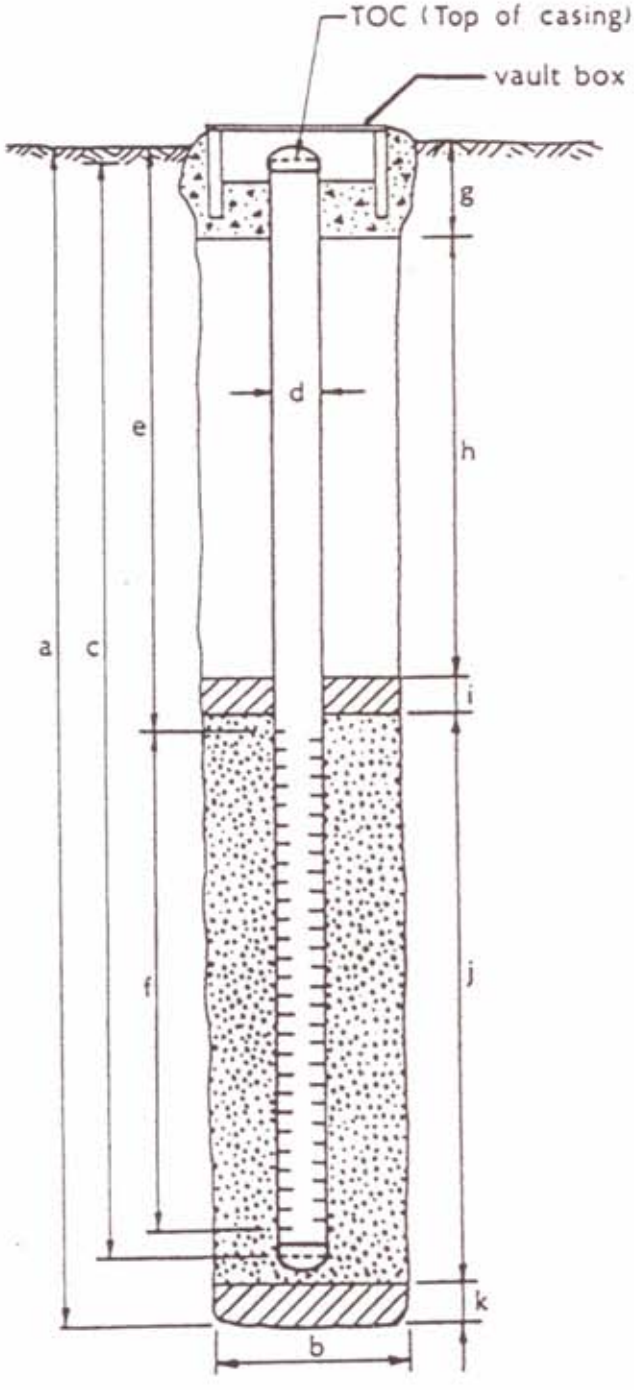
Recovery (ft/ft)	PID (ppm)	Penetration (blws/ft)	GROUND WATER LEVELS	DEPTH IN FT.	SAMPLES	LITHOGRAPHIC COLUMN	DESCRIPTION
				25			Boring terminated at 27 feet.

REMARKS

WELL DETAILS

PROJECT NUMBER 104
PROJECT NAME 5175 Broadway
LOCATION Oakland, CA
WELL PERMIT NO. 90222

BORING / WELL NO. MW-3
TOP OF CASING ELEV. 155.93
GROUND SURFACE ELEV. 156 ±
DATUM Mean sea level
INSTALLATION DATE 4/17/90



EXPLORATORY BORING

a. Total depth 27.0 ft.
b. Diameter 10 in.
Drilling method Hollow-stem auger

WELL CONSTRUCTION

c. Total casing length 27.0 ft.
Material Schedule 40 PVC
d. Diameter 4 in.
e. Depth to top perforations 7.0 ft.
f. Perforated length 20.0 ft.
Perforated interval from 27.0 to 7.0 ft.
Perforation type Machine slot
Perforation size .020-inch
g. Surface seal 1.0 ft.
Seal material Concrete
h. Backfill 4.0 ft.
Backfill material Cement
i. Seal 1.5 ft.
Seal material Bentonite
j. Gravel pack 21.5 ft.
Pack material 8x20 filter sand
k. Bottom seal 0.0 ft.
Seal material N/A

8-90-420-GI

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. STMW-4
Date Drilled: 6/21/91	Approx. Elevation	Boring Diameter: 8-inch

Drilling Method: Mobile drill rig B-40L

Sampling Method:

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
1					2-inch asphalt, 2-inch baserock.
2					Reddish-brown silty clay, stiff.
3					Light brown silty clay, stiff.
4					Light brown silty gravelly clay.
5	4-5				Light brown clayey gravelly silt, stiff.
9	4-10				Light brown clayey gravelly silt, mild petroleum odor.
11					Medium size rocks ($\frac{1}{2}$ inch - 1 inch).
13					▽ Groundwater level encountered at 13 feet. Stronger odor, moist.
15					Color changes to darker.

Remarks

Logged By: Noori Ameli	Exploratory Boring Log	Boring No. SIMW-4
Date Drilled: 6/21/91	Approx. Elevation	Boring Diameter 8-inch
Drilling Method: Mobile drill rig B-40L		Sampling Method

Depth	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
					Color changes to darker.
18					
19					Boring terminated at 19-feet 6-inches.
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
0					
1					
2					

Remarks

8-90-420-GI

Logged By	Noori Ameli	Exploratory Boring Log	Boring No. STMW-5
Date Drilled.	6/21/91	Approx. Elevation	Boring Diameter 8-inch

Drilling Method	Sampling Method
Mobile drill rig B-40L	

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/Ft.	Unified Soil Classification	DESCRIPTION
1					4-inch asphalt, 3-inch baserock.
2					Medium brown silty clay with some gravel.
3					
4					
5	5-5				Medium brown/dark grey silty clay, firm.
6					
7					
8					
9					
10	5-10				Dark greenish-grey silty clay with some pea gravel.
11					
12					
13					
14					Olive-green silty clay with some medium size gravel.
15					More gravel in the soil.
					Light petroleum odor.
16					Olive-green silty clayey gravel.

Remarks

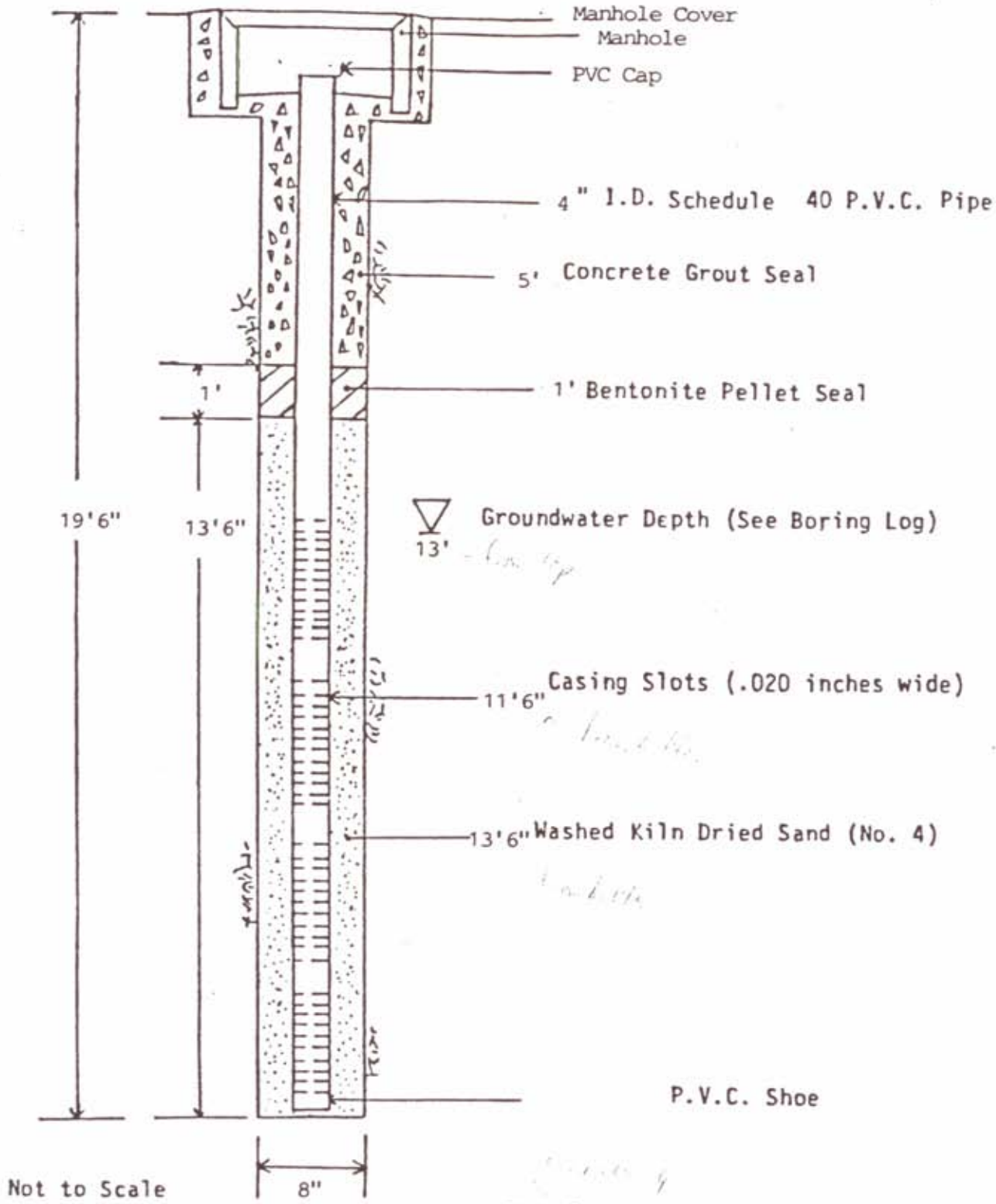
Logged By: Noori Ameli	Exploratory Boring Log	Boring No. STMW-5
Date Drilled: 6/21/91	Approx. Elevation	Boring Diameter 8-inch

Drilling Method: Mobile drill rig B-40L

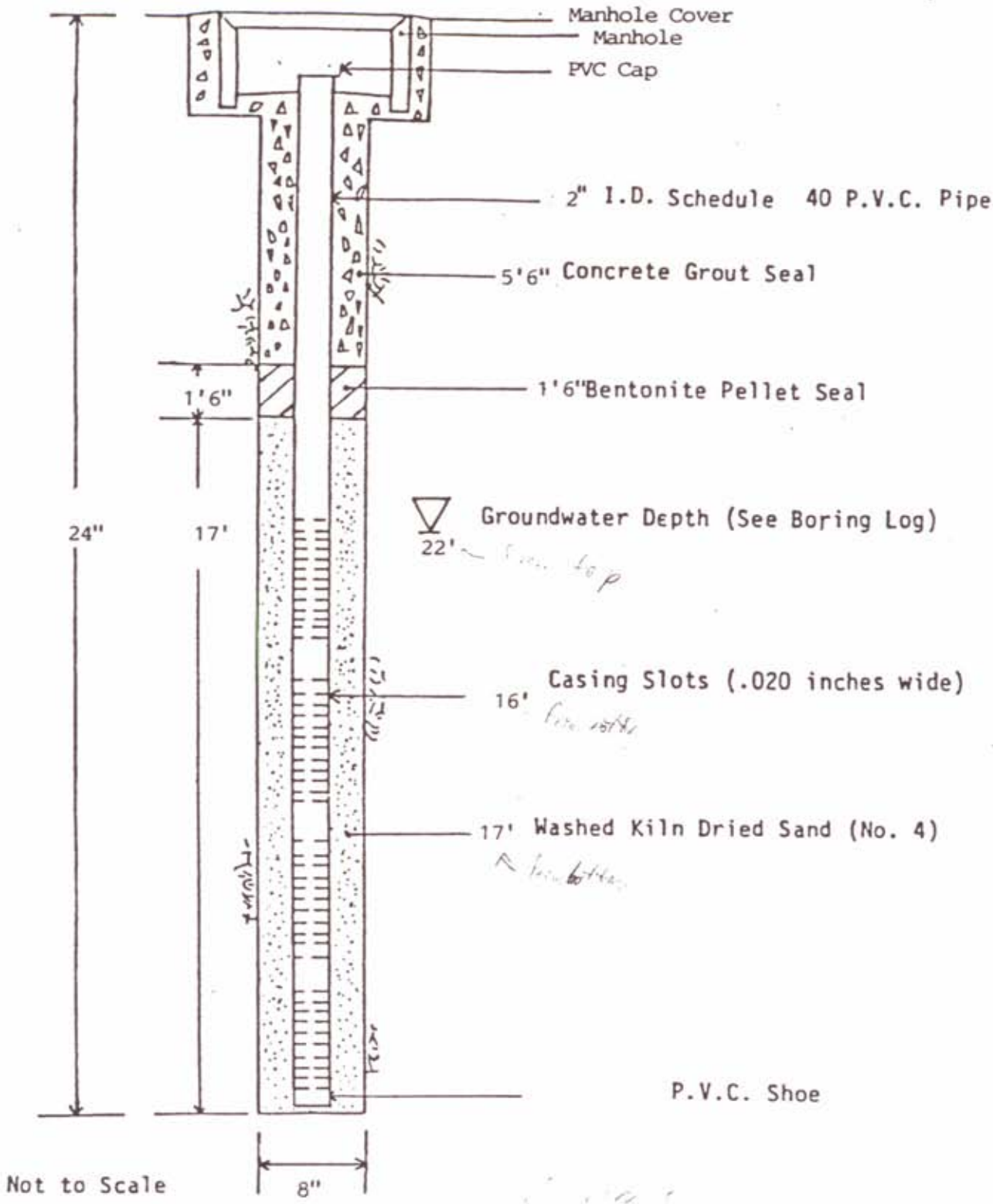
Sampling Method:

Depth, Ft.	Sample No.	Field Test for Total Ionization	Penetration Resistance Blows/6"	Unified Soil Classification	DESCRIPTION
17					Olive-green silty clayey gravel.
18					
19					
20	S-20				Olive-green silty clay with some pea gravel.
21					Olive-brown silty clay with small and medium size gravel.
22					▽ Groundwater level encountered at 22 feet.
23					
24					Boring terminated at 24 feet.
25					
26					
27					
28					
29					
30					
31					
32					

Remarks



Piezometer Schematic



Piezometer Schematic

APPENDIX D

Laboratory Analytical Reports

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Pangea Environmental Svcs., Inc. 1710 Franklin Street, Ste. 200 Oakland, CA 94612	Client Project ID: #5175 Broadway, Oakland CA	Date Sampled: 01/22/07
		Date Received: 01/24/07
	Client Contact: Bruce Taylor	Date Reported: 01/31/07
	Client P.O.:	Date Completed: 01/31/07

WorkOrder: 0701493

January 31, 2007

Dear Bruce:

Enclosed are:

1). the results of **8** analyzed samples from your **#5175 Broadway, Oakland CA 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

PEO 0701493

McCAMPBELL ANALYTICAL, INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553-5560
Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

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

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

Report To: Bryce Taylor Bill To: Pangea Environmental
Company: Pangea Environmental Services, Inc.
1710 Franklin Street, Suite 200
Oakland, CA 94612 E-Mail: btaylor@pangeaenv.com
Tele: (510) 836-3700 Fax: (510) 836-3709
PO#: 5175 Broadway, Oakland CA Project Name: Rockridge Heights
Project Location: 5175 Broadway, Oakland CA Project #: ~~1145.001~~ 5175 Broadway, Oakland
Sampler Signature: [signature]

Comments: Filter Samples for Metals analysis: Yes / No

SAMPLE ID (Field Point Name)	LOCATION	Sampling Date	Sampling Time	# Containers	Type Containers	Matrix: Water	Matrix: Soil	Matrix: Air	Matrix: Sludge	Matrix: Other	Method Preserved: ICE	Method Preserved: HCL	Method Preserved: HNO_3	Method Preserved: Other	BTEX & TPH as Gas (602/8020 + 8015)/MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010 / 8021	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8081	EPA 608 / 8082 PCB's ONLY	EPA 8140 / 8141	EPA 8150 / 8151	EPA 524.2 / 624 / 8260	EPA 525 / 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals (6010 / 6020)	LUFT 5 Metals (6010 / 6020)	Lead (200.8 / 200.9 / 6010)	Other	Other	Other	Comments
MW-6B-12		1/22	1330	1	Acetate liner		X				X				X																			
MW-6B-15			1335				X				X				X																			
MW-8A-8.5			1540				X				X				X																			
MW-8A-10			1545				X				X				X																			
MW-8A-12			1500				X				X				X																			
MW-8A-15		↓	1505	↓			X				X				X																			
B-18		1/23	1550	5	Amber VOAs	X						X			X	X																		
MW-3		1/22	1300	5	↓	X						X			X	X																		

Relinquished By:	Date:	Time:	Received By:
[signature]	1/24/07	1220	[signature]
[signature]	1/24/07	1330	[signature]

ICE/t° 7.4 water 7.8 soil
GOOD CONDITION____
HEAD SPACE ABSENT____
DECHLORINATED IN LAB____
APPROPRIATE CONTAINERS____
PRESERVED IN LAB____

PRESERVATION: VOAS | O&G | METALS pH<2 | OTHER

COMMENTS:

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0701493 **ClientID: PEO**

☐ EDF ☐ Fax ☑ Email ☐ HardCop ☐ ThirdPart

Report to:
Bruce Taylor
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612

Email:
TEL: (510) 836-370 FAX: (510) 836-370
ProjectNo: #5175 Broadway, Oakland CA
PO:

Bill t
Bob Clark-Riddell
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612

Requested TAT: 5 days

Date Received **01/24/2007**
Date Printed: **01/31/2007**

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0701493-001	MW-6B-12	Soil	1/22/2007 1:30:00	☐	A											
0701493-002	MW-6B-15	Soil	1/22/2007 1:35:00	☐	A											
0701493-003	MW-8A-8.5	Soil	1/22/2007 3:40:00	☐	A											
0701493-004	MW-8A-10	Soil	1/22/2007 3:45:00	☐	A											
0701493-005	MW-8A-12	Soil	1/22/2007 3:00:00	☐	A											
0701493-006	MW-8A-15	Soil	1/22/2007 3:05:00	☐	A											
0701493-007	MW-3	Water	1/22/2007 3:50:00	☐		A	B									
0701493-008	B-18	Water	1/22/2007 3:50:00	☐		A	B									

Test Legend:

1	G-MBTEX_S	2	G-MBTEX_W	3	TPH(D)_W	4		5	
6		7		8		9		10	
11		12							

Prepared by: Sheli Cryderman

Comments:

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

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Pangea Environmental Svcs., Inc.	Client Project ID: #5175 Broadway, Oakland CA	Date Sampled: 01/22/07
1710 Franklin Street, Ste. 200		Date Received: 01/24/07
Oakland, CA 94612	Client Contact: Bruce Taylor	Date Extracted: 01/24/07-01/29/07
	Client P.O.:	Date Analyzed 01/25/07-01/29/07

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

Extraction method SW5030B Analytical methods SW8021B/8015Cm Work Order: 0701493

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
001A	MW-6B-12	S	ND	ND	ND	ND	ND	ND	1	86
002A	MW-6B-15	S	2.9,g,m	ND	ND	0.0087	ND	ND	1	85
003A	MW-8A-8.5	S	14,g,m	ND	0.027	0.027	0.013	0.072	1	82
004A	MW-8A-10	S	13,g,m	ND	0.027	ND	ND	0.039	1	78
005A	MW-8A-12	S	260,g,m	ND<0.25	0.31	0.16	0.083	0.73	5	91
006A	MW-8A-15	S	ND	ND	ND	ND	ND	ND	1	96
007A	MW-3	W	34,000,a,h	ND<1000	770	250	760	2000	200	97
008A	B-18	W	ND	ND	ND	ND	ND	ND	1	90

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	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; p) see attached narrative.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Pangea Environmental Svcs., Inc. 1710 Franklin Street, Ste. 200 Oakland, CA 94612	Client Project ID: #5175 Broadway, Oakland CA	Date Sampled: 01/22/07
		Date Received: 01/24/07
	Client Contact: Bruce Taylor	Date Extracted: 01/24/07
	Client P.O.:	Date Analyzed 01/26/07-01/29/07

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel*

Extraction method SW3510C Analytical methods SW8015C Work Order: 0701493

Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0701493-007B	MW-3	W	93,000,d,b,h	50	---#
0701493-008B	B-18	W	ND	1	100

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

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

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+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 diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range/jet fuel range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

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QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder 0701493

EPA Method SW8015C **Extraction SW3510C** **BatchID: 25887** **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	RPD	LCS/LCSD	RPD
TPH(d)	N/A	1000	N/A	N/A	N/A	106	105	1.01	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	100	101	0.630	N/A	N/A	70 - 130	30

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

NONE

BATCH 25887 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0701493-007	1/22/07 3:50 PM	1/24/07	1/29/07 4:34 PM	0701493-008	1/22/07 3:50 PM	1/24/07	1/26/07 9:37 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.

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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Soil QC Matrix: Soil WorkOrder 0701493

EPA Method SW8021B/8015Cm Extraction SW5030B BatchID: 25903 Spiked Sample ID: 0701476-015A

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	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	0.60	99.3	101	1.99	104	101	3.27	70 - 130	30	70 - 130	30
MTBE	ND	0.10	94.5	90.9	3.88	85.6	87.8	2.61	70 - 130	30	70 - 130	30
Benzene	0.006	0.10	91	91.7	0.765	94.4	94.8	0.409	70 - 130	30	70 - 130	30
Toluene	0.0065	0.10	99.7	100	0.316	104	102	1.30	70 - 130	30	70 - 130	30
Ethylbenzene	ND	0.10	102	102	0	101	97.9	2.64	70 - 130	30	70 - 130	30
Xylenes	0.012	0.30	109	109	0	110	110	0	70 - 130	30	70 - 130	30
%SS:	102	0.10	98	95	3.11	86	86	0	70 - 130	30	70 - 130	30

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

NONE

BATCH 25903 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0701493-001	1/22/07 1:30 PM	1/24/07	1/25/07 6:32 AM	0701493-002	1/22/07 1:35 PM	1/24/07	1/25/07 6:48 PM
0701493-003	1/22/07 3:40 PM	1/24/07	1/25/07 6:17 PM	0701493-004	1/22/07 3:45 PM	1/24/07	1/26/07 1:17 PM
0701493-005	1/22/07 3:00 PM	1/24/07	1/25/07 7:17 PM	0701493-006	1/22/07 3:05 PM	1/24/07	1/25/07 9:28 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.

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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0701493

EPA Method SW8021B/8015Cm	Extraction SW5030B				BatchID: 25917				Spiked Sample ID: 0701493-008A			
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	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	97	94.7	2.33	101	102	0.960	70 - 130	30	70 - 130	30
MTBE	ND	10	95.6	83.2	13.9	92.5	115	21.4	70 - 130	30	70 - 130	30
Benzene	ND	10	95.5	98.6	3.19	101	99.5	1.73	70 - 130	30	70 - 130	30
Toluene	ND	10	94.5	97.1	2.66	109	109	0	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	98	98.4	0.418	104	104	0	70 - 130	30	70 - 130	30
Xylenes	ND	30	110	110	0	113	113	0	70 - 130	30	70 - 130	30
%SS:	90	10	91	92	1.15	102	100	1.39	70 - 130	30	70 - 130	30

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

NONE

BATCH 25917 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0701493-007	1/22/07 3:50 PM	1/29/07	1/29/07 9:08 PM	0701493-008	1/22/07 3:50 PM	1/29/07	1/29/07 9:42 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.

DHS ELAP Certification N° 1644

QA/QC Officer

McCampbell Analytical, Inc.
"When Quality Counts"

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Web: www.mccampbell.com E-mail: main@mccampbell.com
Telephone: 877-252-9262 Fax: 925-252-9269

Pangea Environmental Svcs., Inc. 1710 Franklin Street, Ste. 200 Oakland, CA 94612	Client Project ID: #1145.001; 5175 Broadway, Oakland, CA	Date Sampled: 03/19/07
		Date Received: 03/19/07
	Client Contact: Bryce Taylor	Date Reported: 03/23/07
	Client P.O.:	Date Completed: 03/23/07

WorkOrder: 0703430

March 23, 2007

Dear Bryce:

Enclosed are:

1). the results of **1** analyzed sample from your **#1145.001; 5175 Broadway, Oakland, CA project,**

2). a QC report for the above sample

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

PEO 070343 0

McCAMPBELL ANALYTICAL, INC.

110 2nd AVENUE SOUTH, #D7
PACHECO, CA 94553-5560
Website: www.mccampbell.com Email: main@mccampbell.com
Telephone: (925) 798-1620 Fax: (925) 798-1622

CHAIN OF CUSTODY RECORD

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

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

Report To: Bryce Taylor Bill To: Pangea Environmental

Company: Pangea Environmental Services, Inc.

1710 Franklin Street, Suite 200

Oakland, CA 94612 E-Mail: btaylor@pangeaenv.com

Tele: (510) 836-3700 Fax: (510) 836-3709

PO#: 5175 Broadway, Oakland CA Project Name: Rockridge Heights

Project Location: 5175 Broadway, Oakland CA Project #: 1145.001

Sampler Signature:

SAMPLE ID (Field Point Name)	LOCATION	SAMPLING Date	SAMPLING Time	# Containers	Type Containers	MATRIX Water	MATRIX Soil	MATRIX Air	MATRIX Sludge	MATRIX Other	METHOD PRESERVED ICE	METHOD PRESERVED HCL	METHOD PRESERVED HNO_3	METHOD PRESERVED Other	BTEX & TPH as Gas (602/8020 + 8015)/MTBE	TPH as Diesel (8015)	Total Petroleum Oil & Grease (5520 E&F/B&F)	Total Petroleum Hydrocarbons (418.1)	EPA 601 / 8010 / 8021	BTEX ONLY (EPA 602 / 8020)	EPA 608 / 8081	EPA 608 / 8082 PCB's ONLY	EPA 8140 / 8141	EPA 8150 / 8151	EPA 524.2 / 624 / 8260	EPA 525 / 625 / 8270	PAH's / PNA's by EPA 625 / 8270 / 8310	CAM-17 Metals (6010 / 6020)	LUFT 5 Metals (6010 / 6020)	Lead (200.8 / 200.9 / 6010)	Other				Comments
B-19-1		3/19	1100	1	S.S. label		X				X																							HOLD
B-19-4		↓	1120	1	↓		X				X																							HOLD
B-19		↓	1130	5	Mix	X					X	X		X	X	X																		

Other

Comments: Filter Samples for Metals analysis: Yes / No

+20

Relinquished By:	Date:	Time:	Received By:
	3/19	1230	
	3/19	2145	
	3/19	400	

ICE/t° 3.8 C ✓

GOOD CONDITION ✓

HEAD SPACE ABSENT

DECHLORINATED IN LAB

APPROPRIATE CONTAINERS

PRESERVED IN LAB

COMMENTS:

PRESERVATION	VOAS	O&G	METALS pH<2	OTHER
	✓			✓

McCampbell Analytical, Inc.
1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

WorkOrder: 0703430 **ClientID: PEO**

☐ EDF ☐ Fax ☑ Email ☐ HardCopy ☐ ThirdParty

Report to:
Bryce Taylor
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612

Email: btaylor@pangeaenv.com
TEL: (510) 836-370 FAX: (510) 836-370
ProjectNo: #1145.001; 5175 Broadway, Oakland, C
PO:

Bill to
Bob Clark-Riddell
Pangea Environmental Svcs., Inc.
1710 Franklin Street, Ste. 200
Oakland, CA 94612

Requested TAT: 5 days

Date Received: **03/19/2007**
Date Printed: **03/19/2007**

Sample ID	ClientSampID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
0703430-003	B-19	Water	03/19/07 11:30:00	☐	A	B										

Test Legend:

1	G-MBTEX_W	2	TPH(D)_W	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.

McCampbell Analytical, Inc.
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Telephone: 877-252-9262 Fax: 925-252-9269

Pangea Environmental Svcs., Inc. 1710 Franklin Street, Ste. 200 Oakland, CA 94612	Client Project ID: #1145.001; 5175 Broadway, Oakland, CA	Date Sampled: 03/19/07
		Date Received: 03/19/07
	Client Contact: Bryce Taylor	Date Extracted: 03/21/07
	Client P.O.:	Date Analyzed: 03/21/07

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

Extraction method: SW5030B Analytical methods: SW8021B/8015Cm Work Order: 0703430

Lab ID	Client ID	Matrix	TPH(g)	MTBE	Benzene	Toluene	Ethylbenzene	Xylenes	DF	% SS
003A	B-19	W	ND,i	ND	ND	ND	ND	ND	1	93
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.
"When Quality Counts"

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Pangea Environmental Svcs., Inc. 1710 Franklin Street, Ste. 200 Oakland, CA 94612	Client Project ID: #1145.001; 5175 Broadway, Oakland, CA	Date Sampled: 03/19/07
		Date Received: 03/19/07
	Client Contact: Bryce Taylor	Date Extracted: 03/19/07
	Client P.O.:	Date Analyzed 03/22/07

Diesel Range (C10-C23) Extractable Hydrocarbons as Diesel*

Extraction method SW3510C Analytical methods SW8015C Work Order: 0703430

Lab ID	Client ID	Matrix	TPH(d)	DF	% SS
0703430-003B	B-19	W	ND,i	1	102

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

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

cluttered chromatogram resulting in coeluted surrogate and sample peaks, or; surrogate peak is on elevated baseline, or; surrogate has been diminished by dilution of original extract.

+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 diesel is significant; b) diesel range compounds are significant; no recognizable pattern; c) aged diesel? is significant); d) gasoline range compounds are significant; e) unknown medium boiling point pattern that does not appear to be derived from diesel; f) one to a few isolated peaks present; g) oil range compounds are significant; h) lighter than water immiscible sheen/product is present; i) liquid sample that contains greater than ~1 vol. % sediment; k) kerosene/kerosene range/jet fuel range; l) bunker oil; m) fuel oil; n) stoddard solvent/mineral spirit.

DHS ELAP Certification N° 1644

Angela Rydelius, Lab Manager

McCampbell Analytical, Inc.
"When Quality Counts"

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QC SUMMARY REPORT FOR SW8021B/8015Cm

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0703430

EPA Method SW8021B/8015Cm	Extraction SW5030B				BatchID: 26895				Spiked Sample ID: 0703430-003A			
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	RPD	LCS/LCSD	RPD
TPH(btex)£	ND	60	98.7	86.5	13.2	91.2	90.5	0.872	70 - 130	30	70 - 130	30
MTBE	ND	10	99.5	95.3	4.27	105	110	4.95	70 - 130	30	70 - 130	30
Benzene	ND	10	103	90.1	13.0	96.2	97.5	1.25	70 - 130	30	70 - 130	30
Toluene	ND	10	100	90.4	10.4	89.1	90.8	1.84	70 - 130	30	70 - 130	30
Ethylbenzene	ND	10	97.2	93.5	3.86	94.9	99.3	4.54	70 - 130	30	70 - 130	30
Xylenes	ND	30	90.3	85.7	5.30	95.7	96.3	0.694	70 - 130	30	70 - 130	30
%SS:	93	10	119	108	9.68	93	93	0	70 - 130	30	70 - 130	30

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

NONE

BATCH 26895 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0703430-003A	03/19/07 11:30 AM	03/21/07	03/21/07 4:02 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.

DHS ELAP Certification N° 1644

QA/QC Officer

McCampbell Analytical, Inc.
"When Quality Counts"

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QC SUMMARY REPORT FOR SW8015C

W.O. Sample Matrix: Water QC Matrix: Water WorkOrder: 0703430

EPA Method SW8015C	Extraction SW3510C	BatchID: 26896	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	RPD	LCS/LCSD	RPD
TPH(d)	N/A	1000	N/A	N/A	N/A	89.7	90.1	0.436	N/A	N/A	70 - 130	30
%SS:	N/A	2500	N/A	N/A	N/A	92	92	0	N/A	N/A	70 - 130	30

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

NONE

BATCH 26896 SUMMARY

Sample ID	Date Sampled	Date Extracted	Date Analyzed	Sample ID	Date Sampled	Date Extracted	Date Analyzed
0703430-003B	03/19/07 11:30 AM	03/19/07	03/22/07 6:22 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.

APPENDIX E

Well Development Field Data Sheets

WELL GAUGING DATA DURING WELL DEVELOPMENT

Project # 070214-DA1 Date 2/14/07 Client Pangea

Site: Former Exxon @ 5175 Broadway Oakland, CA

Well ID	Time	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	post-DTB Notes
MW-2C	0855	2					8.35	22.97	TOC	22.97
MW-3A	0900	2					9.40	13.77		13.78
MW-4A	0823	2					9.20	14.70		14.70
MW-5A	0810	2					12.44	13.48		13.48
MW-5B	0808	2					12.95	19.20		19.20
MW-5C	0806	2					13.00	26.68		26.68
MW-6A	0857	2					6.18	14.89		14.92
MW-7B	0818	2					11.31	18.50		18.50
MW-7C	0816	2					13.21	24.51		24.55
MW-8A	0814	2					9.16	14.83		14.85
MW-8C	0853	2					12.40	24.77		25.01

Pangea
ENVIRONMENTAL SERVICES, INC.

Well Gauging Data Sheet During Well Development

Project.Task #070214-DA1 | Project Name: Former Exxon Station 5175 Broadway Oakland

Address: 5175 Broadway Oakland, CA | Date: 2/14/07

Name: David Allbut | Signature: David Allbut

Well ID	Well Size (in.)	Time	Depth to Water (ft)	Time	Depth to Water (ft)	Time	Depth to Water (ft)	Total Depth (ft)	Measuring Point
MW-3A	2	0928 well dewatered	12.30	0929	12.22	0934	~~0934~~ 12.10	-	TOC
		1343 returned	10.57 to well	1357 well dewatered	12.74	1202 5 min recharge	12.52	-	
MW-5A	2	1006 well dewatered @ 0.2g	13.23	1011 5 min recharge	13.10	~~1006~~ 1011 (5 min)	~~13.22~~ 13.10	-	
		~~1405~~ returned	13.02 to well	1410 well dewatered	13.24	1415 5 min recharge	13.24	-	
MW-8A	2	1105 well dewatered	13.44	1110 5 min recharge	12.83	1417 returned	9.33 to well	-	
		1437 well dewatered	13.55	1442 5 min recharge	12.97				
MW-8C	2	1107 after dewatering MW-8A	10.64	1110	~~12.83~~	1439 dewatered MW-8A	10.62	-	
MW-4A	2	1149 well dewatered	13.38	1154	12.92	1318 pumped 25 vol from MW-6A	10.39	-	
		1447 returned	9.78	1507 well dewatered	12.85	1512	12.35		
MW-6A	2	1150 after dewatering MW-4A	6.15	1155	6.15	1319 removed 25 well volumes	12.34	-	

Comments:

Pangea
ENVIRONMENTAL SERVICES, INC.

Well Gauging Data Sheet During Development

Project.Task #070214-DA1 | Project Name: Former Exxon, Broadway Oakland

Address: 5175 Broadway Oakland, CA | Date: 2/14/07

Name: David Allbut | Signature: David Allbut

Well ID	Well Size (in.)	Time	Depth to Water (ft)	Time	Depth to Water (ft)	Time	Depth to Water (ft)	Total Depth (ft)	Measuring Point
MW-6A	2	1324	10.73						
2/15/07 MW-5B	2	1249 returned to well	15.72	1306 well dewatered	18.23	1311 5 min recharge	18.08		
~~MW-7B~~									
MW-7B	2	1317 returned to well	12.11	1337 well dewatered	17.44	1342 5 min recharge	17.22		
MW-5C	2	1347 returned to well	12.97	1427 well dewatered	25.25	1432 5 min recharge	24.30		
MW-8C	2	1438 returned to well	10.80						
MW-7C	2	1511 returned to well	1718						

~~Comments:~~

MW-2C | 2 | 1545 returned to well | 10.40 | well dewatered 5 min recharge

Pangea
ENVIRONMENTAL SERVICES, INC.

Well Gauging Data Sheet During Development

Project.Task #: 070214-DA1	Project Name:	
Address: 5175 Broadway Oakland, CA		Date: 2/15/07
Name: David Allbut	Signature: David Allbut	

Well ID	Well Size (in.)	Time	Depth to Water (ft)	Time	Depth to Water (ft)	Time	Depth to Water (ft)	time ~~Total Depth (ft)~~	DTW ~~Measuring Point~~	DTW
MW-2C	2	0730	8.30	1234 well dewatered	21.12					
MW-3A	2	0734	9.43	start MW-2C purge	9.20	1233	9.20 MW-2C dewatered			
MW-4A	2	0732	9.43							
MW-5A	2	0721	13.05	0821 (dewatered MW-5B)	13.01	0827	13.04	0958 dewatered	13.04 MW-5C	
MW-5B	2	0720	12.19	0820 (well dewatered)	18.30	0827	18.16	1000 dewatered	17.25 MW-5C	
MW-5C	2	0719	12.07	0820 (dewatered MW-5B)	12.10	0827	12.10	0959 well dewatered	25.00	24.02 @ 1004
MW-6A	2	0733	6.27							
MW-7B	2	0726	11.30	0900 well dewatered	17.48	0905	17.15			
MW-7C	2	0724	11.45	0900 MW-7B dewatered.	11.46	0905	11.46			
MW-8A	2	0728	9.26	~~09~~ 1056 dewatered	9.30 MW-8C ~~1100~~	1101	9.30			
MW-8C	2	0727	10.73	1057 well dewatered	23.95	1102	21.57	1143 well dewatered	23.41	

~~Comments~~:

MW-3	2	0736	9.91

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed: 2/15/07
Well I.D. MW-2C	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 22.97 After 23.03	Depth to Water: Before 9.30 After 20.94
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min. pre-purge	

Volume Conversion Factor (VCF)
(12 x (d^2/4) x π) /231
where
12 = in / foot
d = diameter (in)
π = 3.1416
231 = in 3/gal

Well dia.		VCF
2"	=	0.16
3"	=	0.37
4"	=	0.65
6"	=	1.47
10"	=	4.08
12"	=	6.87

2.3	X		=	
1 Case Volume		Specified Volumes		gallons

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1211	66.0	9.11	1388	71000	2.3	tan, fine silt, hard bottom agitated bottom
1214	66.6	9.63	1184	71000	4.6	"
1219	66.3	9.41	1150	71000	6.9	"
1225	65.9	9.01	1161	71000	9.2	"
1230	66.1	8.50	1192	71000	11.5	"
1232	well	dewatered @ 12 g.			1234 DTW = 21.12	1239 DTW = 20.50
1244	DTW =	20.03				
1545	DTW =	10.40	surged 3 min.			
1553	65.1	7.80	1357	71000	13.8	brown, fine silt
1555	65.7	7.89	1143	71000	16.1	"
1601	65.5	7.65	1197	71000	18.4	"
1604	65.7	7.73	1236	71000	20.7	"
1604	well	dewatered @ 21.5 g.		DTW = 20.94 @1607		DTB = 23.03
Did Well Dewater? yes		If yes, note above.		Gallons Actually Evacuated:		

1609 DTW = 20.40

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed: 2/14/07
Well I.D. MW-3A	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 13.77 After 13.78	Depth to Water: Before 9.40 After 12.72
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min. pre-purge	

Volume Conversion Factor (VCF)
(12 x (d^2/4) x π) /231
where
12 = in / foot
d = diameter (in.)
π = 3.1416
231 = in 3/gal

Well dia		VCF
2"	=	0.16
3"	=	0.37
4"	=	0.65
6"	=	1.47
10"	=	4.08
12"	=	6.87

0.7	X	10	=	7.0
1 Case Volume		Specified Volumes		gallons

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS
0921	58.1	11.00	2287	71000	0.7	tan, cloudy, hard bottom, ag, tated bottom, very little silt
0923	59.2	11.60	2302	71000	1.4	slight sheen
0925	60.1	11.79	2481	71000	2.1	"
0928	well dewatered @ 2.1 g			DTW=12.30		
1343	returned DTW =	10.57		surged	3 min	
1351	63.2	10.82	2047	71000	2.8	tan, cloudy, no silt
1353	64.3	11.49	2118	71000	3.5	"
1356	64.2	11.52	2163	71000	4.2	"
1356	well dewatered @ 4.2 g.					
1357	DTW= 12.74		1402	DTW= 12.52		DTB = 13.78
2/16/07	returned @ 0953		DTW= 8.78	surged 3 min		
1002	62.1	9.77	1246	71000	4.9	brown, some fine silt
1004	63.1	10.44	1300	71000	5.6	
Did Well Dewater? yes	If yes, note above.			Gallons Actually Evacuated:		7

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-3A	PAGE 2 OF 2
Project #: 070214-DA1	Client: Pangea

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1006	63.0	10.63	1310	>1000	6.3	tan, some fine silt
1008	63.3	10.97	1352	>1000	7.0	" "
1009	well	dewatered	@ 7g.	DTW=	12.72	DTB = 13.78

WELL DEVELOPMENT DATA SHEET

Project #: 070214-A1	Client: Pangea
Developer: DA	Date Developed: 2/14/07
Well I.D. MW-4A	Well Diameter: (circle one) 2 3 4 6
Total Well Depth:	Depth to Water:
Before 14.70 After 14.70	Before 9.20 After 12.85
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min pre-purge	

Volume Conversion Factor (VCF)
(12 x (d^2/4) x π) /231
where
12 = in / foot
d = diameter (in)
π = 3.1416
231 = in 3/gal

Well dia.		VCF
2"	=	0.16
3"	=	0.37
4"	=	0.65
6"	=	1.47
10"	=	4.08
12"	=	6.87

1 Case Volume	X	Specified Volumes	=	gallons
0.9		10		9.0

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or (uS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1132	62.1	8.55	2265	71000	0.9	agitated bottom, hard bottom, tan, some fine silt
1134	63.8	9.06	2400	71000	1.8	"
1136	63.5	9.43	2370	71000	2.7	less silt
1138	64.4	9.53	2373	71000	3.6	"
1140	64.8	9.46	2318	71000	4.5	tan, silty
1142	64.7	9.39	2296	71000	5.4	"
1143	64.6	9.23	2298	71000	6.3	"
1145	65.1	8.91	2239	71000	7.2	less silty
1148	64.9	8.56	2186	71000	8.1	"
1149	well dewatered		@ 8.1 g.	DTW =	13.38	
1447	returned. DTW = 9.78			Surged	3 min.	
1457	63.5	7.96	1953	71000	9	tan, cloudy, no silt
1459	63.5	8.04	1966	71000	9.9	"

Did Well Dewater? Yes | If yes, note above. | Gallons Actually Evacuated: 12.6

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-4A	PAGE 2 OF 2
Project #: 070214-DA1	Client: Pangea

TIME	TEMP (F)	pH	Cond. (mS or (µS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1501	63.6	8.09	1858	71000	10.8 (	tan, cloudy 3
1503	63.9	8.03	1798	71000	11.7	
1506	63.7	8.00	1740	71000	12.6	tan, cloudy, some fine silt
1507	well	dewatered	@ 12.6 g.	OTW = 12.85		OTB = 14.70
1512	OTW = 12.35					

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed: 2/14/07
Well I.D. MW-5A	Well Diameter: (circle one) ② 3 4 6
Total Well Depth:	Depth to Water:
Before 13.48 After 13.56	Before 12.44 After 13.13
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min. pre-purge	

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

0.2	X	10	=	2.0
1 Case Volume		Specified Volumes		gallons

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

Type of Installed Pump _____

Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1000	57.3	9.00	2894	71000	0.2	tan, cloudy, ~~very little~~ silt, hard bottom, odor
1006	well dewatered @ 0.2g			PTW: 13.23	1011	DTW = 13.10
1405	DTW = 13.02		returned. surged 3 min			
1410	well dewatered @ 0.3g DTW = 13.29					
1415	" DTW = 13.24					
2/16/07	returned to well @ 0710 DTW = 12.97					
0713	started adding DI H_2O to well. Added 8.5 g.					
0734	well dewatered @ 3g		DTW = 13.05		0739	DTW = 12.95
1018	returned. added 8g. surged			3 min		
1029	58.7	9.55	455	71000	4.5	brown, fine silt
1031	58.6	9.12	347	71000	5.4	"
1033	58.8	8.88	334	71000	6.3	"
1035	59.3	8.53	550	71000	7.2	"

Did Well Dewater? yes If yes, note above. Gallons Actually Evacuated: 7.2 added 16.5 g DI

1035 well dewatered @ 7.2 g. DTW = 13.15 DTB = 13.50

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-5A	PAGE 2 OF 2
Project #: 070214-PA1	Client: Pangea

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
~~1240~~	returned	DTW=	~~883~~ 13.15			
1245	65.1	8.19	896	>1000	7.7	brown, fine silt
1245	well	dewatered.	DTW= 13.13			
1423	returned	DTW= 12.95				
1428	well	dewatered	@ 7.8 g.	DTW= 13.13		

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed: 2/15/07
Well I.D. MW-5B	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth:	Depth to Water:
Before 19.20 After 19.20	Before 12.19 After ~~18.50~~ 18.70
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min. pre-purge	

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

1.1	X	10	=	11.0
1 Case Volume		Specified Volumes		gallons

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

Type of Installed Pump _____

Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or ~~uS~~)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
0813	59.3	7.69	2049	71000	1.1	brown, fine silt, agitated bottom, hard bottom
0814	59.4	7.48	1959	71000	2.2	"
0820	58.4	7.77	2154	71000	3.3	"
0820		DTW= 18.30		well dewatered @	3.3g	
0827	DTW=	18.16				
1249	returned	DTW= 15.72		surged	3 min	
1301	62.0	7.98	1883	71000	4.4	brown, some fine silt
1308	well	dewatered. DTW= 18.23			13.11 →	DTW= 18.08
2/16/07	returned	to well	DTW= 12.65		surged	3 min
0759	55.5	7.24	1850	71000	5.5	
0804	57.2	7.51	1824	71000	6.6	
0805	well	dewatered @ 6.6 g.		DTW=	18.22	
1121	returned	DTW= 15.78		surged	3 min.	

Did Well Dewater? yes — If yes, note above. — Gallons Actually Evacuated: 9

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-5B	PAGE 2 OF 2
Project #: 070214-DA1	Client: Pangea

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1129	60.9	6.93	1700	71000	7.7	brown, fine silt
1133	well dewatered		DTW = 18.30		8.0	DTB = 19.20
1340	returned to well. surged 3 min					DTW = 17.28
1348	64.0	6.89	1709	71000	8.8	
1421	DTW = 18.70		well dewatered		@ 9g.	

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed: 2/15/07
Well I.D. MW-5C	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth:	Depth to Water:
Before 26.68 After 26.68	Before 12.07 After 23.75
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min. pre-purge	

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

2.3	X	10	=	23.0
1 Case Volume		Specified Volumes		gallons

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED	NOTATIONS
0943	59.9	7.44	1894	71000	2.3	brown, odor, agitated bottom hard bottom, fine silt
0946	61.8	7.11	1821	71000	4.6	"
0949	62.6	7.08	1818	71000	6.9	"
0957	61.2	7.66	1834	71000	9.2	"
1959	well dewatered @ 9.2 g			DTW = 25.00		1004 DTW = 24.02
1009	DTW = 23.38					
1347	DTW =	12.97	surged	3 min		
1359	62.3	7.25	1759	71000	11.5	tan, some fine silt
1404	63.0	6.97	1808	71000	13.8	"
1408	63.5	6.91	1797	71000	16.1	"
1424	63.0	7.06	1800	71000	18.4	"
1427	well dewatered @ 19 g.			DTW = 25.25		1432 DTW = 24.30 DTB = 26.68
	~~returned DTW = 15.78~~					

Did Well Dewater? yes	If yes, note above.	Gallons Actually Evacuated:	25.3

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-5C	PAGE 2 OF 2
Project #: 070214-DA1	Client: Pangea

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
2/16/07	returned.	DTW=	12.28 @	1142	surged 3 min.	
1154	62.4	6.89	1720	71000	20.7	brown, some fine silt
1156	62.9	6.91	1788	71000	23	
1200	63.6	7.24	1817	71000	25.3	
1202	well dewatered	@ 25.3 g.	DTW=	23.75		DTB = 26.68

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed:
Well I.D. MW-6A	Well Diameter: (circle one) ② 3 4 6
Total Well Depth:	Depth to Water:
Before 14.89 After 14.92	Before 6.18 After 12.34
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged 10 min. pre-purge	

Volume Conversion Factor (VCF)
(12 x (d^2/4) x π) /231
where
12 = in / foot
d = diameter (in)
π = 3.1416
231 = in 3/gal

Well dia.		VCF
2"	=	0.16
3"	=	0.37
4"	=	0.65
6"	=	1.47
10"	=	4.08
12"	=	6.87

1.4	X	10	=	14
1 Case Volume		Specified Volumes		gallons

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1215	61.1	8.07	1865	71000	1.5	green, silty, agitated bottom, hard bottom
1217	62.4	7.67	1560	71000	3	possible slight sheen
1220	62.0	7.56	1438	71000	4.5	no sheen
1222	62.8	7.55	1445	71000	6.0	"
1224	63.0	7.51	1365	71000	7.5	"
1226	63.0	7.46	1295	71000	9	"
1228	62.8	7.46	1258	71000	10.5	"
1230	63.0	7.43	1241	71000	12	"
1233	62.6	7.42	1249	71000	13.5	"
1236	62.7	7.42	1252	71000	15	less silt
1237	63.0	7.39	1235	71000	16.5	" DTW=11.30
1240	62.7	7.39	1219	71000	18	"
1243	63.0	7.38	1213	71000	19.5	"

Did Well Dewater? NO	If yes, note above.	Gallons Actually Evacuated:	37.5

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-6A	PAGE 2 OF 2
Project #: 070214-DA1	Client: Pangea

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1247	63.3	7.38	1203	71000	21	tan, cloudy, some fine silt (in)
1249	63.6	7.39	1227	71000	22.5	very little silt
1251	63.4	7.40	1198	71000	24	"
1254	63.5	7.37	1186	71000	25.5	No silt
1257	63.4	7.36	1186	71000	27	"
1300	63.5	7.35	1174	71000	28.5	" DTW = < 11.60 typo pump
1303	62.6	7.37	1172	71000	30	"
1306	63.1	7.37	1161	71000	31.5	tan, cloudy
1309	62.9	7.37	1153	71000	33	"
1312	63.4	7.37	1144	71000	34.5	"
1315	63.2	7.35	1140	71000	36	"
1318	63.0	7.35	1148	71000	37.5	tan, cloudy, hard bottom;
	DTW=	12.34	@ 1319	1324 DTW=	10.73	no silt ~~DTB = 13.79~~

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed: 2/15/07
Well I.D. MW-7B	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 18.50 After 18.50	Depth to Water: Before 11.30 After 17.57
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min. pre-purge	

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

1.2	X	10	=	12.0
1 Case Volume		Specified Volumes		gallons

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or (μS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
0850	59.8	7.72	2259	>1000	1.2	brown, fine silt, agitated bottom, hard bottom
0854	59.8	7.70	2093	71000	2.4	possible sheen
0900	well dewatered		DTW=17.48		2.8	"
0905	DTW =	17.15				"
1317	returned	DTW=12.11		surged 3 min		
1327	62.7	7.63	1950	71000	3.6	brown, fine silt, no sheen
1331	62.9	7.75	1794	71000	4.8	"
1336	61.4	8.01	1706	71000	6	"
1337	well	dewatered	@ 6 g.	DTW=17.44		1342 DTW=17.22
	DTB =	18.48				
2/16/07	returned	@ 0857	DTW=	11.64	started	purging MW-7C
		0909	DTW=	11.64	MW-7C	dewatered
	0925	surged 3	min			
Did Well Dewater? yes		If yes, note above.		Gallons Actually Evacuated:		

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-2B	PAGE 2 OF 2
Project #: 070211-DA1	Client: Panoptic

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
0928	63.0	7.59	1584	>1000	7.2	brown, fine silt
0930	63.0	7.65	1573	>1000	8.4	very little silt, brown
0939	well dewatered @ 8.4 g. DTW=17.50					DTB=18.50
1231	returned DTW= 12.97			surged 3 min.		
1238	66.5	7.89	1477	>1000	9.6	brown, fine silt
1247	68.2	8.10	1372	>1000	10.8	
1247	well dewatered @ 10.8 g				DTW=17.57	

WELL DEVELOPMENT DATA SHEET

Project #: 070215-DA1	Client: Pangea
Developer: DA	Date Developed: 2/15/07
Well I.D. MW-7C	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 24.51 After 24.55	Depth to Water: Before 11.45 After 23.55
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged 10 min. pre-purge	

Volume Conversion Factor (VCF)	Well dia.		VCF
[12 x (d²/4) 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 Case Volume	X	Specified Volumes	=	gallons
2.1				

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1130	65.6	7.69	1947	71000	2.1	grey, some fine silt, agitated bottom, hard bottom
1134	67.3	7.88	2016	71000	4.2	"
1142	66.8	8.11	2094	71000	6.3	"
1142	well dewatered @ 6.3g. 1143 DTW= 23.41 1148 DTW=23.18					
1153	DTW= 22.98					
1511	returned to well		DTW= 17.18		surged 3 min	
1526	66.2	7.48	1584	71000	8.4	grey, fine silt, possible sheen
1530	65.1	8.08	1700	71000	10.5	
1532	well dewatered @ 10.5g. DTW= 23.25 DTB= 24.55 1537 DTW= 22.96					
2/16/07	returned to well		@0849 DTW= 12.05		surged 3 min	
0859	59.0	7.90	1592	71000	~~12.6~~ 12.6	grey, fine silt, possible sheen
0904	61.6	7.49	1516	71000	14.7	no sheen, grey, some fine silt
0909	62.9	7.86	1493	71000	16.8	"
Did Well Dewater? yes	If yes, note above.		Gallons Actually Evacuated:		23.3	

0909 well dewatered @ 16.8g DTW = 23.39 DTB = 24.55

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-7C	PAGE 2 OF 2
Project #: 070214-001	Client: Pangea

TIME	TEMP (F)	pH	Cond. (mS or (µS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1256	returned	DTW = 14.70		surged 3 min.		
1308	66.5	7.85	1421	71000	18.9	grey, some fine silt
1313	65.8	7.99	1430	71000	21	"
1321	64.2	8.12	1457	71000	23.3	"
1323	well	dewatered @ 23.3 g.			DTW = 23.55	

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed: 2/14/07
Well I.D. MW-8A	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth:	Depth to Water:
Before 14.83 After 14.85	Before 9.16 After 13.55
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min pre-purge	

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 = cu. in/gal	12"	=	6.87

0.9	X	10	=	9.0
1 Case Volume		Specified Volumes		gallons

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1056	58.2	8.38	2305	71000	0.9	agitated bottom, hard bottom tan, very little silt
1057	59.3	8.05	2091	71000	1.8	"
1059	59.8	7.78	2005	71000	2.7	"
1100	60.2	7.65	1972	71000	3.6	"
1103	60.1	7.72	1952	71000	4.5	"
1105	well dewatered @ 4.5 g			DTW = 13.44		1110 DTW = 12.83
1417	returned to well			DTW = 9.33	surged 3 min	
1427	61.3	8.35	1542	71000	5.4	tan, cloudy, fine silt
1429	60.8	7.64	1587	71000	6.3	no silt
1431	60.5	7.28	1532	71000	7.2	"
1433	60.6	7.54	1488	71000	8.1	"
1436	61.0	7.76	1567	71000	9.0	"
1436	well dewatered @ 9.0 g.			DTW = 13.55		
Did Well Dewater? yes	If yes, note above.			Gallons Actually Evacuated: 9		

WELL DEVELOPMENT DATA SHEET

Well I.D. ~~070214-0~~ MW-8A	
Project #: 070214-DA1	Client: Panged

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1442	DTW = 12.97 5 min. recharge					

WELL DEVELOPMENT DATA SHEET

Project #: 070214-DA1	Client: Pangea
Developer: DA	Date Developed:
Well I.D. MW-8C	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth:	Depth to Water:
Before 24.77 After 25.01	Before 10.73 After 23.83
Reason not developed:	If Free Product, thickness:
Additional Notations: surged 10 min. pre-purge	

Volume Conversion Factor (VCF)
(12 x (d^2/4) x π) /231
where,
12 = in / foot
d = diameter (in.)
π = 3.1416
231 = in 3/gal

Well dia.		VCF
2"	=	0.16
3"	=	0.37
4"	=	0.65
6"	=	1.47
10"	=	4.08
12"	=	6.87

2.2	X		=	gallons
1 Case Volume		Specified Volumes		

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

Type of Installed Pump _____
Other equipment used _____

TIME	TEMP (F)	pH	Cond. (mS or (µS))	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1033	61.7	7.35	1984	71000	2.2	brown, fine silt, hard bottom
1037	62.6	7.30	2015	71000	4.4	"
1040	62.9	7.70	2007	71000	6.6	"
1055	well dewatered @ 7.7g				~~8.8~~ 7.7	
1057	DTW = 23.95		1102 DTW = 21.57		1107	DTW = 20.12
1438	returned	DTW =	10.80	surged 3 min.		
1449	64.3	7.32	1713	71000	8.8	brown, fine silt
1455	65.1	7.20	1834	71000	11	"
1459	well dewatered				13.2	
1501	DTW = 23.86		DTB = 25.03	1506	DTW = 21.20	
2/16/07	returned to well @ 0815		DTW = 10.83			Surged 3 min
0827	58.1	7.44	1827	71000	13.2	
0830	59.4	7.27	1838	71000	15.4	
Did Well Dewater? Yes	If yes, note above.		Gallons Actually Evacuated:		22	

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-8C	PAGE 2 OF 2
Project #: 070214-DA1	Client: Pangea

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
0834	58.3	7.66	1784	71000	17.6	tan, fine silt
0838	well dewatered		DTW = 23.92		DTB = 25.01	
1210	returned	DTW =	10.90	surged 3 min.		
1221	64.4	7.27	1800	71000	19.8	brown, fine silt
1224	64.7	7.45	1801	71000	22.0	
1227	well dewatered @ 22g			DTW = 23.87		

WELL DEVELOPMENT DATA SHEET

Project #: 070326-WC-2	Client: Pangea @ Former Exxon, Broadway, Oakland
Developer: Will C.	Date Developed: 3/26/07
Well I.D. MW-3C	Well Diameter: (circle one) (2) 3 4 6
Total Well Depth: Before 25.35 After 26.59	Depth to Water: Before 10.64 After —
Reason not developed:	If Free Product, thickness:
Additional Notations: Surged well for 10 min w/ 2" surge block prior to purge	

Volume Conversion Factor (VCF): {12 x (d^2/4) x π} /231
where
12 = in / foot
d = diameter (in.)
π = 3.1416
231 = in 3/gal

Well dia.		VCF
2"	=	0.16
3"	=	0.37
4"	=	0.65
6"	=	1.47
10"	=	4.08
12"	=	6.87

80% = 13.58

1 Case Volume	x	Specified Volumes	=	gallons
2.4	x	10	=	24

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:
1302	begin	purge	w/	middleburg	pump	
1305	63.6	8.3	552	>1000	2.4	Odor, Silty Grey / hard bottom detected (light sheen)
1308	Well	dewatered	@ 4	gallons	purged	
Recharge	information					
1309	DTW = 25.20					
1310	DTW = 25.02			7.71'	recharge in 20 min	
1311	DTW = 24.40			@ avg.	rate of	
1312	DTW = 23.86				0.4 ft per min	
1313	DTW = 23.15			for	first 20 minutes	
1317	DTW = 21.33					
1324	DTW = 18.98					
1329	DTW = 17.49					
1339	DTW = 15.70					
Did Well Dewater?	If yes, note above.		Gallons Actually Evacuated:			

WELL DEVELOPMENT DATA SHEET

Well I.D. MW-3C	PAGE 2 OF 2
Project #: 070326-WC-2	Client: Pangea @ Former Exxon, Broadway Oakland

TIME	TEMP (F)	pH	Cond. (mS or µS)	TURBIDITY (NTUs)	VOLUME REMOVED:	NOTATIONS:
1347	surge well for additional 5 minutes					
1353	begin purge @ slower rate					(air; on 2sec/off 12 sec)
1355	59.5	7.3	967	>1000	4.8	odor & light sheen very grey & silty
1400	62.3	6.9	1094	>1000	7.2	odor & light sheen/silty grey
1400	well dewatered @ 7.2 gallons					
1430	→ DTW = 16.30', surge well for additional 5 minutes					
1435	begin purge @ same speed					(air; on for 2sec/off for 12)
1442	59.8	6.9	1192	>1000	9.6	odor & light sheen/silty grey (less silt
1442	well dewatered @ 9.6 gallons					
1515	→ DTW = 16.65, Surge well for additional 5 minutes					
1520	begin purge @ same speed (air on 2 sec/off for 12)					
1527	60.7	6.7	1312	>1000	12.0	odor & lightsheen/grey w/some silt
1530	well dewatered @ 12.3 gallons					
recharge information					end purge	
1531	DTW =		25.44'			
1532	→		24.60'			
1533	→		23.69'			
1534	→		23.10'			
1535	→		22.~~86~~42'			
1536	→		21.~~69~~86'			
1537	→		21.69'			
1538	→		21.40'			
1539	→		21.11'			
1540	→		20.93'			
1541	→		20.71'			

TEST EQUIPMENT CALIBRATION LOG

PROJECT NAME Pangea @ former Exxon Broadway Oakland				PROJECT NUMBER 070326-WC-2			
EQUIPMENT NAME	EQUIPMENT NUMBER	DATE/TIME OF TEST	STANDARDS USED	EQUIPMENT READING	CALIBRATED TO: OR WITHIN 10%:	TEMP.	INITIALS
Myron L 6P Ultrameter	605785	3/26/07 @ 1250	4.0/7.0/10.0 pH 3900 µS	3.97/7.08/9.91 pH 3926 µS	4.0/7.0/10.0 pH 3900 µS	61.2°F	WC
Hach 2100 Turbidimeter	041000 07749	3/26/07 @ 1255	5.0/60.0/470 NTU	5.03/60.7/473 NTU	ok ✓	—	WC

WELL GAUGING DATA

Project # 070326-WC-2 Date 3/26/07 Client Fargea

Site Former Exxon @ 5175 Broadway, 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	Final DTB
MW-1	4					8.26			
MW-2C	2					8.72			
MW-3A	2					9.22			
MW-3C	2					10.64	25.35		26.59
MW-4A	2					9.88			
MW-5A	2					10.82			
MW-5B	2					12.62			
MW-5C	2					12.62			
MW-6A	2					7.17			
MW-7A	2					11.05			
MW-7B	2					11.00			
MW-8A	2					9.83			
MW-8C	2					11.77			

APPENDIX F

Surveyor’s Report

Virgil Chavez Land Surveying
721 Tuolumne Street
Vallejo, California 94590
(707) 553-2476 • Fax (707) 553-8698

April 10, 2007
Project No.: 2588-04

Morgan Gillies
Pangea Enviromental Services, Inc.
1710 Franklin Street, Ste 200
Oakland, CA

Subject: Monitoring Well Survey
Former Exxon Station
5175 Broadway
Oakland, CA

Dear Morgan:

This is to confirm that we have proceeded at your request to survey the ground water monitoring wells located at the above referenced location. The survey was completed on April 5, 2007. The benchmark for this survey was a cut square on top of easterly curb of Broadway, opposite entrance to house #5718 Broadway. The latitude, longitude and coordinates are for top of casings and are based on the California State Coordinate System, Zone III (NAD83). Benchmark Elevation = 180.06 feet (NGVD 29).

Latitude	Longitude	Northing	Easting	Elev.	Desc.
				161.28	RIM MW-1
37.8356915	-122.2519535	2131491.69	6055757.84	161.10	TOC MW-1
				161.18	RIM MW-2C
37.8355228	-122.2519238	2131430.11	6055765.28	160.65	TOC MW-2C
				161.86	RIM MW-3A
37.8355271	-122.2520974	2131432.62	6055715.16	161.55	TOC MW-3A
				162.08	RIM MW-3C
37.8355738	-122.2520889	2131449.55	6055717.94	161.79	TOC MW-3C
				162.88	RIM MW-4A
37.8356562	-122.2518599	2131478.33	6055784.63	162.44	TOC MW-4A
				161.11	RIM MW-5A
37.8355207	-122.2523005	2131431.37	6055656.48	160.82	TOC MW-5A
				161.69	RIM MW-5B
37.8355004	-122.2522497	2131423.70	6055671.02	161.50	TOC MW-5B
				161.38	RIM MW-5C
37.8355152	-122.2522822	2131429.26	6055661.72	161.03	TOC MW-5C
				161.94	RIM MW-6A
37.8356459	-122.2519958	2131475.30	6055745.31	161.58	TOC MW-6A
				159.33	RIM MW-7A
37.8354200	-122.2520260	2131393.22	6055735.04	159.15	TOC MW-7A

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April 10, 2007
Project No.: 2588-04
Page Two

Monitoring Well Survey
Former Exxon Station
5175 Broadway
Oakland, CA

Latitude	Longitude	Northing	Easting	Elev.	Desc.
				158.78	RIM MW-7C
37.8354092	-122.2519954	2131389.13	6055743.82	158.53	TOC MW-7C
				161.78	RIM MW-8A
37.8356541	-122.2521975	2131479.37	6055687.12	161.57	TOC MW-8A
				161.48	RIM MW-8C
37.8356713	-122.2521866	2131485.59	6055690.39	161.33	TOC MW-8C

Sincerely,

Virgil D. Chavez, PLS 6323