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TRANSMITTAL

DATE: 4-29-09

REFERENCE NO.: 611650

PROJECT NAME: Former Chevron Service Station No. 9-8341, 3530 MacArthur Boulevard, Oakland, CA

TO: Steven Plunkett
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

RECEIVED
10:46 am, May 01, 2009
Alameda County
Environmental Health

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QUANTITY	DESCRIPTION
1	Site Conceptual Model and Work Plan for Additional Investigation

- ☐ As Requested
- ☐ For Your Use
- ☒ For Review and Comment
- ☐
- ☐

COMMENTS:

Copy to: See attached list

Completed by: James Kiernan [Please Print] Signed:

Filing: **Correspondence File**

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cc: Ms. Stacie Frerichs, Chevron Environmental Management Company
Hai Pham, 3530 MacArthur Blvd Gas Station, Inc.

Stacie H. Frerichs
Team Lead
Marketing Business Unit

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6001 Bollinger Canyon Road
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April 29, 2009
(date)

Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Facility #_9-8341_____

Address: 3530 MacArthur Boulevard, Oakland, California_____

I have reviewed the attached report titled *Site Conceptual Model and Work Plan for Additional Investigation*_____ and dated April 29, 2009.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Conestoga-Rovers & Associates, upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

SH Frerichs

Stacie H. Frerichs
Project Manager

Enclosure: Report

SITE CONCEPTUAL MODEL AND WORK PLAN FOR ADDITIONAL INVESTIGATION

FORMER CHEVRON STATION 9-8341
3530 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA
CASE NO. RO0000405

Prepared For:

Mr. Steven Plunkett
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
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APRIL 29, 2009
REF. NO. 611650 (3)
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SITE CONCEPTUAL MODEL AND WORK PLAN FOR ADDITIONAL INVESTIGATION

FORMER CHEVRON STATION 9-8341
3530 MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA
CASE NO. RO0000405

Prepared For:

Mr. Steven Plunkett
Alameda County Environmental Health
1131 Harbor Bay Parkway, Suite 250
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FOR **Chris Benedict**

James Kiernan, P.E.

REGISTERED PROFESSIONAL ENGINEER
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APRIL 29, 2009
REF. NO.611650 (3)

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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) has prepared this *Site Conceptual Model and Work Plan for Additional Investigation* on behalf of Chevron Environmental Management Company (Chevron) for former Chevron Service Station No. 9-8341 located at 3530 MacArthur Boulevard in Oakland, California. Preparation of a site conceptual model (SCM) to establish site conditions and evaluate if any data gaps exist was recommended by Alameda County Environmental Health (ACEH) in a letter dated January 28, 2009. A copy of the letter is presented in Appendix A. Discussions of the site background, site conditions, data gap evaluation, and the proposed additional investigation to address the identified data gaps are presented in the following sections.

1.1 SITE DESCRIPTION AND BACKGROUND

The site is a former Chevron service station located on the northern corner of the intersection of MacArthur Boulevard and Magee Avenue in Oakland, California (Figure 1). The station reportedly was constructed in 1963. Former station facilities included a station building with two hydraulic hoists, two 7,500-gallon and one 3,000-gallon steel gasoline underground storage tanks (USTs) located on the northwest side of the site, a 1,000-gallon steel used-oil UST adjacent to the northeast side of the building, and two dispenser islands on the southwest side of the site. In 1984, the steel gasoline USTs were replaced with three 10,000-gallon, single-walled fiberglass tanks, and the steel used-oil UST was replaced with a 1,000-gallon, single-walled fiberglass tank. The station was again renovated in 1994. As part of the renovation activities, the used-oil UST was removed and replaced with one adjacent to the southwest side of the building; the gasoline USTs were also upgraded and the product lines were replaced. The site was occupied by a Chevron station until 2004 when it was de-branded. The site was then occupied by a United Gasoline service station, and is currently a Valero service station. The property owner is 3530 MacArthur Blvd Gas Station, Inc.

Surrounding land use is mixed commercial and residential. The site is bounded by MacArthur Boulevard to the southwest, a small commercial building and an accompanying residence behind the building to the northwest, a residence to the northeast, and Magee Avenue to the southeast. An open fuel (gasoline and diesel) release case (Scooter Wilson at 3600 MacArthur Boulevard; a former service station and auto repair facility) is present across Magee Avenue to the southeast; this facility is currently vacant and investigation to evaluate the extent of contamination is ongoing. Current and former site facilities and the adjacent facility are shown on Figure 2. Please

note that previously submitted site plans showed an incorrect width of Magee Avenue (too wide); Figure 2 has been updated to show the correct width.

Environmental investigation at the site has been ongoing since 1993. To date, three groundwater monitoring wells (MW-1 through MW-3) have been installed, and nine borings (B-1, B-3 through B-9, and B-11) have been drilled, at the site. Five offsite borings (B-10 and B-12 through B-15) were attempted in 2006, but were not completed due to the presence of numerous underground utilities. Remedial activities performed at the site have consisted of the over-excavation and offsite disposal of impacted soil (approximately 285 cubic yards), and the removal and offsite disposal of approximately 25,000 gallons of impacted groundwater during the 1994 UST upgrade activities. A summary of the environmental work performed at the site to date is presented in Appendix B. The approximate monitoring well, boring, and soil sample locations are presented on Figure 2.

2.0 SITE CHARACTERISTICS

2.1 REGIONAL GEOLOGY AND HYDROGEOLOGY

The site elevation is approximately 210 feet above mean sea level and local topography slopes gently to the southwest toward San Francisco Bay. The site is located on the East Bay Plain as mapped by E.J. Helley and others[1]. Soil in the site vicinity consists of Holocene-age, medium-grained alluvium consisting of unconsolidated, moderately sorted, fine sand, silt, and clayey silt with a few thin beds of coarse sand. These materials are underlain by late Pleistocene-age alluvium consisting of weakly consolidated, slightly weathered, poorly sorted, interbedded clay, silt, sand, and gravel.

The site is located in the East Bay Plain Basin. The basin is an elongated, northwest–trending, flat alluvial plain occupying approximately 115 square miles. The basin is bounded on the west by San Francisco Bay, by San Pablo Bay to the north, by the Hayward fault to the east, and to the south by the boundary of the Alameda County Water District. The bottom of the basin is the contact between the consolidated and unconsolidated sediment, which can occur at maximum depths of 1,000 feet. The Oakland Sub-area consists of a series of alluvial fan deposits. There are no well-defined estuarine muds that act as aquitards for migration[2]. Designated beneficial uses for groundwater in this basin include municipal, industrial, and agricultural uses. However, there is no evidence that groundwater supplies are sufficient for municipal use, primarily due to the low recharge rates. We understand there are no current or planned uses of groundwater in the site vicinity as a drinking water source.

2.2 SITE GEOLOGY AND HYDROGEOLOGY

Soil encountered beneath the site is characterized as alluvial deposits, consisting primarily of interbedded layers of clayey, silty, and sandy soils with varying amounts of clay, silt, sand, and gravel to the maximum depth explored of 45 feet below grade (fbg). Copies of the historical boring logs are presented in Appendix C.

Groundwater was encountered in the borings drilled at the site at depths ranging from approximately 3 to 10 fbg. Depth to groundwater in the site monitoring wells has ranged from approximately 2.5 to 10 feet below top of casing (btoc). The groundwater flow direction has generally been to the south-southeast at gradients ranging from 0.02 to 0.08. A groundwater rose diagram depicting radial gradient vectors is presented on

[1]. 1979, Flatland Deposits of the San Francisco Bay Region, California: U.S. Geological Survey Professional Paper 943
[2] From Department of Water Resources Bulletin 118-2-9.04.

Figure 2. A copy of the first quarter 2009 groundwater monitoring report is presented in Appendix D. Geologic cross-sections presenting soil encountered beneath the site and the historic range of groundwater elevations are presented on Figures 3 and 4. The monitoring well construction details are presented in Table 1.

In Technical Comment No. 1 of the January 28, 2009 letter, ACEH expressed concern that "the existing groundwater monitoring wells appear to have excessively lengthy screened intervals over what appear to be multiple coarse-grained units or water-bearing zones that are separated by fine-grained units". Well MW-1 is screened from 7 to 27 fbg (screen length of 20 feet) and wells MW-2 and MW-3 are screened from 7 to 32 fbg (screen length of 25 feet); copies of the well construction diagrams are included in Appendix C. These wells were installed in 1996 by Touchstone Developments (Touchstone). Well MW-2, located downgradient of the southwest dispenser island, is the impacted well at the site; wells MW-1 and MW-3 are located up- and crossgradient of the source area, respectively, and petroleum hydrocarbons generally have not been detected in these wells throughout the course of monitoring.

While CRA does concur that the well screen intervals are longer than those that are typically installed (10 to 15 feet), in our opinion it is not a significant concern. As shown on Figure 3, well MW-2 (the impacted and therefore most important well) is screened almost entirely in coarse-grained soils with no intermixed fine-grained layers; therefore, this issue does not apply to this well. As shown on Figure 4, the screens for wells MW-1 and MW-3 do appear to intersect more than one coarse-grained layer. However, according to the boring logs only the uppermost layers were characterized as saturated (groundwater was encountered at approximately 4 fbg in all three borings), the moisture content of all deeper soils was characterized as moist. Therefore, the deeper coarse-grained layers may not be actual water-bearing zones. In addition, as mentioned above wells MW-1 and MW-3 are located up- and crossgradient of the source area, respectively, and are not expected to be, nor are they, significantly impacted. Even if the deeper coarse-grained layers are water-bearing zones, based on the hydrogeologic position of the wells in relation to the source area, we would not expect the representativeness of the groundwater data to be significantly affected. Therefore, CRA does not consider the screen intervals of the wells to be a significant concern and additional wells do not appear warranted at this time.

2.3 NEARBY SENSITIVE RECEPTORS

In early 2009, CRA reviewed California Department of Water Resources (DWR) files to evaluate the presence of wells within a ¼-mile radius of the site. Six active wells were

identified within the search radius; however, all of the wells were identified as monitoring wells located approximately 1/8 mile west-southwest (crossgradient) of the site. A figure showing the identified well locations and the well survey results are presented in Appendix E. Although no records were present in the DWR files, three monitoring wells (MW-1 through MW-3) are also present at the Scooter Wilson property across Magee Avenue to the southeast (down- to crossgradient) of the site (Figure 2); these wells are screened from 4 to 14 fbg. Well MW-1 downgradient of the former Scooter Wilson USTs is impacted; petroleum hydrocarbons generally have not been detected in wells MW-2 or MW-3. In 2001, a DWR file review performed by North State Environmental (NSE) as part of the investigation activities at the Scooter Wilson facility also identified a cathodic protection well approximately 400 feet west (crossgradient) of the site in addition to the six wells identified during CRA's review.

The nearest surface water body is Peralta Creek, located approximately 1,000 feet northwest (upgradient) of the site; San Francisco Bay is located approximately 2.5 miles south-southwest (crossgradient) of the site.

Based on the above information, there do not appear to be any water-supply wells or surface water bodies in the site vicinity that likely would be impacted by hydrocarbons from the site.

2.4 PREFERENTIAL PATHWAY EVALUATION

Due to the shallow depth to groundwater at the site, ACEH requested performance of a preferential pathway study to evaluate the presence of potential preferential pathways in the site vicinity that may contribute to the migration of impacted groundwater. To evaluate potential preferential pathways, CRA conducted a utility survey of the site and vicinity. Please note that a utility survey was previously performed for the site vicinity by Pacific Environmental Group, Inc. (PEG) in 1999; the results were presented in PEG's June 28, 1999 *Utility Survey Report*. A copy of the figure included with this report showing the identified utilities is presented in Appendix F. A utility survey was also performed in 1999/2000 by NSE as part of the investigation activities at the Scooter Wilson facility; the results were presented in NSE's August 29, 2000 *Second Quarter 1999 Groundwater Sampling Activities and Underground Utility Site Survey Activities*, and also the December 24, 2004 *Subsurface Investigation Workplan* prepared by Kodiak Consulting, LLC (Kodiak). To complete their survey, NSE obtained utility maps from the City of Oakland Public Works Department (COPWD), East Bay Municipal Utilities District (EBMUD), and Pacific Gas & Electric (PG&E); and performed a site reconnaissance. In

addition to conducting an updated utility survey, CRA used and relied on information obtained during these investigations.

To perform the updated survey, CRA contacted Underground Service Alert (USA) to have public utility companies mark in the field the locations of utilities at the site and in the site vicinity. CRA also obtained and reviewed a sanitary sewer and storm drain map from the City of Oakland (City), and conducted a field reconnaissance of the site and vicinity. The results of CRA's and the previous utility surveys are discussed below. The approximate locations of the identified utilities are shown on Figure 2. Copies of the City sewer and storm drain map and select figures that were included in the NSE and Kodiak reports showing utility locations and associated cross-sections are included in Appendix F.

Based on information provided by PG&E, a 12,000-volt primary electric line is located beneath the sidewalk approximately 3 feet southwest of the southwest property line, paralleling MacArthur Boulevard. PG&E was unable to provide information on the line depth or trench backfill material. However, as described in Appendix B, in 1993 soil samples (TR-1 through TR-3) were collected from a trench dug to approximately 4 fbg by PG&E in this area (Figure 2). An electric line also appears present beneath the sidewalk adjacent to the southeast of the site; and service to the site building runs underground from this line. Based on recent markings by PG&E, a gas line is also present beneath the sidewalk adjacent to the southwest of the site. A PG&E gas utility map obtained by NSE identified this line as 1.25-inch diameter plastic pipe within 2-inch diameter steel pipe at a likely depth of 1.5 to 2 fbg; however, it was shown beneath MacArthur Boulevard rather than the sidewalk. Therefore, it is unknown if these are the same gas line or two separate lines exist; however, based on recent markings by PG&E only one line exists. A telephone line (SBC) also appears present beneath the sidewalk; the depth of this trench is unknown, however, we would expect it to be relatively shallow.

Numerous utility lines are present beneath MacArthur Boulevard to the south-southeast of the site. These utilities include a 10-inch diameter, cast iron water main (approximate depth of 3 to 4 fbg according to EBMUD); an 8-inch diameter sanitary sewer line located beneath the centerline of MacArthur Boulevard (approximate depth of 6 fbg based on the mapped flow-line elevations); an additional gas line (4-inch diameter plastic pipe inside 6-inch diameter cast iron pipe; likely depth of 1.5 to 2 fbg); a 6½-foot-wide trench for cable lines (depth unknown); and an additional 4-inch diameter water line (depth unknown). Further to the southeast of the site, a 10-inch diameter storm drain line (approximate depth of 6 to 7 fbg) is also present beneath MacArthur Boulevard. The storm drain catch basin is located approximately 10 feet southwest of the southern

corner of the site. Information regarding the backfill material of these utility trenches is unavailable. However, it was noted in the NSE report that City sewer line excavations were generally backfilled with a sand/cement slurry surrounding the piping overlain by compacted utility sand bedding, aggregate baserock, and asphaltic concrete.

Several utility lines are also present beneath Magee Avenue to the southeast of the site. These utilities include an electric line (depth unknown); a 12-inch diameter storm drain line (approximate depth of 6 to 7 fbg); an additional gas line (likely depth of 1.5 to 2 fbg); an 8-inch sanitary sewer line (approximate depth of 6 fbg); and a 4-inch water line (approximate depth of 3 to 4 fbg according to EBMUD). Again, information regarding the backfill material of these utility trenches is unavailable.

Based on the results of the utility survey, there appear to be several utility lines in the site vicinity that may potentially act as preferential pathways if impacted groundwater has migrated offsite. In particular, the deeper utility trenches (sanitary sewer and storm drain) beneath Magee Avenue and MacArthur Boulevard. However, as mentioned above, information regarding the trench backfill material is not available.

3.0 SITE SOIL AND GROUNDWATER QUALITY

3.1 SOIL QUALITY

Since 1993, a total of 63 soil samples have been collected for chemical analysis from the utility trench excavation in the sidewalk of MacArthur Boulevard, three well borings, nine exploratory borings, the used-oil UST excavation, and the product piping over-excavation to evaluate the extent of hydrocarbons in soil. Total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected in the majority of the soil samples. Low concentrations of TPHg (up to 9.5 milligrams per kilogram [mg/kg]) and BTEX (up to 1.5 mg/kg) were detected in the three soil samples collected from the utility trench excavation and a few of the samples collected from the well and exploratory borings. A relatively low concentration of TPHg (400 mg/kg) was detected in the soil sample collected at 5.5 fbg from boring MW-3; however, benzene was not detected and the sample collected at 9.5 fbg from this boring did not contain TPHg or BTEX. Low to relatively low concentrations of TPHg (up to 540 mg/kg) and BTEX (up to 29 mg/kg) were detected in several of the final product line over-excavation confirmation samples. An elevated concentration of TPHg (1,300 mg/kg) was detected in confirmation sample PX-8 collected at 5 fbg; BTEX were also detected in this sample at 6 mg/kg, 38 mg/kg, 33 mg/kg, and 170 mg/kg, respectively. Please note that in Technical Comment No. 4 of the January 28, 2009 letter, ACEH mistakenly identified this sample as PX-7. Over-excavation of impacted soil in this area was limited due to the presence of the canopy footings.

Low concentrations of methyl tertiary butyl ether (MTBE) (up to 0.13 mg/kg) were detected in several of the soil samples collected from borings B-3 through B-9 in 2003. Other fuel oxygenates, 1,2-Dichloroethane (1,2-DCA), 1,2-Dibromoethane (EDB), and ethanol generally were not detected in any of the soil samples analyzed. Low concentrations of methanol (up to 0.33 mg/kg) were detected in several of the soil samples collected from upgradient boring B-11 in 2006; based on the location of this boring and the lack of other hydrocarbons in these samples, the detections likely are due to laboratory contamination.

TPHg, BTEX, TPH as diesel (TPHd), total oil and grease (TOG), halogenated volatile organic compounds (HVOCs), and semi-VOCs were not detected in the two soil samples collected at 6 fbg beneath the former used-oil UST; and the detected metals concentrations were consistent with background levels. Therefore, the former used-oil UST does not appear to have impacted soil at the site.

Based on the analytical results, the residual impacted soil beneath the site (primarily TPHg) is generally limited to the area of the dispenser islands. However, the samples in this area were collected in 1994 and concentrations likely have decreased since that time due to natural attenuation processes. As only low concentrations of hydrocarbons generally were detected in the soil samples collected from the borings away from the dispenser island area, including borings B-4, B-5, and MW-2 just downgradient of the two dispenser islands, the lateral extent of impacted soil appears to have been adequately defined. However, it appears further investigation to evaluate the vertical extent of impacted soil in the area of previous sample PX-8 is warranted. The approximate boring and soil sample locations are presented on Figure 2. The historical soil sample analytical results are presented in Table 2; the TPHg, benzene, and MTBE analytical results are also presented on Figure 5.

3.2 GROUNDWATER QUALITY

Groundwater beneath the site has been monitored and sampled since 1996 in wells MW-1 through MW-3. The groundwater samples have been analyzed for TPHg, BTEX, and MTBE; in 2003 and 2004 the samples were additionally analyzed for ethanol, which was not detected. TPHg and BTEX generally have not been detected in any of the wells throughout the course of monitoring. MTBE generally has not been detected in wells MW-1 or MW-3, with the exception of low concentrations (up to 2 micrograms per liter [µg/L]) in well MW-3 during the past several quarters. Elevated concentrations of MTBE have consistently been detected in well MW-2 located downgradient of the southwestern dispenser island; however, although fluctuations occur, concentrations have significantly decreased and a declining trend is evident indicating that any residual impacted soil is not acting as a continuing source of hydrocarbons to groundwater. During the most recent event (first quarter 2009), TPHg and BTEX were not detected in any of the wells; and MTBE was only detected in wells MW-2 (970 µg/L) and MW-3 (0.5 µg/L). A copy of the first quarter 2009 groundwater monitoring report is presented in Appendix D. A graph of the detected MTBE concentrations in well MW-2 over time is presented in Appendix G.

Elevated concentrations of TPHg (2,500 µg/L) and benzene (390 µg/L) were detected in the water sample collected in 1993 from the trench excavated by PG&E adjacent to the southern corner of the site. However, these results are suspect as benzene generally has not been detected in groundwater at the site, including nearby well MW-2 and borings B-4 and B-7. In addition, in the January 27, 1993 letter report that documented this sampling, Touchstone stated that it was unknown whether the water in the trench (observed at approximately 3 fbg) was groundwater or surface runoff from the station;

indicating it may have been raining at the time of the work. Based on this information, the detections may have been due, at least partially, to surface water runoff into the trench or the migration of impacted groundwater in utility trenches within the sidewalk from an offsite source. Therefore, we do not consider these results to be fully representative of site groundwater quality.

TPHg and BTEX generally were not detected in the groundwater samples collected from borings B-1 and B-3 through B-9 in 2003. A low concentration of TPHg (98 µg/L) was detected in the sample collected from boring B-7. An elevated concentration of TPHg (5,200 µg/L) was detected in the sample collected from boring B-8. Benzene was only detected in the sample collected from boring B-8 (3 µg/L). Low concentrations of MTBE (up to 50 µg/L) were detected in the samples collected from borings B-1, B-3, B-5, B-6, and B-9. Higher concentrations of MTBE were detected in the groundwater samples collected from borings B-4 (420 µg/L), B-7 (460 µg/L), and B-8 (980 µg/L). Low concentrations of the fuel oxygenates tertiary amyl methyl ether (TAME) (up to 15 µg/L) and tertiary butyl alcohol (TBA) (up to 41 µg/L) were also detected in several of the groundwater samples. Other fuel oxygenates, 1,2-DCA, EDB, and ethanol were not detected in any of the samples.

TPHg, BTEX, TPHd, TOG, HVOCs (except for chloroethane at 0.6 µg/L), and semi-VOCs were not detected in the groundwater sample collected from the used-oil UST excavation; and only low concentrations of metals were detected. Therefore, the former used-oil UST does not appear to have significantly impacted groundwater quality at the site.

Based on the analytical results, impacted groundwater (primarily MTBE) is present beneath the site. The extent of the impacted groundwater appears limited to the southeastern and southern portions of the site. The groundwater with higher concentrations of MTBE is present in the southern portion of the site in the area of well MW-2, and borings B-4 and B-7 downgradient of the dispenser islands. Groundwater with elevated concentrations of TPHg and MTBE is also present in the area of boring B-8. However, the source of the impact in this area is unknown as only low concentrations of MTBE were detected in nearby and upgradient borings B-3, B-5, B-6, and B-9; and TPHg was not detected. The historical grab-groundwater sample analytical results are presented in Table 3.

In Technical Comment No. 1 of the January 28, 2009 letter, ACEH expressed concern that as the quarterly depth to water measurements often indicated that the groundwater level was above the top of the well screen, "concentrations of contaminants detected may not be representative of actual site conditions"; in particular impacted well MW-2.

Based on previous correspondence, this has historically been a concern at the site by ACEH. Therefore, during the July 2003 investigation boring B-4 was drilled adjacent to well MW-2 to compare the groundwater results and evaluate if the samples collected from the wells were indeed representative of groundwater conditions. Boring B-4 was drilled on July 30, 2003 and groundwater was encountered at approximately 3 fbg. As described above, TPHg and BTEX were not detected in the grab-groundwater sample collected from boring B-4, and MTBE was detected at 420 µg/L. Well MW-2 was subsequently monitored and sampled on August 4, 2003 (5 days later) and the depth to water in the well was measured at 3.86 feet btoc. TPHg and BTEX were not detected in the corresponding groundwater sample collected from well MW-2, and MTBE was detected at 460 µg/L (see Appendix D). Therefore, the groundwater depth measurements and the analytical results in well MW-2 and boring B-4 were highly similar. Based on these results, the groundwater samples collected from the wells appear to be representative of site conditions, and the depth to water measurements above the top of the screen do not appear to be significant with regards to data quality. As described above, hydrocarbons generally have not been detected in wells MW-1 or MW-3; as these wells are located cross- or upgradient of the source area, they would not be expected to be significantly impacted. Therefore, the depth to water also does not appear to be significant with regards to these wells, and additional wells do not appear warranted at this time.

4.0 DATA GAP EVALUATION

ACEH stated in Technical Comment No. 4 of the January 28, 2009 letter that "the vertical and lateral extent of the source area appears undefined". As described in Section 3.1, the lateral extent of impacted soil appears to have been adequately defined. However, CRA concurs that the vertical extent of impacted soil in the area of previous sample PX-8 (mistakenly identified by ACEH as PX-7) has not been adequately defined. Therefore, this constitutes a data gap that warrants additional investigation.

ACEH stated in Technical Comment No. 3 of the January 28, 2009 letter, "the extent of soil and groundwater contamination appears undefined and the most recent investigation failed to address the data gap". No offsite groundwater samples have been collected to date, and thus CRA concurs that the lateral extent of impacted groundwater has not been adequately evaluated. Therefore, this constitutes a data gap that warrants additional investigation.

As described in Section 2.4, there are several utility lines in the site vicinity that may act as preferential pathways if impacted groundwater has migrated offsite. Therefore, this constitutes a data gap that may warrant additional investigation. However, as outlined in Kodiak's December 24, 2004 *Subsurface Investigation Workplan* for the Scooter Wilson facility, the drilling of five borings into the backfill material of several utility trenches at the facility and beneath MacArthur Boulevard and Magee Avenue was proposed to evaluate if impacted groundwater may be migrating in these trenches. Copies of Kodiak's proposed boring location maps are included in Appendix F. Based on correspondence dated April 2008 between Kodiak and ACEH present on the ACEH ftp website, it appears this work was performed by Kodiak and submission of an investigation report is forthcoming. Prior to proposing any work to further evaluate potential preferential pathways for the site, CRA would like the opportunity to review the results of the Scooter Wilson investigation as it may affect conclusions regarding the subject site. Therefore, additional investigation pertaining to this possible data gap is not proposed at this time.

CRA also evaluated potential vapor intrusion concerns to site workers and offsite receptors as a possible data gap. With regards to potential vapor intrusion concerns for offsite receptors at the adjacent commercial/residential and residential properties to the northwest and northeast of the site, respectively, these properties are located in the up-and crossgradient direction of the source area and the groundwater flow direction has consistently been to the south-southeast. The lateral extent of onsite impact has been well-characterized and is limited to the southern portion of the site. Significant impacts have not been detected in samples collected in the vicinity of these properties (well

MW-1, boring B-11, and the former used-oil UST excavation). Therefore, potential vapor intrusion does not appear to be a significant concern for offsite receptors at the adjacent properties, and no additional investigation appears warranted.

With regards to potential vapor intrusion concerns for site workers, the station building is located in the crossgradient direction of the southwestern dispenser island (source area). As mentioned above, the lateral extent of onsite impact has been well-characterized and is limited to the southern portion of the site. Only low concentrations of MTBE (up to 10 µg/L) were detected in the groundwater samples collected from nearby borings B-3 and B-6; and no hydrocarbons were detected in the groundwater sample collected from the former used-oil UST excavation. Well MW-3 also only contains low concentrations of MTBE. Benzene, the primary risk driver with regards to vapor intrusion, was not detected. Therefore, groundwater beneath the station building does not appear to be significantly impacted. In addition, the MTBE concentrations detected in the vicinity of the station building are well below the groundwater environmental screening level (ESL) associated with potential vapor intrusion concerns at commercial/industrial sites of 80,000 µg/L; established by the San Francisco Bay Regional Water Quality Control Board (RWQCB) in May 2008 (Table E-1). Therefore, potential vapor intrusion does not appear to be a significant concern for site workers, and no additional investigation appears warranted.

5.0 PROPOSED ADDITIONAL INVESTIGATION

To further evaluate the vertical extent of impacted soil in the area of previous sample PX-8, CRA proposes to drill one boring in this area. To evaluate offsite soil and groundwater quality, CRA proposes to complete the four previously proposed borings (B-12 through B-15) within MacArthur Boulevard. Please note that an additional boring (B-10) was previously proposed on the southeast side of Magee Avenue. However, a boring was proposed (and reportedly completed) in this area (approximately 10 to 15 feet away) by Kodiak as part of the most recent investigation at the Scooter Wilson facility (see Appendix F). Therefore, data reportedly has already been obtained in this area, and the completion of proposed boring B-10 no longer appears warranted.

The proposed boring locations are shown on Figure 2. Details of the proposed investigation are presented in the following sections.

5.1 PRE-FIELD ACTIVITIES

Permits and Access Agreements: CRA will obtain all necessary permits and access agreements for the proposed borings prior to beginning field operations. A minimum of 72 hours written notification will be given to ACEH before initiation of drilling activities.

***Site Health and Safety Plan*:** CRA will prepare a site-specific health and safety plan (HASP) to inform site workers of known hazards and to provide health and safety guidance. The plan will be reviewed and signed by all site workers and visitors and will be kept onsite during field activities.

***Underground Utility Location*:** At least 48 hours prior to the start of drilling activities, CRA will notify USA to clear the proposed boring locations with local public utility companies. A private utility locator will also be retained to additionally clear the boring locations of utility lines prior to drilling.

5.2 SOIL AND GROUNDWATER QUALITY EVALUATION

To evaluate offsite soil and groundwater quality, the four previously proposed borings in MacArthur Boulevard will be completed. To evaluate the vertical extent of impacted soil in the area of previous sample PX-8, one boring will be drilled in this area.

***Drilling*:** The upper 8 feet of each boring will be cleared for utilities using an air-knife or a hand auger in accordance with Chevron and CRA safety protocols. Below approximately 8 fbg, the borings will be advanced using a truck-mounted drill rig with direct-push equipment to approximately 15 to 20 fbg. If utility lines are in close proximity to the boring locations, the borings may be completed using a hand auger. The final locations and depths of the borings will be based on field conditions.

***Soil Sampling and Laboratory Analysis*:** Soil samples will be continuously collected the entire length of each boring for logging and observation purposes. The soil encountered in the borings will be logged in accordance with the modified Unified Soil Classification System (USCS). Soil samples from each boring will be screened in the field for volatile organic vapors using a photo-ionization detector (PID). Samples that return PID readings of 100 parts per million by volume (ppmv) or greater, or those in which evidence of contamination is observed, may be retained for laboratory analysis. In the boring drilled in the area of previous sample PX-8, CRA anticipates collecting soil samples for analysis at 5-foot intervals starting at 5 fbg. Soil samples retained for laboratory analysis will be collected in acetate, brass, or stainless steel liners, capped using Teflon tape and plastic end caps, labeled, placed in an ice-chilled cooler, and transported under chain of custody to Lancaster Laboratories, Inc. (Lancaster) in Lancaster, Pennsylvania, for analysis. CRA's standard field procedures for direct-push borings are presented in Appendix H. The soil samples will be analyzed for the following constituents:

- TPHg by EPA Method 8015B; and
- BTEX and the five fuel oxygenates (MTBE, di-isopropyl ether [DIPE], ethyl tertiary butyl ether [ETBE], TAME, and TBA) by EPA Method 8260B.

Groundwater Sampling and Laboratory Analysis: If encountered, grab-groundwater samples will be collected from each boring and analyzed for the same constituents as the soil samples. However, the groundwater samples collected from the four borings in MacArthur Boulevard will additionally analyzed for TPH as diesel (TPHd) to evaluate potential contributions from the Scooter Wilson facility.

5.3 SOIL AND WATER DISPOSAL

Soil cuttings and decontamination rinsate generated during field activities will be temporarily stored onsite in 55-gallon steel drums and sampled for disposal purposes.

Once profiled, the drums will be transported to a Chevron-approved facility for disposal.

5.4 REPORTING

Following receipt of the analytical results, CRA will prepare a subsurface investigation report presenting the results of the investigation and summarizing our conclusions and recommendations. The report will include a description of field activities, a figure illustrating the boring locations, boring logs, tabulated soil and groundwater analytical results, and copies of the analytical reports and chain-of-custody forms. Any information from the Kodiak report pertinent to the development of the SCM for the site will also be included in the report, if available at the time the report is prepared. Our conclusions and recommendations will be based on readily available information, observations of existing site conditions, and our interpretation of the analytical data.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Preparation of a SCM to establish site conditions and evaluate if any data gaps exist was recommended by ACEH in a letter dated January 28, 2009. This report presents a SCM for the site, an evaluation of potential data gaps, and CRA's proposed additional investigation to evaluate the identified remaining data gaps, if warranted at this time. The letter also contained several technical comments (Nos. 1-5) that were addressed in this report. The following is a brief summary of the information presented/conclusions reached regarding each of the technical comments in the January 28, 2009 letter:

***Technical Comment No. 1-Monitoring Well Construction and Hydrogeologic Setting*:** ACEH expressed concern that "the existing groundwater monitoring wells appear to have excessively lengthy screened intervals over what appear to be multiple coarse-grained units or water-bearing zones that are separated by fine-grained units". ACEH also expressed concern that as the quarterly depth to water measurements often indicated that the groundwater level was above the top of the well screen, "concentrations of contaminants detected may not be representative of actual site conditions". Based on groundwater sample analytical results and site conditions, CRA does not consider the screen intervals of the wells and the corresponding depth to water above the top of the screens to be a significant concern and additional wells do not appear warranted at this time.

Technical Comment No. 2-Preferential Pathway Study: Due to the shallow depth to groundwater at the site, ACEH requested performance of a preferential pathway study to evaluate the presence of potential preferential pathways in the site vicinity that may contribute to the migration of impacted groundwater. Based on the results of the utility survey, there appear to be several utility lines in the site vicinity that may potentially act as preferential pathways if impacted groundwater has migrated offsite. Therefore, this constitutes a data gap that may warrant additional investigation. However, prior to proposing any further work, CRA would like the opportunity to review the results of the Scooter Wilson investigation as it may affect conclusions regarding the subject site. This investigation reportedly included borings into nearby utility trench backfill material. Therefore, additional investigation pertaining to this possible data gap is not proposed at this time. The well survey did not identify any water-supply wells in the site vicinity that likely would be impacted by hydrocarbons from the site.

Technical Comment No. 3-Soil and Groundwater Characterization: ACEH stated that "the extent of soil and groundwater contamination appears undefined and the most recent investigation failed to address the data gap". The lateral extent of impacted soil appears to have been adequately evaluated. However, no offsite groundwater samples

have been collected to date, and thus CRA concurs that the lateral extent of impacted groundwater has not been adequately evaluated and this constitutes a data gap that warrants additional investigation. To evaluate offsite soil and groundwater quality, CRA proposes to complete the four previously proposed borings (B-12 through B-15) in MacArthur Boulevard that were not completed due to underground utility constraints.

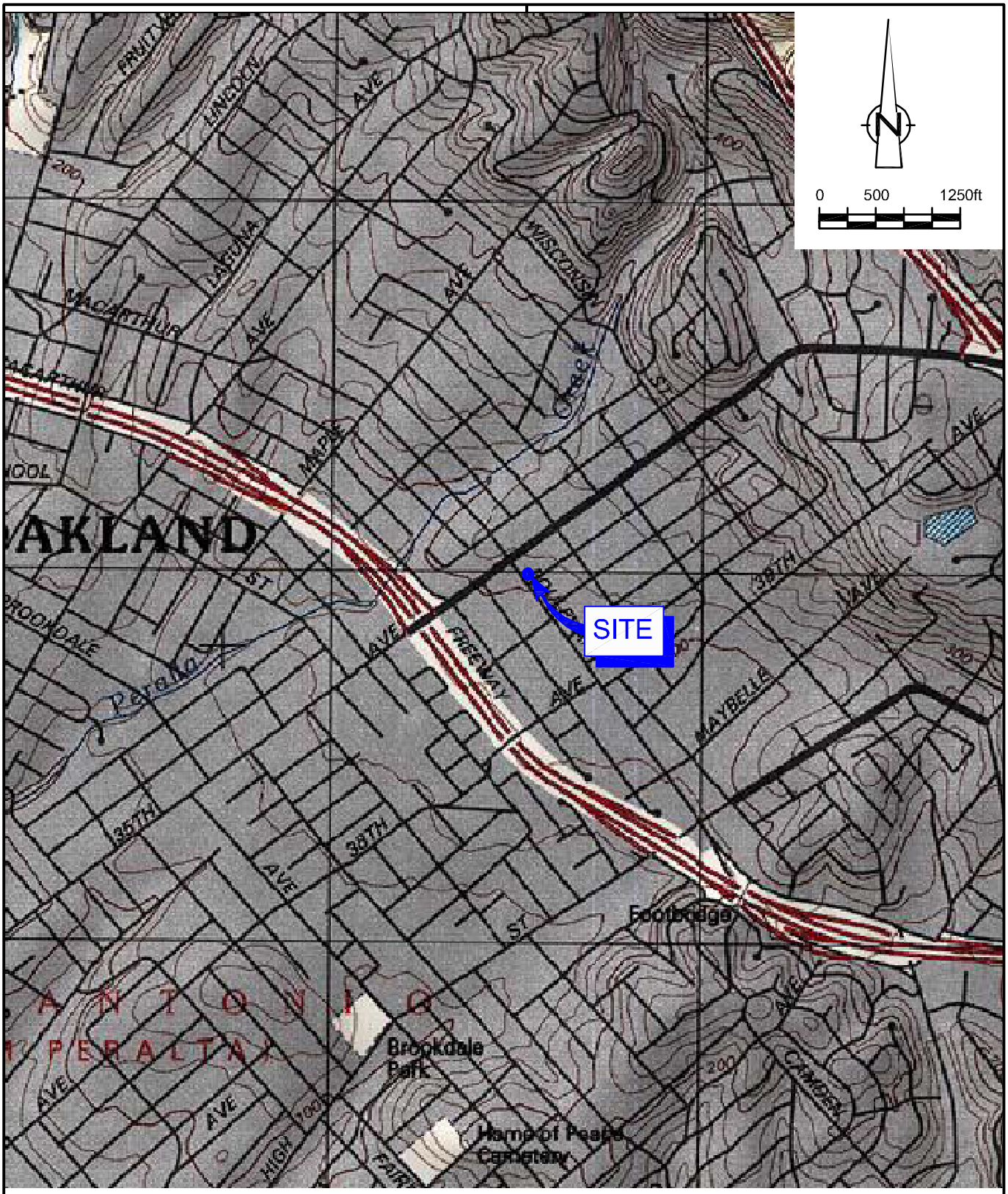
Technical Comment No. 4-Contaminant Source Area Characterization: ACEH stated that "the vertical and lateral extent of the source area appears undefined". As mentioned above, the lateral extent of impacted soil appears to have been adequately defined. However, CRA concurs that the vertical extent of impacted soil in the area of previous sample PX-8 (mistakenly identified by ACEH as PX-7) has not been adequately defined. Therefore, this constitutes a data gap that warrants additional investigation. To further evaluate the vertical extent of impacted soil in the area of previous sample PX-8, CRA proposes to drill one boring in this area.

Technical Comment No. 5-Site Conceptual Model: The SCM identified the above-mentioned data gaps and additional investigation was proposed to address the data gaps, where warranted at this time. CRA also evaluated potential vapor intrusion concerns to site workers and offsite receptors as a possible data gap. Based on analytical results and site conditions, potential vapor intrusion does not appear to be a significant concern for offsite receptors or site workers, and additional investigation does not appear warranted.

7.0 CLOSING AND SCHEDULE

CRA will perform this investigation upon receiving written approval from ACEH, or 60 days following submittal of this document. We will submit our investigation report approximately six weeks after completion of field activities.

FIGURES



SOURCE: TOPO! MAPS.

figure 1

VICINITY MAP
CHEVRON SERVICE STATION 9-8341
3530 MACARTHUR BOULEVARD
Oakland, California

611650-204(003)GN-WA005 APR 21/2009

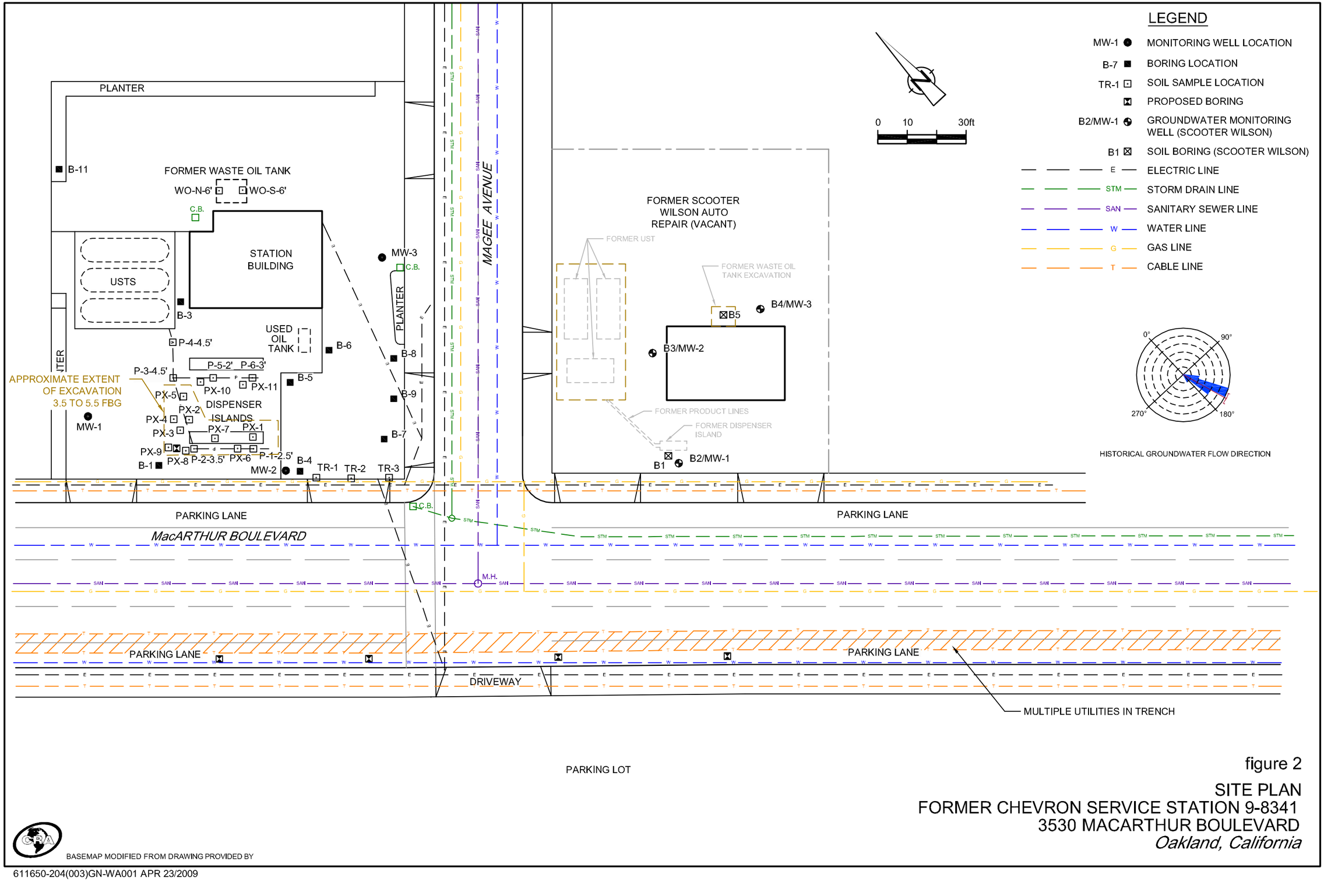
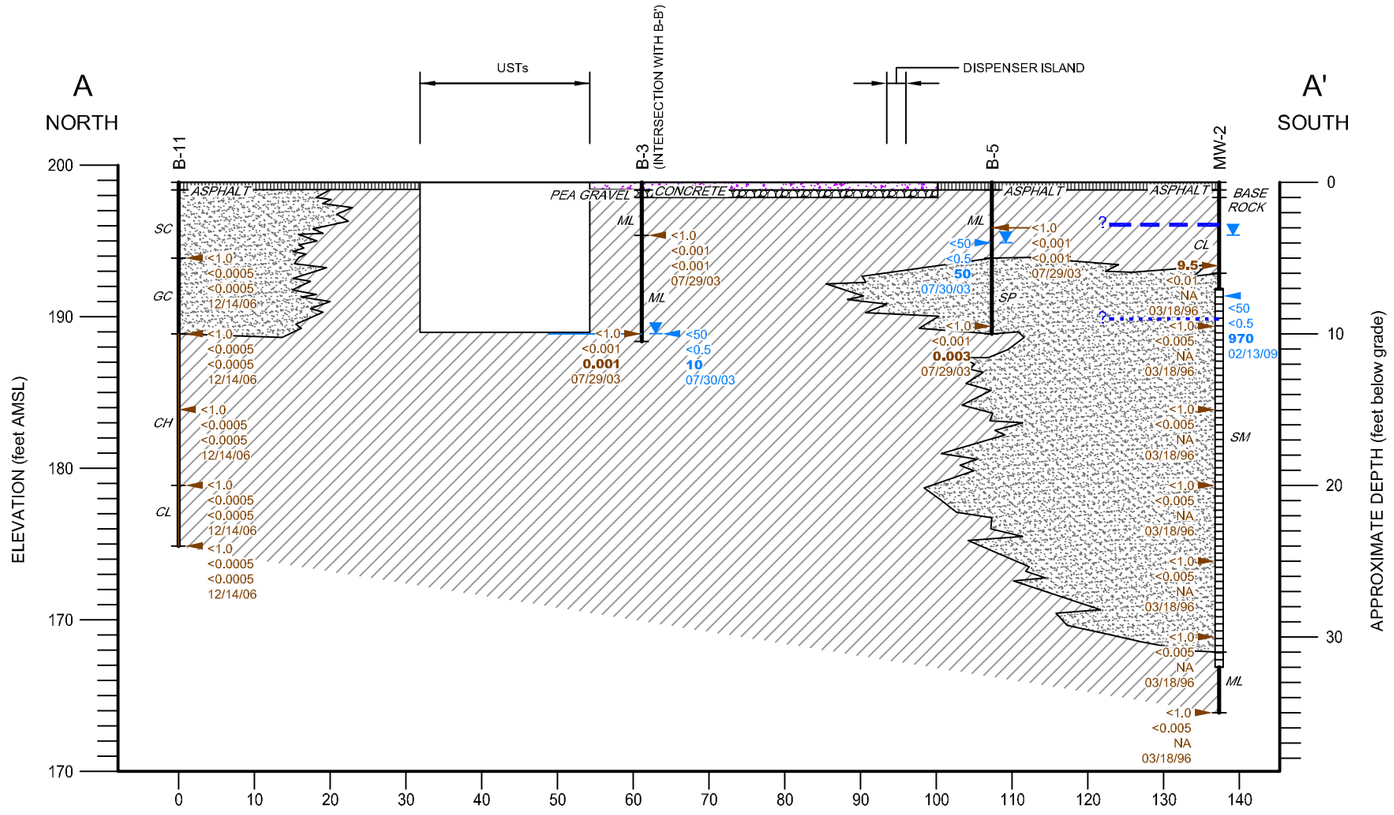


figure 2

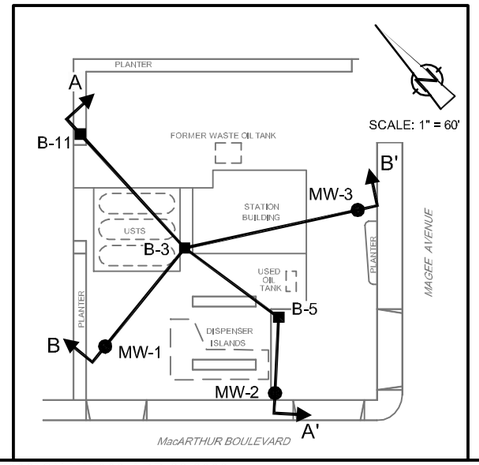
SITE PLAN
FORMER CHEVRON SERVICE STATION 9-8341
3530 MACARTHUR BOULEVARD
Oakland, California

BASEMAP MODIFIED FROM DRAWING PROVIDED BY

611650-204(003)GN-WA001 APR 23/2009



SCALE: HORZ. 1" = 20'
VERT. 1" = 10'



LEGEND

- MW-2 — WELL / BORING DESIGNATION
- GROUND SURFACE
- WELL INSTALLATION
- STRATIGRAPHIC BOUNDARY
- CL — TYPICAL SOIL CLASSIFICATION
- SCREENED INTERVAL
- BOTTOM OF BORING
- APPROXIMATE SOIL SAMPLE LOCATION
- TPHg / BENZENE / MTBE / DATE — HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)
- APPROXIMATE GROUNDWATER SAMPLE LOCATION
- TPHg / BENZENE / MTBE / DATE — HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)
- GROUNDWATER DEPTH

- < — NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT
- NA — NOT ANALYZED
- LOWEST GROUNDWATER ELEVATION (MSL)
- HIGHEST GROUNDWATER ELEVATION (MSL)
- *ASPHALT*
- *CONCRETE*
- *PEA GRAVEL*
- FINE-GRAINED SOILS
  - *CH / CL* - CLAY
  - *ML* - SILT
- COARSE-GRAINED SOILS
  - *SC* - CLAYEY SAND
  - *SM* - SILTY SAND
  - *SP* - GRAVELLY SAND
  - *GC* - CLAYEY GRAVEL

figure 3

CROSS SECTION A-A'
FORMER CHEVRON SERVICE STATION 9-8341
3530 MACARTHUR BOULEVARD
Oakland, California

LEGEND

MW-1 — WELL / BORING DESIGNATION

GROUND SURFACE

WELL INSTALLATION

STRATIGRAPHIC BOUNDARY

CL — TYPICAL SOIL CLASSIFICATION

SCREENED INTERVAL

BOTTOM OF BORING

APPROXIMATE SOIL SAMPLE LOCATION

TPHg
BENZENE
MTBE
DATE
HYDROCARBON CONCENTRATIONS IN SOIL (mg/kg)

APPROXIMATE GROUNDWATER SAMPLE LOCATION

TPHg
BENZENE
MTBE
DATE
HYDROCARBON CONCENTRATIONS IN GROUNDWATER (µg/L)

GROUNDWATER DEPTH

< NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMIT

NA NOT ANALYZED

LOWEST GROUNDWATER ELEVATION (MSL)

HIGHEST GROUNDWATER ELEVATION (MSL)

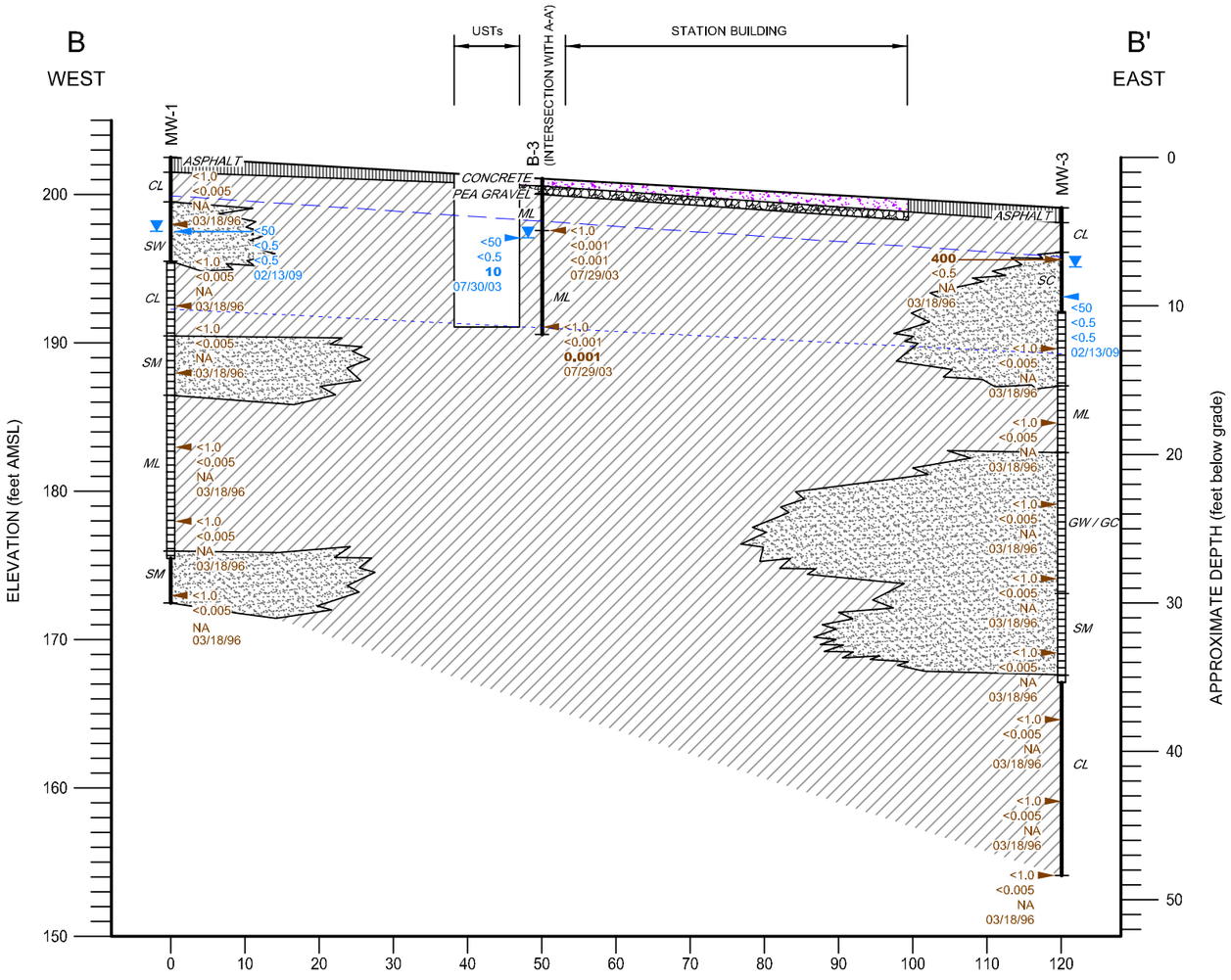
ASPHALT

CONCRETE

PEA GRAVEL

FINE-GRAINED SOILS
CH / CL - CLAY
ML - SILT

COARSE-GRAINED SOILS
SC - CLAYEY SAND
SM - SILTY SAND
SW - WELL GRADED SAND
GW / GC - GRAVEL WITH CLAY AND SAND



SCALE: HORZ. 1" = 20'
VERT. 1" = 10'

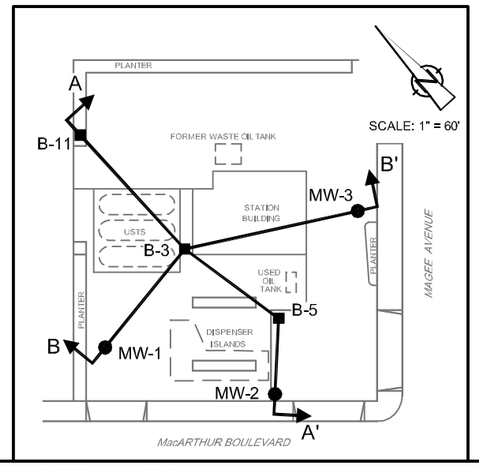
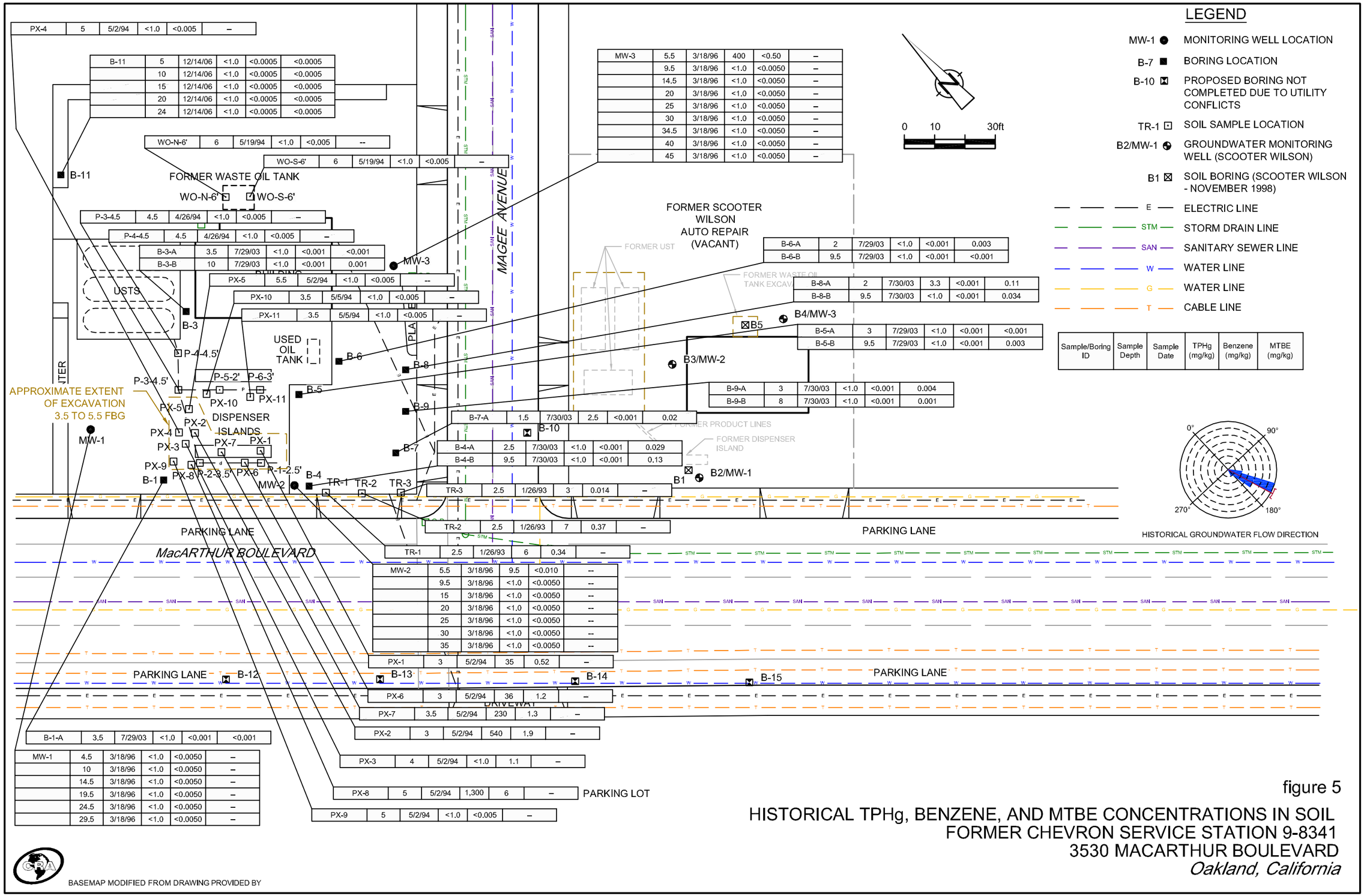


figure 4

CROSS SECTION B-B'
FORMER CHEVRON SERVICE STATION 9-8341
3530 MACARTHUR BOULEVARD
Oakland, California



PX-4	5	5/2/94	<1.0	<0.005	–

B-11	5	12/14/06	<1.0	<0.0005	<0.0005
	10	12/14/06	<1.0	<0.0005	<0.0005
	15	12/14/06	<1.0	<0.0005	<0.0005
	20	12/14/06	<1.0	<0.0005	<0.0005
	24	12/14/06	<1.0	<0.0005	<0.0005

WO-N-6'	6	5/19/94	<1.0	<0.005	--
WO-S-6'	6	5/19/94	<1.0	<0.005	–

P-3-4.5	4.5	4/26/94	<1.0	<0.005	–
P-4-4.5	4.5	4/26/94	<1.0	<0.005	–

B-3-A	3.5	7/29/03	<1.0	<0.001	<0.001
B-3-B	10	7/29/03	<1.0	<0.001	0.001

PX-5	5.5	5/2/94	<1.0	<0.005	--
PX-10	3.5	5/5/94	<1.0	<0.005	–
PX-11	3.5	5/5/94	<1.0	<0.005	–

MW-3	5.5	3/18/96	400	<0.50	–
	9.5	3/18/96	<1.0	<0.0050	–
	14.5	3/18/96	<1.0	<0.0050	–
	20	3/18/96	<1.0	<0.0050	–
	25	3/18/96	<1.0	<0.0050	–
	30	3/18/96	<1.0	<0.0050	–
	34.5	3/18/96	<1.0	<0.0050	–
	40	3/18/96	<1.0	<0.0050	–
	45	3/18/96	<1.0	<0.0050	–

B-6-A	2	7/29/03	<1.0	<0.001	0.003
B-6-B	9.5	7/29/03	<1.0	<0.001	<0.001

B-8-A	2	7/30/03	3.3	<0.001	0.11
B-8-B	9.5	7/30/03	<1.0	<0.001	0.034

B-5-A	3	7/29/03	<1.0	<0.001	<0.001
B-5-B	9.5	7/29/03	<1.0	<0.001	0.003

B-9-A	3	7/30/03	<1.0	<0.001	0.004
B-9-B	8	7/30/03	<1.0	<0.001	0.001

B-7-A	1.5	7/30/03	2.5	<0.001	0.02

B-4-A	2.5	7/30/03	<1.0	<0.001	0.029
B-4-B	9.5	7/30/03	<1.0	<0.001	0.13

TR-3	2.5	1/26/93	3	0.014	–

TR-2	2.5	1/26/93	7	0.37	–

TR-1	2.5	1/26/93	6	0.34	–

MW-2	5.5	3/18/96	9.5	<0.010	--
	9.5	3/18/96	<1.0	<0.0050	--
	15	3/18/96	<1.0	<0.0050	--
	20	3/18/96	<1.0	<0.0050	--
	25	3/18/96	<1.0	<0.0050	--
	30	3/18/96	<1.0	<0.0050	--
	35	3/18/96	<1.0	<0.0050	--

PX-1	3	5/2/94	35	0.52	–

PX-6	3	5/2/94	36	1.2	–

PX-7	3.5	5/2/94	230	1.3	–

PX-2	3	5/2/94	540	1.9	–

PX-3	4	5/2/94	<1.0	1.1	–

PX-8	5	5/2/94	1,300	6	–

PX-9	5	5/2/94	<1.0	<0.005	–

B-1-A	3.5	7/29/03	<1.0	<0.001	<0.001

MW-1	4.5	3/18/96	<1.0	<0.0050	–
	10	3/18/96	<1.0	<0.0050	–
	14.5	3/18/96	<1.0	<0.0050	–
	19.5	3/18/96	<1.0	<0.0050	–
	24.5	3/18/96	<1.0	<0.0050	–
	29.5	3/18/96	<1.0	<0.0050	–

LEGEND

- MW-1 ● MONITORING WELL LOCATION
- B-7 ■ BORING LOCATION
- B-10 ⊠ PROPOSED BORING NOT COMPLETED DUE TO UTILITY CONFLICTS
- TR-1 ⊡ SOIL SAMPLE LOCATION
- B2/MW-1 ⊕ GROUNDWATER MONITORING WELL (SCOOTER WILSON)
- B1 ⊠ SOIL BORING (SCOOTER WILSON - NOVEMBER 1998)
- E — ELECTRIC LINE
- STM — STORM DRAIN LINE
- SAN — SANITARY SEWER LINE
- W — WATER LINE
- G — WATER LINE
- T — CABLE LINE

Sample/Boring ID	Sample Depth	Sample Date	TPHg (mg/kg)	Benzene (mg/kg)	MTBE (mg/kg)

BASEMAP MODIFIED FROM DRAWING PROVIDED BY

figure 5

HISTORICAL TPHg, BENZENE, AND MTBE CONCENTRATIONS IN SOIL
FORMER CHEVRON SERVICE STATION 9-8341
3530 MACARTHUR BOULEVARD
Oakland, California

TABLES

TABLE 1

WELL CONSTRUCTION DETAILS
FORMER CHEVRON STATION 9-8341
3530 MacARTHUR BOULEVARD
OAKLAND, CALIFORNIA

Well ID	*Drill Date*	*Total Depth (fbg)*	*Casing Diameter*	*Screened interval (fbg)*
MW-1	3/18/96	27	2	7-27
MW-2	3/18/96	32	2	7-32
MW-3	3/18/96	32	2	7-32

Abbreviations
fbg = feet below grade

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS
FORMER CHEVRON STATION 9-8341
3530 MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample/Boring ID	*Sample Depth*	*Sample Date*	*TPHg*	*Benzene*	*Toluene*	*Ethylenzene*	*Xylenes*	*MTBE*	*Methanol*	*DIPE*	*ETBE*	*TAME*	*TBA*	*1,2 DCA*	*EDB*	*Ethanol*	*TPHd*	*TOG*	*HVOCs*	*SVOCs*	*Cadmium*	*Chromium*	*Lead*	*Nickel*	*Zinc*
			milligrams per kilogram (mg/kg)																						
Trench Samples																									
TR-1	2.5	1/26/93	**6**	**0.34**	**0.23**	**0.038**	**0.072**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-2	2.5	1/26/93	**7**	**0.37**	**0.078**	**0.62**	**1.5**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TR-3	2.5	1/26/93	**3**	**0.014**	**0.013**	**0.12**	**0.33**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Product Piping Excavation Samples																									
~~P-1-2.5~~	~~2.5~~	~~4/26/94~~	~~**59**~~	~~**0.42**~~	~~**0.15**~~	~~**0.2**~~	~~**0.77**~~	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
~~P-2-3.5~~	~~3.5~~	~~4/26/94~~	~~**1,200**~~	~~**2.2**~~	~~**5.6**~~	~~**3.4**~~	~~**70.9**~~	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	<5.0	--	--
P-3-4.5	4.5	4/26/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
P-4-4.5	4.5	4/26/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
~~P-5-2~~	~~2~~	~~4/26/94~~	~~**14**~~	~~**0.4**~~	~~**0.096**~~	~~**0.086**~~	~~**0.61**~~	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
~~P-6-3~~	~~3~~	~~4/28/94~~	~~**63**~~	~~<0.020~~	~~<0.020~~	~~<0.020~~	~~**0.74**~~	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Product Piping Over-Excavation Samples																									
PX-1	3	5/2/94	**35**	**0.52**	**0.15**	**0.41**	**0.33**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-2	3	5/2/94	**540**	**1.9**	**4.2**	**9.2**	**1.8**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-3	4	5/2/94	<1.0	**1.1**	**0.028**	**0.044**	**0.12**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-4	5	5/2/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-5	5.5	5/2/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-6	3	5/2/94	**36**	**1.2**	**0.15**	**2**	**0.62**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-7	3.5	5/2/94	**230**	**1.3**	**0.92**	**6**	**29**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-8	5	5/2/94	**1,300**	**6**	**38**	**33**	**170**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-9	5	5/2/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-10	3.5	5/5/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PX-11	3.5	5/5/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Used-Oil UST Removal Samples																									
WO-N-6'	6	5/19/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	<10	<50	ND	ND	<0.5	9	<5	5	10
WO-S-6'	6	5/19/94	<1.0	<0.005	<0.005	<0.005	<0.015	--	--	--	--	--	--	--	--	--	<10	<50	ND	ND	<0.5	20	<5	18	30
Monitoring Well Borings																									
MW-1	4.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	19.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	24.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	29.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-2	5.5	3/18/96	**9.5**	<0.010	<0.010	**0.018**	**0.024**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	20	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	25	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	30	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	35	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW-3	5.5	3/18/96	**400**	<0.50	**0.62**	**4.7**	**32**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	14.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 2

SOIL SAMPLE ANALYTICAL RESULTS
FORMER CHEVRON STATION 9-8341
3530 MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample/Boring ID	*Sample Depth*	*Sample Date*	*TPHg*	*Benzene*	*Toluene*	*Ethylenzene*	*Xylenes*	*MTBE*	*Methanol*	*DIPE*	*ETBE*	*TAME*	*TBA*	*1,2 DCA*	*EDB*	*Ethanol*	*TPHd*	*TOG*	*HVOCs*	*SVOCs*	*Cadmium*	*Chromium*	*Lead*	*Nickel*	*Zinc*
			milligrams per kilogram (mg/kg)																						
MW-3	20	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	**0.0069**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	25	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	30	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	34.5	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	40	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	45	3/18/96	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Exploratory Borings																									
B-1-A	3.5	7/29/03	<1.0	<0.001	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-3-A	3.5	7/29/03	<1.0	<0.001	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-3-B	10.0	7/29/03	<1.0	<0.001	<0.001	<0.001	<0.001	**0.001**	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-4-A	2.5	7/30/03	<1.0	<0.001	<0.001	<0.001	<0.001	**0.029**	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-4-B	9.5	7/30/03	<1.0	<0.001	<0.001	<0.001	<0.001	**0.13**	--	<0.001	<0.001	**0.002**	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-5-A	3.0	7/29/03	<1.0	<0.001	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-5-B	9.5	7/29/03	<1.0	<0.001	<0.001	<0.001	<0.001	**0.003**	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-6-A	2.0	7/29/03	<1.0	<0.001	<0.001	<0.001	<0.001	**0.003**	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-6-B	9.5	7/29/03	<1.0	<0.001	<0.001	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-7-A	1.5	7/30/03	**2.5**	<0.001	<0.001	<0.001	<0.001	**0.020**	--	<0.001	<0.001	**0.001**	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-8-A	2.0	7/30/03	**3.3**	<0.001	<0.001	**0.001**	**0.002**	**0.11**	--	<0.001	<0.001	**0.002**	**0.044**	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-8-B	9.5	7/30/03	<1.0	<0.001	<0.001	<0.001	**0.001**	**0.034**	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-9-A	3.0	7/30/03	<1.0	<0.001	<0.001	<0.001	<0.001	**0.004**	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-9-B	8.0	7/30/03	<1.0	<0.001	<0.001	<0.001	<0.001	**0.001**	--	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.20	--	--	--	--	--	--	--	--	--
B-11	5	12/14/06	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	**0.26**	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.099	--	--	--	--	--	--	--	--	--
	10	12/14/06	<1.0	<0.0005	**0.002**	<0.001	<0.001	<0.0005	**0.33**	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.10	--	--	--	--	--	--	--	--	--
	15	12/14/06	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	**0.27**	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.099	--	--	--	--	--	--	--	--	--
	20	12/14/06	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	<0.20	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.099	--	--	--	--	--	--	--	--	--
	24	12/14/06	<1.0	<0.0005	<0.001	<0.001	<0.001	<0.0005	**0.23**	<0.001	<0.001	<0.001	<0.020	<0.001	<0.001	<0.099	--	--	--	--	--	--	--	--	--

Abbreviations/Notes:

Total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd) by EPA Method 8015M
Benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8020 or 8260B
Oxygenates and lead scavengers by EPA Method 8260B
Total oil and grease (TOG) by EPA Method 413.2
Halogenated volatile organic compounds (HVOCs) by EPA Method 8010
Semi-VOCs (SVOCs) by EPA Method 8270
Metals by EPA Method 6010
<x = Not detected at or above stated laboratory reporting limit

ND = Not detected; reporting limits vary
-- = Not analyzed
Note: Crossed out samples were collected from soil that was later over-excavated

TABLE 3

GRAB-GROUNDWATER SAMPLE ANALYTICAL RESULTS
FORMER CHEVRON STATION 9-8341
3530 MACARTHUR BOULEVARD, OAKLAND, CALIFORNIA

Sample ID	*Sample Date*	*TPHg*	*Benzene*	*Toluene*	*Ethylbenzene*	*Xylenes*	*MTBE*	*DIPE*	*ETBE*	*TAME*	*TBA*	*1,2 DCA*	*EDB*	*Ethanol*
		Concentrations reported in micrograms per liter - µg/L												
Trench Sample														
TR-4	1/26/93	**2,500**	**390**	**80**	**140**	**300**	--	--	--	--	--	--	--	--
Used-Oil UST Excavation														
WO-H_2O*	5/24/94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--	--	--	--	--
Exploratory Borings														
B-1	7/29/03	<50	<0.5	<0.5	<0.5	<0.5	**25**	<0.5	<0.5	**0.6**	<5.0	<0.5	<0.5	<50
B-3	7/30/03	<50	<0.5	<0.5	<0.5	<0.5	**10**	<0.5	<0.5	<0.5	**8.0**	<0.5	<0.5	<50
B-4	7/30/03	<50	<0.5	<0.5	<0.5	<0.5	**420**	<0.5	<0.5	**9**	**28**	<0.5	<0.5	<50
B-5	7/29/03	<50	<0.5	**4**	**0.6**	**8**	**50**	<0.5	<0.5	**11**	<5.0	<0.5	<0.5	<50
B-6	7/29/03	<50	<0.5	<0.5	<0.5	<0.5	**2**	<0.5	<0.5	<0.5	<5.0	<0.5	<0.5	<50
B-7	7/30/03	**98**	<0.5	<0.5	<0.5	<0.5	**460**	<0.5	<0.5	**8**	**41**	<0.5	<0.5	<50
B-8	7/30/03	**5,200**	**3**	**3**	**160**	**450**	**980**	<0.5	<0.5	**15**	<5.0	<0.5	<0.5	<50
B-9	7/30/03	<50	<0.5	<0.5	<0.5	<0.5	**10**	<0.5	<0.5	**0.6**	<5.0	<0.5	<0.5	<50

Abbreviations/Notes:

Total petroleum hydrocarbons as gasoline (TPHg) by EPA Method 8015M
Benzene, toluene, ethylbenzene and xylenes (BTEX) by EPA Method 8020 or 8260B
Oxygenates and lead scavengers by EPA Method 8260B
-- = Not analyzed
<x = Not detected at or above stated laboratory reporting limit
* Sample also analyzed for TOG (<5,000 µg/L), TPHd (<50 µg/L), semi-VOCs (ND), HVOCs (ND except for chloroethane at 0.6 µg/L), and metals (Cd <5 µg/L, Cr 20 µg/L, Pb 7 µg/L, Ni 28 µg/L, and Zn 29 µg/L)

APPENDIX A

ACEH LETTER DATED JANUARY 28, 2009

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

ENVIRONMENTAL HEALTH SERVICES
ENVIRONMENTAL PROTECTION
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577
(510) 567-6700
FAX (510) 337-9335

January 28, 2009

Stacie Harting-Frerichs
Chevron Corporation
6111 Bollinger Canyon Rd, RM 3596
San Ramon, CA 94583

Hai Pham
3530 Macarthur Blvd Gas Station, Inc.
3530 Macarthur Boulevard
Oakland, CA 94619

Subject: Fuel Leak Case No. RO0000405 and GeoTracker Global ID T0600101790, Chevron #9-8341, 3530 Macarthur Boulevard, Oakland, CA 94619

Dear Ms. Harting-Frerichs and Mr. Pham:

Alameda County Environmental Health (ACEH) staff has reviewed the case file for the above-referenced site including the recently submitted document entitled, "Subsurface Investigation Report," dated March 28, 2008, which was prepared by Conestoga-Rovers & Associates for the subject site. The approved scope of work consisted of installing six borings to delineate the vertical and lateral extent of soil and groundwater contamination. However, CRA stated that only one boring was installed. According to CRA, the remaining five borings could not be installed since multiple subsurface utilities are on Magee Avenue and Macarthur Boulevard, private property owners denied access to their properties, and the City of Oakland does not allow soil borings in the sidewalk. Please note that ACEH oversees several leaking underground storage tank cases in Oakland, and Responsible Parties have been able to obtain necessary permits/access agreements and complete the required site assessment work.

At this time, ACEH requests that you address the following technical comments and send us the technical work plans and reports requested below.

TECHNICAL COMMENTS

1. **Monitoring Well Construction and Hydrogeologic Setting** – Currently, there are three groundwater monitoring wells (MW-1, MW-2 and MW-3) at the site. Groundwater monitoring well MW-1 is screened from 7 to 27 feet below the ground surface (bgs), and MW-2 and MW-3 are screened from 7 to 32 feet bgs. Depth to water (DTW) typically ranges from approximately 2 to 4 feet bgs. According to the boring log for MW-1, saturated medium dense sand is encountered from approximately 1 to approximately 7.5 feet bgs, underlain by sandy clay to a depth of approximately 12.5 feet bgs. Silty sand is encountered from approximately 12.5 to 17 feet bgs, underlain by silt to an approximately depth of 27 feet bgs. The boring log for MW-3 indicates a sandy clay from approximately 1 to 4 feet bgs, underlain by a clayey sand to approximately 13.25 feet bgs. Sandy silt is encountered from approximately 13.25 feet bgs to 17.25 feet bgs, underlain by gravel with clay and sand to approximately 26.75 feet bgs. From 26.75 feet bgs to 32 feet bgs, silty sand is encountered, underlain by clay to approximately 40 feet bgs, the maximum depth explored.

ACEH has two concerns regarding monitoring well construction at the site. The first concern is that the DTW at the site is above the screened interval of the monitoring wells. Since groundwater elevation is above the screened interval for site monitoring wells and petroleum hydrocarbons have a specific gravity that is lower than water (therefore, float on water); concentrations of contaminants detected may not be representative of actual site conditions. Therefore, the monitoring wells appear to be incorrectly constructed, which may affect the contaminant concentrations detected in groundwater. The second concern is that the existing groundwater monitoring wells appear to have excessively lengthy screened intervals over what appear to be multiple coarse-grained units or water-bearing zones that are separated by fine-grained units. Please evaluate and discuss the effect that groundwater elevations rising above monitoring well screens have on hydrocarbon concentrations for each monitoring well at the site, as well as the fact that the screened intervals appear to intersect multiple water-bearing zones. Please address the above-mentioned concerns and include your analysis in the Site Conceptual Model (SCM) and Data Gap Work Plan requested below. Also please construct the proposed monitoring wells so that accurate groundwater concentrations, indicative of actual site conditions can be collected. It may be advantageous to propose depth-discrete groundwater samples or installing multi-level monitoring wells, monitoring well clusters, or systems capable of monitoring multiple depths.

2. **Preferential Pathway Study** – Depth to groundwater at the site has ranged between approximately 2 to 4 feet bgs. Since groundwater is relatively shallow at the site, a preferential pathway evaluation appears prudent. The purpose of the preferential pathway study is to locate potential migration pathways and conduits and determine the probability of the NAPL and/or dissolved-phase plume encountering preferential pathways and conduits that could spread contamination. We request that you perform a preferential pathway study that details the potential migration pathways and potential conduits (wells, utilities, pipelines, etc.) for vertical and lateral migration that may be present in the vicinity of the site.

   Discuss your analysis and interpretation of the results of the preferential pathway study (including the well survey and utility survey requested below) and report your results in the SCM and Data Gap Work Plan requested below. The results of your study shall contain all information required by California Code of Regulations, Title 23, Division 3, Chapter 16, §2654(b).

   a. Utility Survey

   An evaluation of all utility lines and trenches (including sewers, storm drains, pipelines, trench backfill, etc.) within and near the site and plume area(s) is required as part of your study. Please include maps and cross-sections illustrating the location and depth of all utility lines and trenches within and near the site and plume areas(s) as part of your study.

   b. Well Survey

   The preferential pathway study shall include a well survey of all wells (monitoring and production wells: active, inactive, standby, decommissioned (sealed with concrete), abandoned (improperly decommissioned or lost); and dewatering, drainage, and cathodic protection wells) within a ¼ mile radius of the subject site. Use the results of your background study to determine the existence of unrecorded/unknown (abandoned) wells,

which can act as contaminant migration pathways at or from your site. Please review and submit copies of historical maps, such as Sanborn maps, aerial photographs, etc., when conducting the background study.

3. **Soil and Groundwater Characterization** – Currently, the extent of soil and groundwater contamination appears undefined and the most recent subsurface investigation failed to address the data gap. As mentioned above, ACEH oversees several leaking underground storage tank cases in Oakland, and Responsible Parties have been able to obtain necessary permits/access agreement and complete the required site assessment work. For all future correspondences sent to the City of Oakland for permits or private property owners for access agreements, please copy ACEH so that we may assist in should permitting or access issues arise. Please propose a scope of work to address the above-mentioned concerns and submit a work plan due by the date specified below.

4. **Contaminant Source Area Characterization** – In May 1994, one 1,000-gallon waste oil UST was removed from the site as well as the product piping lines. Soil sample P-3 near the north side of the western most dispenser island detected TPH-g and benzene at concentrations of 1,200 mg/kg and 2.2 mg/kg respectively. Due to the evident soil contamination present, over-excavation was conducted. Over-excavation confirmation soil sample PX-7 (located in the vicinity of P-3) detected TPH-g and benzene at concentrations of 1,300 mg/kg and 6 mg/kg, respectively, indicating that the vertical and lateral extent of the source area appears undefined and the site poses a potential risk to human health and the environment. Please propose a scope of work to address the above-mentioned concerns and submit a work plan due by the date specified below.

5. **Site Conceptual Model** – At this juncture, it may be advantageous to develop a site conceptual model (SCM), which synthesizes all the analytical data and evaluates all potential exposure pathways and potential receptors that may exist at the site, including identifying or developing site cleanup objectives and goals. At a minimum, the SCM should include:

   (1) Local and regional plan view maps that illustrate the location of sources (former facilities, piping, tanks, etc.) extent of contamination, direction and rate of groundwater flow, potential preferential pathways, and locations of receptors;

   (2) Geologic cross section maps that illustrate subsurface features, man-made conduits, and lateral and vertical extent of contamination;

   (3) Plots of chemical concentrations versus time;

   (4) Plots of chemical concentrations versus distance from the source;

   (5) Summary tables of chemical concentrations in different media (i.e. soil, groundwater, and soil vapor); and

   (6) Well logs, boring logs, and well survey maps;

(7) Discussion of likely contaminant fate and transport.

If data gaps (i.e. potential contaminant volatilization to indoor air or contaminant migration along preferential pathways, etc.) are identified in the SCM, please include a proposed scope of work to address those data gaps in the work plan due by the date specified below. Please note that the work plan must address all technical comments presented in this correspondence as well as all data gaps identified in the SCM.

NOTIFICATION OF FIELDWORK ACTIVITIES

Please schedule and complete the fieldwork activities by the date specified below and provide ACEH with at least three (3) business days notification prior to conducting the fieldwork including routine groundwater sampling.

TECHNICAL REPORT REQUEST

Please submit technical reports to ACEH (Attention: Steven Plunkett), according to the following schedule:

- **March 30, 2009** – SCM & Data Gap Work Plan
- **April 30, 2009** – Quarterly Monitoring Report (1st Quarter 2009)
- **July 30, 2009** – Quarterly Monitoring Report (2nd Quarter 2009)
- **October 30, 2009** – Quarterly Monitoring Report (3rd Quarter 2009)
- **January 30, 2010** – Quarterly Monitoring Report (4th Quarter 2009)

These reports are being requested pursuant to California Health and Safety Code Section 25296.10. 23 CCR Sections 2652 through 2654, and 2721 through 2728 outline the responsibilities of a responsible party in response to an unauthorized release from a petroleum UST system, and require your compliance with this request.

ELECTRONIC SUBMITTAL OF REPORTS

ACEH's Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of reports in electronic form. The electronic copy replaces paper copies and is expected to be used for all public information requests, regulatory review, and compliance/enforcement activities. Instructions for submission of electronic documents to the Alameda County Environmental Cleanup Oversight Program FTP site are provided on the attached "Electronic Report Upload Instructions." Submission of reports to the Alameda County FTP site is an addition to existing requirements for electronic submittal of information to the State Water Resources Control Board (SWRCB) GeoTracker website. In September 2004, the SWRCB adopted regulations that require electronic submittal of information for all groundwater cleanup programs. For several years, responsible parties for cleanup of leaks from underground storage tanks (USTs) have

been required to submit groundwater analytical data, surveyed locations of monitoring wells, and other data to the GeoTracker database over the Internet. Beginning July 1, 2005, these same reporting requirements were added to Spills, Leaks, Investigations, and Cleanup (SLIC) sites. Beginning July 1, 2005, electronic submittal of a complete copy of all reports for all sites is required in GeoTracker (in PDF format). Please visit the SWRCB website for more information on these requirements (http://www.swrcb.ca.gov/ust/electronic_submittal/report_rqmts.shtml.

PERJURY STATEMENT

All work plans, technical reports, or technical documents submitted to ACEH must be accompanied by a cover letter from the responsible party that states, at a minimum, the following: "I declare, under penalty of perjury, that the information and/or recommendations contained in the attached document or report is true and correct to the best of my knowledge." This letter must be signed by an officer or legally authorized representative of your company. Please include a cover letter satisfying these requirements with all future reports and technical documents submitted for this fuel leak case.

PROFESSIONAL CERTIFICATION & CONCLUSIONS/RECOMMENDATIONS

The California Business and Professions Code (Sections 6735, 6835, and 7835.1) requires that work plans and technical or implementation reports containing geologic or engineering evaluations and/or judgments be performed under the direction of an appropriately registered or certified professional. For your submittal to be considered a valid technical report, you are to present site specific data, data interpretations, and recommendations prepared by an appropriately licensed professional and include the professional registration stamp, signature, and statement of professional certification. Please ensure all that all technical reports submitted for this fuel leak case meet this requirement.

UNDERGROUND STORAGE TANK CLEANUP FUND

Please note that delays in investigation, later reports, or enforcement actions may result in your becoming ineligible to receive grant money from the state's Underground Storage Tank Cleanup Fund (Senate Bill 2004) to reimburse you for the cost of cleanup.

AGENCY OVERSIGHT

If it appears as though significant delays are occurring or reports are not submitted as requested, we will consider referring your case to the Regional Board or other appropriate agency, including the County District Attorney, for possible enforcement actions. California Health and Safety Code, Section 25299.76 authorizes enforcement including administrative action or monetary penalties of up to $10,000 per day for each day of violation.

If you have any questions, please call me at (510) 383-1767 or send me an electronic mail message at Steven.Plunkett@acgov.org.

Sincerely,

Steven Plunkett
Hazardous Materials Specialist

Paresh C. Khatri
Hazardous Materials Specialist

Donna L. Drogos, PE
Supervising Hazardous Materials Specialist

Enclosure: ACEH Electronic Report Upload (ftp) Instructions

cc: Brian P. Carey, Conestoga Rovers & Associates, 2000 Opportunity Drive, Suite 110, Roseville, CA 95678
Leroy Griffin, Oakland Fire Department, 250 Frank H. Ogawa Plaza, Ste. 3341, Oakland, CA 94612-2032
Donna Drogos, ACEH
Steven Plunkett, ACEH
Paresh Khatri, ACEH
File

Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC)	**ISSUE DATE:** July 5, 2005
	REVISION DATE: December 16, 2005
	PREVIOUS REVISIONS: October 31, 2005
SECTION: Miscellaneous Administrative Topics & Procedures	**SUBJECT:** Electronic Report Upload (ftp) Instructions

Effective **January 31, 2006**, the Alameda County Environmental Cleanup Oversight Programs (LOP and SLIC) require submission of all reports in electronic form to the county's ftp site. Paper copies of reports will no longer be accepted. The electronic copy replaces the paper copy and will be used for all public information requests, regulatory review, and compliance/enforcement activities.

REQUIREMENTS

- Entire report including cover letter must be submitted to the ftp site as **a single portable document format (PDF) with no password protection.** (Please do not submit reports as attachments to electronic mail.)
- It is **preferable** that reports be converted to PDF format from their original format, (e.g., Microsoft Word) rather than scanned.
- Signature pages and perjury statements **must** be included and have either original or electronic signature.
- **Do not password protect the document.** Once indexed and inserted into the correct electronic case file, the document will be secured in compliance with the County's current security standards and a password. **Documents with password protection will not be accepted.**
- Each page in the PDF document should be rotated in the direction that will make it easiest to read on a computer monitor.
- Reports must be named and saved using the following naming convention:
  RO#_Report Name_Year-Month-Date (e.g., RO#5555_WorkPlan_2005-06-14)

Additional Recommendations

- A separate copy of the tables in the document should be submitted by e-mail to your Caseworker in **Excel** format. These are for use by assigned Caseworker only.

Submission Instructions

1) Obtain User Name and Password:
   a) Contact the Alameda County Environmental Health Department to obtain a User Name and Password to upload files to the ftp site.
      i) Send an e-mail to dehloptoxic@acgov.org
         or
      ii) Send a fax on company letterhead to (510) 337-9335, to the attention of Alicia Lam-Finneke.
   b) In the subject line of your request, be sure to include **"ftp PASSWORD REQUEST"** and in the body of your request, include the **Contact Information, Site Addresses**, and the **Case Numbers (RO# available in Geotracker) you will be posting for.**

2) Upload Files to the ftp Site
   a) Using Internet Explorer (IE4+), go to ftp://alcoftp1.acgov.org
      (i) Note: Netscape and Firefox browsers will not open the FTP site.
   b) Click on File, then on Login As.
   c) Enter your User Name and Password. (Note: Both are Case Sensitive.)
   d) Open "My Computer" on your computer and navigate to the file(s) you wish to upload to the ftp site.
   e) With both "My Computer" and the ftp site open in separate windows, drag and drop the file(s) from "My Computer" to the ftp window.

3) Send E-mail Notifications to the Environmental Cleanup Oversight Programs
   a) Send email to dehloptoxic@acgov.org notify us that you have placed a report on our ftp site.
   b) Copy your Caseworker on the e-mail. Your Caseworker's e-mail address is the entire first name then a period and entire last name at acgov.org. (e.g., firstname.lastname@acgov.org)
   c) The subject line of the e-mail must start with the RO# followed by **Report Upload**. (e.g., Subject: RO1234 Report Upload)

APPENDIX B

SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

SUMMARY OF PREVIOUS ENVIRONMENTAL WORK

1993 Trench Sampling: In January 1993, Touchstone Developments (Touchstone) collected three soil samples (TR-1 through TR-3) from a trench that Pacific Gas & Electric (PG&E) had excavated in the sidewalk near the southwestern edge of the site. The trench was approximately 2 feet wide by 4 feet deep and approximately 28 feet long. The three soil samples were collected from the northeast sidewall of the trench at approximately 2.5 feet below grade (fbg). The three soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene, and xylenes (BTEX). Low concentrations of TPHg (up to 7 milligrams per kilogram [mg/kg]) and BTEX (up to 1.5 mg/kg) were detected in the samples. Water was also observed in the bottom of the trench at approximately 3 fbg; it was not known if the water was groundwater or runoff from the station or a nearby storm drain. A grab water sample (TR-4) was collected and also analyzed for TPHg and BTEX. TPHg was detected in the water sample at 2,500 micrograms per liter (µg/L); benzene (390 µg/L), toluene (80 µg/L), ethylbenzene (140 µg/L), and xylenes (300 µg/L) were also detected. It was concluded that the water sample may not be representative of groundwater conditions. The results of this investigation were presented in Touchtone's untitled letter report dated January 27, 1993.

1994 Used-Oil UST and Product Line Removal: In May 1994, Touchstone observed the removal of a 1,000-gallon, single-walled fiberglass, used-oil underground storage tank (UST) and gasoline product piping at the site. Two soil samples (WO-N and WO-S) were collected beneath the ends of the former UST at approximately 6 fbg and analyzed for TPHg; TPH as diesel (TPHd); BTEX; halogenated volatile organic compounds (HVOCs); total oil and grease (TOG); semi-VOCs; and the metals cadmium, chromium, lead, nickel, and zinc. TPHg, TPHd, BTEX, TOG, HVOCs, semi-VOCs, cadmium, and lead were not detected in either of the samples. Background levels of chromium (up to 20 mg/kg), nickel (up to 18 mg/kg), and zinc (up to 30 mg/kg) were detected in both of the samples. Groundwater was encountered at approximately 6 fbg in the excavation, and a grab-groundwater sample (WO-H_2O) was collected and analyzed for TPHg, BTEX, TPHd, TOG, HVOCs, semi-VOCs, and metals; which were not detected with the exception of low concentrations of chloroethane (0.6 µg/L), chromium (20 µg/L), lead (7 µg/L), nickel (28 µg/L), and zinc (29 µg/L). Six soil samples (P-1 through P-6) were collected at depths of 2 to 4.5 fbg beneath the product piping and analyzed for TPHg and BTEX. TPHg (ranging from 14 to 1,200 mg/kg) and BTEX (ranging from 0.086 to 70.9 mg/kg) were detected in samples P-1, P-2, P-5, and P-6. Over-excavation was subsequently conducted to remove impacted soil beneath the product piping. Eleven confirmation soil samples (PX-1 through PX-11) were collected at depths of 3 to 5.5 fbg and analyzed for TPHg and BTEX. TPHg and BTEX were detected in six of the samples at concentrations up to 1,300 mg/kg (PX-8 at 5 fbg) and 170 mg/kg (PX-8 at 5 fbg), respectively. Further over-excavation was limited due to the presence of the canopy concrete footing. Approximately 285 cubic yards of impacted soil was removed and disposed offsite during the work; approximately 25,000 gallons of groundwater was also pumped from the excavation and disposed offsite. The results of this investigation were presented in Touchtone's *Waste Oil Tank and Product Line Removal and Overexcavation Report* dated June 28, 1994.

1996 Monitoring Well Installation: In March 1996, Touchstone installed three groundwater monitoring wells (MW-1 through MW-3) at the site. Groundwater was encountered in the well borings at approximately 4 fbg. A total of 22 soil samples were collected at various depths from

the borings and analyzed for TPHg and BTEX. TPHg was only detected in the soil samples collected at 5.5 fbg from borings MW-2 (9.5 mg/kg) and MW-3 (400 mg/kg); low concentrations of toluene, ethylbenzene, and xylenes (up to 32 mg/kg) were also detected in the two samples. A trace concentration of xylenes (0.0069 mg/kg) was detected in the soil sample collected at 20 fbg from boring MW-3. The initial groundwater samples collected from the wells were analyzed for TPHg, BTEX, and methyl tertiary butyl ether (MTBE), which generally were not detected with the exception of MTBE at 6,100 micrograms per liter (µg/L) in well MW-2. The results of this investigation were presented in Touchstone's *Well Installation Report* dated July 11, 1996.

2003 Subsurface Investigation: In July 2003, Cambria Environmental Technology, Inc. (Cambria) advanced eight borings (B-1 and B-3 through B-9) to total depths between 6 and 10.5 fbg to further evaluate the extent of hydrocarbons in soil and groundwater onsite. One or two soil samples were collected at various depths from each boring and analyzed for TPHg, BTEX, fuel oxygenates, 1,2-Dichloroethane (1,2-DCA), ethylene dibromide (EDB), and ethanol. TPHg was only detected in the soil samples collected at 1.5 fbg from boring B-7 (2.5 mg/kg) and at 2 fbg from boring B-8 (3.3 mg/kg). BTEX generally were not detected in the samples with the exception of trace concentrations of ethylbenzene (0.001 mg/kg) and xylenes (up to 0.002 mg/kg) in the samples collected from boring B-8. MTBE (up to 0.13 mg/kg) was detected in the majority of the soil samples. Other fuel oxygenates, 1,2-DCA, EDB, and ethanol generally were not detected with t he exception of low concentrations of tertiary amyl methyl ether (TAME) (up to 0.002 mg/kg) and tertiary butyl alcohol (TBA) (0.044 mg/kg) in three and one of the samples, respectively. Groundwater was encountered in the borings (except B-7) at depths of 3 to 10 fbg. A grab-groundwater sample was collected from each boring and analyzed for TPHg, BTEX, fuel oxygenates, 1,2-DCA, EDB, and ethanol. TPHg was only detected in the samples collected from borings B-7 (98 µg/L) and B-8 (5,200 µg/L), and benzene was only detected in the sample collected from boring B-8 (3 µg/L). MTBE was detected in all of the samples at concentrations ranging from 2 (B-6) to 980 µg/L (B-8). Low concentrations of TAME (up to 15 µg/L) and TBA (up to 41 µg/L) were detected in several of the samples. The results of this investigation were presented in Cambria's *Additional Subsurface/Baseline Investigation Report* dated September 2, 2003.

2006 Subsurface Investigation: In December 2006, Cambria advanced one soil boring (B-11) onsite and upgradient of the USTs to a total depth of 24 fbg to further evaluate the extent of impacted soil and groundwater. Five other borings (B-10 and B-12 through B-15) were attempted but could not be completed due to subsurface utility conflicts. Soil samples were collected at depths of 5, 10, 15, 20, and 24 fbg from the boring and analyzed for TPHg, BTEX, fuel oxygenates, 1,2-DCA, EDB, ethanol, and methanol. The analytes generally were not detected in the soil samples with the exception of toluene at 0.002 mg/kg in the sample collected at 10 fbg; methanol (up to 0.33 mg/kg) was also detected in four of the samples. Groundwater was not encountered in the boring. The results of this investigation were presented in CRA's *Subsurface Investigation Report* dated March 28, 2008.

APPENDIX C

HISTORICAL BORING LOGS

Touchstone Developments
Environmental Management

EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341	Date: 3.18.96	Boring No. **MW-1**
Client: CHEVRON PRODUCTS CO.		
Location: 3530 MacArthur Boulevard		
City: Oakland, CA		Sheet 1 of 2
Logged By: RCM	Driller: V&W	

Casing Installation data:

Drilling Method: **Hollow Stem Auger**

Hole Diameter: **8-inch**

Top of Box Elevation: Datum:

Water Level	4.0		
Time	1455		
Date	3.18.96		

PID (ppm)	Blows Pressure (PSI)	Type of Sample	Sample Number	Depth (ft.)	Sample Interval	Well Detail	Soil Group Symbol (USCS)
				1			
				2			
				3			
			MW-1	4			
	5	S&H	4.5	5			
	7						
	17			6			
				7			
				8			
	5	S&H		9			
	5		MW-1				
	14		10.0	10			
				11			
				12			
				13			
	17	S&H	MW-1	14			
	22		14.5				
	28			15			
				16			
				17			
				18			
	15	S&H	MW-1	19			
	19		19.5				
	20			20			

PAVEMENT SECTION - ASPHALT 3", BASEROCK 9".

CLAY (CL) - yellowish brown (10YR 5/4), moist, stiff, 90% clay, 10% fine to medium sand, medium plasticity.

SAND (SW) - yellowish brown (10YR 5/4), saturated, medium dense, 95% fine to coarse sand, 5% fines.

SANDY CLAY (CL) - yellowish brown (10YR 4/6), very stiff, moist, 65% clay, 35% fine to coarse sand, rootholes, black (10YR 3/1) mottling with minor light olive brown (2.5Y 5/4) discoloration.

SILTY SAND (SM) - brown (7.5Y 4/4), very dense, moist, 70% fine to coarse sand, 30% silt.

SILT (ML) - reddish brown (5YR 4/4), hard, moist, 80% silt, 20% fine to medium sand.

Remarks:

Touchstone Developments
Environmental Management

EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341	Date: 3.18.96	Boring No. MW-1
Client: CHEVRON PRODUCTS CO.		
Location: 3530 MacArthur Boulevard		
City: Oakland, CA		Sheet 2 of 2
Logged By: RCM	Driller: V&W	

Casing Installation data:

Drilling Method: Hollow Stem Auger

Hole Diameter: 8-inch

Top of Box Elevation: Datum:

Water Level			
Time			
Date			

PID (ppm)	Blows Pressure (PSI)	Type of Sample	Sample Number	Depth (ft.)	Sample Interval	Well Detail	Soil Group Symbol (USCS)
				21			
				22			
				23			
	10	S&H	MW-1	24			
	15		24.5				
	19			25			
				26			
				27			
				28			
	20	S&H	NR	29			
	22						
	25			30			
				31			
				32			
				33			
				34			
				35			
				36			
				37			
				38			
				39			
				40			

SILT (ML) - reddish brown (5YR 4/4), hard, moist, 80% silt, 20% fine to medium sand.

INCREASE fine to coarse sand to 30% at 23.5 feet.

SILTY SAND (SM) - dark yellowish brown (10YR 4/6), dense, moist, 65% sand, 35% silt.

Remarks:

BOTTOM OF BORING AT 30.0 FEET

Touchstone Developments
Environmental Management

EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341	Date: 3.18.96	Boring No. MW-2
Client: CHEVRON PRODUCTS CO.		
Location: 3530 MacArthur Boulevard		
City: Oakland, CA		Sheet 1 of 2
Logged By: RCM	Driller: V&W	

Casing Installation data:

Drilling Method: Hollow Stem Auger

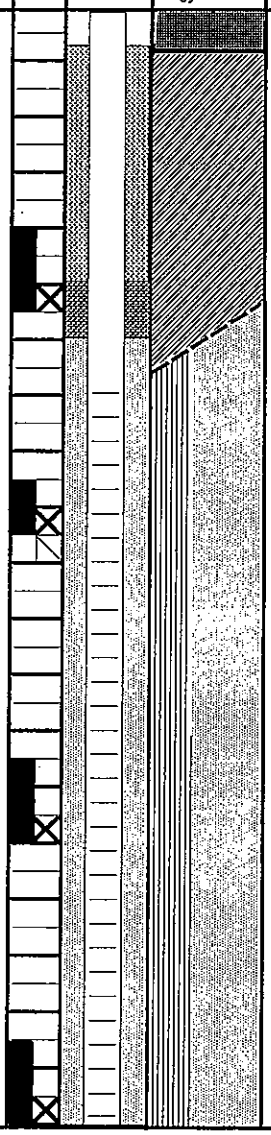
Hole Diameter: 8-inch

Top of Box Elevation: Datum:

Water Level	4.0		
Time	1340		
Date	3.18.96		

PID (ppm)	Blows Pressure (PSI)	Type of Sample	Sample Number	Depth (ft.)
	2	S&H		5
	2		MW-2	
	3		5.5	
	17	S&H	MW-2	9
	19		9.5	
	25			10
	12	S&H		14
	33		MW-2	
	38		15.0	15
	12	S&H		19
	17		MW-2	
	22		20.0	

Sample Interval / Well Detail / Soil Group Symbol (USCS)



PAVEMENT SECTION - 3" asphalt, 9" baserock

SANDY CLAY (CL) - greenish gray (5G 5/1), moist, very stiff, 85% clay, 15% fine to medium sand, medium plasticity.

CLAY (CL) - black (10YR 2/1), medium stiff, saturated, 90% clay, 10% sand, medium to high plasticity.

SILTY SAND (SM) - dark yellowish brown (10YR 4/6), moist, dense 75% fine to medium sand, 15% silt, 10% fine gravel.

INCREASE SILT to 25%, CLAY to 10% at 13.5 feet, decrease sand to 65%, very dense

DECREASE silt to 15%, clay to 0%.

Remarks:

Touchstone Developments
Environmental Management

EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341	Date: 3.18.96	Boring No. **MW-2**
Client: CHEVRON PRODUCTS CO.		
Location: 3530 MacArthur Boulevard		
City: Oakland, CA		Sheet 2 of 2
Logged By: RCM	Driller: V&W	

Casing Installation data:

Drilling Method: **Hollow Stem Auger**

Hole Diameter: **8-inch**

Top of Box Elevation: Datum:

Water Level			
Time			
Date			

PID (ppm)	Blows Pressure (PSI)	Type of Sample	Sample Number	Depth (ft.)	Sample Interval	Well Detail	Soil Group Symbol (USCS)
				21			
				22			
				23			
	20	S&H		24			
	30		MW-2				
	39		25.0	25			
				26			
				27			
				28			
	19	S&H		29			
	23		MW-2				
	35		30.0	30			
				31			
				32			
				33			
	19	S&H		34			
	22		MW-2				
	28		35.0	35			
				36			
				37			
				38			
				39			
				40			

SILTY SAND (SM) - dark yellowish brown (10YR 4/6), moist, dense 75% fine to medium sand 15% silt, 10% fine gravel.

AS ABOVE
very dense at 23.5 feet

AS ABOVE

SILT (ML) - dark yellowish brown (10YR 4/6), hard, moist, 80% sand, 20% fine sand, medium plasticity.

Remarks:

BOTTOM OF BORING AT 35.0

Touchstone Developments
Environmental Management

EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341	Date: 3.18.96	Boring No. **MW-3**
Client: CHEVRON PRODUCTS CO.		
Location: 3530 MacArthur Boulevard		
City: Oakland, CA		Sheet 1 of 3
Logged By: RCM	Driller: V&W	

Casing Installation data:

Drilling Method: **Hollow Stem Auger**

Hole Diameter: **8-inch**

Top of Box Elevation: Datum:

Water Level			
Time			
Date			

PID (ppm)	Blows Pressure (PSI)	Type of Sample	Sample Number	Depth (ft.)	Sample Interval	Well Detail	Soil Group Symbol (USCS)
				1			
				2			
				3			
				4			
	6	S&H					
	7		MW-3	5			
	11		5.5				
				6			
				7			
				8			
	10	S&H	MW-3	9			
	22		9.5				
	20			10			
				11			
				12			
				13			
	17	S&H	MW-3	14			
	19		14.5				
	22			15			
				16			
				17			
				18			
	31	S&H	MW-3	19			
	33		19.5				
	39			20			

PAVEMENT SECTION - ASPHALT 3", BASEROCK 9".

SANDY CLAY (CL) - olive (5YR 4/3), stiff, damp, 85% clay, 15% fine to coarse sand, medium plasticity.

CLAYEY SAND (SC) - dark yellowish brown (10YR 4/6), moist, medium dense, 55% fine to coarse sand, 40% clay, 5% fine gravel, black mottling (10YR 3/1).

INCREASE sand to 80% at 8.5 feet.

SANDY SILT (ML) - dark yellowish brown (10YR 3/6), moist, hard, 80% silt, 20% fine sand, low plasticity.

GRAVEL WITH CLAY AND SAND (GW-GC) - yellowish brown (10YR 5/6), very dense, moist, 65% gravel, 25% sand, 10% clay.

Remarks:

Touchstone Developments
Environmental Management

EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341	Date: 3.18.96	Boring No. MW-3
Client: CHEVRON PRODUCTS CO.		
Location: 3530 MacArthur Boulevard		
City: Oakland, CA		Sheet 2 of 3
Logged By: RCM	Driller: V&W	

Casing Installation data:

Drilling Method: Hollow Stem Auger

Hole Diameter: 8-inch

Top of Box Elevation: Datum:

Water Level			
Time			
Date			

PID (ppm)	Blows Pressure (PSI)	Type of Sample	Sample Number	Depth (ft.)	Sample Interval	Well Detail	Soil Group Symbol (USCS)
				21			
				22			
				23			
	31	S&H	MW-3	24			
	33		25.0				
	39			25			
				26			
				27			
				28			
	33	S&H		29			
	35		MW-3				
	40		30.0	30			
				31			
				32			
				33			
	10	S&H		34			
	20		MW-3				
	20		35.0	35			
				36			
				37			
				38			
	15	S&H		39			
	21		MW-3				
	32		40.0	40			

GRAVEL WITH CLAY AND SAND (GW-GC) - yellowish brown (10YR 5/6), very dense, moist, 65% gravel, 25% sand, 10% clay.

INCREASE sand to 40% at 23.5 feet.

SILTY SAND (SM) - dark yellowish brown (10YR 4/6), very dense, moist, 65% fine to coarse sand, 25% silt, 10% fine gravel.

CLAY (CL) - dark yellowish brown (10YR 4/6), very hard, moist, 85% clay, 15% fine to medium sand, medium plasticity.

INCREASE sand to 40% at 39.5 feet.

Remarks:

Touchstone Developments
Environmental Management

EXPLORATORY BORING LOG

Field Location of Boring:

See Figure 1

Project No. 9-8341	Date: 3.18.96	Boring No.	MW-3
Client: CHEVRON PRODUCTS COMPANY			
Location: 3530 MacArthur Boulevard			
City: Oakland, California		Sheet	3
Logged By: RCM	Driller: V&W	of	3

Casing Installation data:

Drilling Method: Hollow Stem Auger

Hole Diameter: 8-inch

Top of Box Elevation: Datum:

Water Level			
Time			
Date			

PID (ppm)	Blows Pressure (PSI)	Type of Sample	Sample Number	Depth (ft.)	Sample Interval	Well Detail	Soil Group Symbol (USCS)
				41			
				42			
				43			
	14	S&H		44			
	22		MW-3				
	25		45.0	45			
				46			
				47			
				48			
				49			
				50			
				51			
				52			
				53			
				54			
				55			
				56			
				57			
				58			
				59			
				60			

CLAY (CL) - dark yellowish brown (10YR 4/6), moist, hard, 60% clay, 40% fine to medium sand, medium plasticity.

AS ABOVE - decrease sand to 30% fine gravel to 10%, and decrease clay to 60% at 43.5 feet.

Remarks: NR = No Recovery.

BOTTOM OF BORING AT 45.0 FEET

Cambria Environmental Technology, Inc.
5900 Hollis Street, Ste. A
Emeryville, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-1
JOB/SITE NAME	Chevron Station #9-8341	**DRILLING STARTED**	29-Jul-03
LOCATION	3530 Mac Arthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	29-Jul-03
PROJECT NUMBER	31D-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Air Vac and Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	Sarah Owen	**DEPTH TO WATER (First Encountered)**	4.0 ft (29-Jul-03) ▽
REVIEWED BY	B. Foss, RG# 7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Refusal at 8 fbg.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Concrete.	0.5	Concrete
							Pea gravel.	1.0	
<1.0		B-1-A		5	ML		Sandy Gravelly SILT Red-brown; dry; stiff; 45% silt, 20% sand, 20% gravel, 15% clay; moderate plasticity; moderate estimated permeability. ▽		Portland Type I/II
					ML		Clayey SILT Black; damp; stiff; 75% silt, 25% clay; moderate to high plasticity; moderate to low estimated permeability. Vacuum-cleared to 8 fbg.	6.5 8.0	Bottom of Boring @ 8 fbg

WELL LOG (TPH-G) I:\9-8341 OAKLAND\INVESTIGATION 2003\GINT\9-8341.GPJ DEFAULT.GDT 8/25/03

Cambria Environmental Technology, Inc.
5900 Hollis Street, Ste. A
Emeryville, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-3
JOB/SITE NAME	Chevron Station #9-8341	**DRILLING STARTED**	29-Jul-03
LOCATION	3530 Mac Arthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	29-Jul-03
PROJECT NUMBER	31D-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Air Vac and Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	Sarah Owen	**DEPTH TO WATER (First Encountered)**	10.0 ft (29-Jul-03) ▽
REVIEWED BY	B. Foss, RG# 7445	**DEPTH TO WATER (Static)**	NA ▽

REMARKS

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Concrete.	0.5	Concrete
							Pea gravel.	1.0	
					ML		Gravelly Sandy SILT Light brown; dry; stiff; 55% silt, 25% gravel, 10% sand, 10% clay; moderate plasticity; moderate estimated permeability.	3.5	
<1.0		B-3-A		5			Clayey SILT Red brown; damp; stiff; 75% silt, 20% clay, 5% gravel; moderate plasticity; moderate to low estimated permeability.		Portland Type I/II
					ML		Vacuum-cleared to 8 fbg.		
<1.0		B-3-B		10			▽	10.5	Bottom of Boring @ 10.5 fbg

WELL LOG (TPH-G) I:\9-8341 OAKLAND\INVESTIGATION 2003\GINT\9-8341.GPJ DEFAULT.GDT 8/25/03

Cambria Environmental Technology, Inc.
5900 Hollis Street, Ste. A
Emeryville, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-4
JOB/SITE NAME	Chevron Station #9-8341	**DRILLING STARTED**	30-Jul-03
LOCATION	3530 Mac Arthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	30-Jul-03
PROJECT NUMBER	31D-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Air Vac and Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	Sarah Owen	**DEPTH TO WATER (First Encountered)**	3.0 ft (30-Jul-03) ▽
REVIEWED BY	B. Foss, RG# 7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt.	0.5	Concrete
<1.0		B-4-A			ML		Gravelly SILT: Red brown; dry; stiff; 55% silt, 20% gravel, 15% clay, 10% sand; moderate plasticity; moderate estimated permeability. ▽	4.0	
				5	ML		Clayey SILT: Black; damp; stiff; 70% silt, 30% clay; moderate to high plasticity; moderate to low estimated permeability.	5.5	Portland Type I/II
					ML		Clayey SILT: Green; damp; stiff; 70% silt, 30% clay; moderate to high plasticity; moderate to low estimated permeability.	6.5	
					ML		Clayey Gravelly SILT: Red-brown; damp; stiff; 70% silt, 20% clay, 10% gravel; moderate plasticity; moderate to high estimated permeability.		
<1.0		B-4-B		10			Vacuum-cleared to 8 fbg.	10.0	Bottom of Boring @ 10 fbg

WELL LOG (TPH-G) I:\9-8341 OAKLAND\INVESTIGATION 2003\GINT\9-8341.GPJ DEFAULT.GDT 8/25/03

Cambria Environmental Technology, Inc.
5900 Hollis Street, Ste. A
Emeryville, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-5
JOB/SITE NAME	Chevron Station #9-8341	**DRILLING STARTED**	29-Jul-03
LOCATION	3530 Mac Arthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	29-Jul-03
PROJECT NUMBER	31D-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Air Vac and Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	Sarah Owen	**DEPTH TO WATER (First Encountered)**	4.0 ft (29-Jul-03) ▽
REVIEWED BY	B. Foss, RG# 7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt.	0.5	Concrete
<1.0		B-5-A			ML		Clayey SILT Dark gray to black with intermittent green; dry; soft; 40% clay, 40% silt, 20% gravel; high plasticity; moderate to low estimated permeability. ▽		
				5				5.0	Portland Type I/II
					SP		Gravelly SAND Red-brown; wet; loose; 65% sand, 15% gravel, 10% silt, 10% clay; moderate to high plasticity; moderate to high estimated permeability. Vacuum-cleared to 8 fbg.		
<1.0		B-5-B		10				10.0	Bottom of Boring @ 10 fbg

WELL LOG (TPH-G) I:\9-8341 OAKLAND\INVESTIGATION 2003\GINT\9-8341.GPJ DEFAULT.GDT 8/25/03

Cambria Environmental Technology, Inc.
5900 Hollis Street, Ste. A
Emeryville, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-6
JOB/SITE NAME	Chevron Station #9-8341	**DRILLING STARTED**	29-Jul-03
LOCATION	3530 Mac Arthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	29-Jul-03
PROJECT NUMBER	31D-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Air Vac and Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	Sarah Owen	**DEPTH TO WATER (First Encountered)**	4.0 ft (29-Jul-03) ▽
REVIEWED BY	B. Foss, RG# 7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt.	0.5	Concrete
<1.0		B-6-A			ML		Clayey SILT Dark gray to black with intermittent green; dry; soft; 40% clay, 40% silt, 20% gravel; high plasticity; moderate to low estimated permeability. ▽		
				5				6.0	Portland Type I/II
					SP		Gravelly SAND Red-brown; wet; loose; 70% sand, 15% gravel, 10% silt, 5% clay; moderate to high plasticity; moderate to high estimated permeability. Vacuum-cleared to 8 fbg.		
<1.0		B-6-B		10				10.0	Bottom of Boring @ 10 fbg

WELL LOG (TPH-G) I:\9-8341 OAKLAND\INVESTIGATION 2003\GINT\9-8341.GPJ DEFAULT.GDT 8/25/03

Cambria Environmental Technology, Inc.
5900 Hollis Street, Ste. A
Emeryville, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-7
JOB/SITE NAME	Chevron Station #9-8341	**DRILLING STARTED**	30-Jul-03
LOCATION	3530 Mac Arthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	30-Jul-03
PROJECT NUMBER	31D-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Air Vac and Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	Sarah Owen	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	B. Foss, RG# 7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Water not encountered. Refusal at 6 fbg.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt.	0.5	Concrete
2.5		B-7-A			ML		**Clayey SILT** Black; dry; stiff; 70% silt, 30% clay; moderate plasticity; moderate to low estimated permeability. Upper 1-1.5 foot interval is green.		Portland Type I/II
				5	ML		**Gravelly SILT** Red-brown to green; dry; stiff; 60% silt, 20% gravel, 15% sand, 5% clay; low plasticity; moderate to high estimated permeability.	4.5 6.0	Bottom of Boring @ 6 fbg
							Vacuum-cleared to 8 fbg.		

WELL LOG (TPH-G) I:\9-8341 OAKLAND\INVESTIGATION 2003\GINT\9-8341.GPJ DEFAULT.GDT 8/25/03

Cambria Environmental Technology, Inc.
5900 Hollis Street, Ste. A
Emeryville, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-8
JOB/SITE NAME	Chevron Station #9-8341	**DRILLING STARTED**	30-Jul-03
LOCATION	3530 Mac Arthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	30-Jul-03
PROJECT NUMBER	31D-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Air Vac and Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	Sarah Owen	**DEPTH TO WATER (First Encountered)**	10.0 ft (30-Jul-03) ▽
REVIEWED BY	B. Foss, RG# 7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt.	0.5	Concrete
					ML		**Clayey SILT** Black; dry; stifft; 70% silt, 30% clay; moderate plasticity; moderate to low estimated permeability.	2.0	
3.3		B-8-A			ML		**Clayey SILT** Green; dry; stiff; 70% silt, 30% clay; moderate plasticity; moderate to low estimated permeability.		
				5				5.5	Portland Type I/II
					ML		**Clayey SILT** Red-brown; dry; stiff; 70% silt, 30% clay; moderate to low plasticity; moderate estimated permeability.		
							Vacuum-cleared to 8 fbg.		
<1.0		B-8-B		10			▽	10.0	Bottom of Boring @ 10 fbg

WELL LOG (TPH-G) I:\9-8341 OAKLAND\INVESTIGATION 2003\GINT\9-8341.GPJ DEFAULT.GDT 8/25/03

Cambria Environmental Technology, Inc.
5900 Hollis Street, Ste. A
Emeryville, CA 94608
Telephone: (510) 420-0700
Fax: (510) 420-9170

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-9
JOB/SITE NAME	Chevron Station #9-8341	**DRILLING STARTED**	30-Jul-03
LOCATION	3530 Mac Arthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	30-Jul-03
PROJECT NUMBER	31D-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Air Vac and Hand Auger	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	4"	**SCREENED INTERVAL**	NA
LOGGED BY	Sarah Owen	**DEPTH TO WATER (First Encountered)**	7.0 ft (30-Jul-03) ▽
REVIEWED BY	B. Foss, RG# 7445	**DEPTH TO WATER (Static)**	NA ▼
REMARKS	Refusal at 8.5 fbg.		

TPHg (mg/kg)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt.	0.5	Concrete
					ML		Clayey SILT: Black; dry; stiff; 75% silt, 25% clay; moderate plasticity; low estimated permeability.	3.0	
<1.0		B-9-A			ML		Gravelly SILT: Red-brown; dry; stiff; 60% silt, 20% gravel, 10% sand, 10% clay; low plasticity; moderate to high estimated permeability. Upper foot is green.	5.0	Portland Type I/II
				5			Gravelly SILT: Red-brown; wet; moderately stiff; 40% silt, 30% gravel, 30% sand; high estimated permeability. ▽		
					ML				Bottom of Boring @ 7 fbg
<1.0		B-9-B					Vacuum-cleared to 8 fbg.	8.5	

WELL LOG (TPH-G) I:\9-8341 OAKLAND\INVESTIGATION 2003\GINT\9-8341.GPJ DEFAULT.GDT 8/25/03

Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, CA 95678
Telephone: (916) 677-3407
Fax: (916) 677-3687

BORING/WELL LOG

CLIENT NAME	Chevron Products Company	**BORING/WELL NAME**	B-11
JOB/SITE NAME	9-8341	**DRILLING STARTED**	14-Dec-06
LOCATION	3530 Macarthur Boulevard, Oakland, CA	**DRILLING COMPLETED**	14-Dec-06
PROJECT NUMBER	61H-1650	**WELL DEVELOPMENT DATE (YIELD)**	NA
DRILLER	Gregg Drilling & Testing, Inc.	**GROUND SURFACE ELEVATION**	Not Surveyed
DRILLING METHOD	Hydraulic push	**TOP OF CASING ELEVATION**	Not Surveyed
BORING DIAMETER	3"	**SCREENED INTERVAL**	NA
LOGGED BY	R. Rouas	**DEPTH TO WATER (First Encountered)**	NA ▽
REVIEWED BY	D. Herzog, PG# 7211	**DEPTH TO WATER (Static)**	NA ▼
REMARKS			

PID (ppm)	BLOW COUNTS	SAMPLE ID	EXTENT	DEPTH (fbg)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH (fbg)	WELL DIAGRAM
							Asphalt	0.5	Concrete
					SC		**Clayey SAND with gravel:** tan; moist; coarse sand; fine gravel; 35% sand, 30% gravel, 35% clay; moderate to high estimated permeability.		
0		B-11@ 5		5	GC		**Clayey GRAVEL with sand:** tan; wet; 40% gravel, 15% sand, 40% clay, 5% silt; high estimated permeability.	5.0	
					GC		**Clayey GRAVEL:** brown; wet; fine and coarse gravel; fine sand; 50% gravel, 5% sand, 25% clay, 20% silt; high estimated permeability.	8.0	
0		B-11@ 10		10	CH		**CLAY with gravel:** brown; moist; fine gravel; stiff; 70% clay, 20% gravel, 10% silt; high plasticity; low estimated permeability.	10.0	Portland Type I/II
0		B-11@ 15		15	CH		**CLAY:** orange with brown and grey mottling; moist; fine and coarse gravel; fine sand; very stiff; 80% clay, 10% silt, 5% sand, 5% gravel; medium plasticity; low estimated permeability.	15.0	
0		B-11@ 20		20	CL		**CLAY with gravel:** brown with light brown mottling; dry; fine and coarse gravel; medium sand; very stiff; 70% clay, 15% gravel, 10% sand, 5% silt; high plasticity; low estimated permeability.	20.0	
0		B-11@ 24					@ 24 fbg: refusal.	24.0	Bottom of Boring @ 24 fbg

WELL LOG (PID) \\SAC-S1\SHAREDROCKLI~1.CHE\9-8341~1\GINT\9-8341.GPJ DEFAULT.GDT 3/17/08

APPENDIX D

FIRST QUARTER 2009 GROUNDWATER MONITORING REPORT

GETTLER-RYAN INC.

TRANSMITTAL

March 16, 2009
G-R #386346

TO: Mr. James Kiernan
Conestoga-Rovers & Associates
2000 Opportunity Drive, Suite 110
Roseville, California 95678

FROM: Deanna L. Harding
Project Coordinator
Gettler-Ryan Inc.
6747 Sierra Court, Suite J
Dublin, California 94568

RE: Chevron Service Station
#9-8341 MTI
3530 MacArthur Boulevard
Oakland, California
RO 0000405
RWQCB-Case No. 01-1930

WE HAVE ENCLOSED THE FOLLOWING:

COPIES	DATED	DESCRIPTION
2	March 10, 2009	Groundwater Monitoring and Sampling Report **First Quarter Event of February 13, 2009**

COMMENTS:

Pursuant to your request, we are providing you with copies of the above referenced report for **your use and distribution to the following:**

Ms. Stacie H. Frerichs, Chevron EMC, 6111 Bollinger Canyon Road, Room 3596, San Ramon, CA 94583

Please provide any comments/changes and propose any groundwater monitoring modifications for the next event prior to ***March 30, 2009,*** at which time this final report will be distributed to the following:

cc: Mr. Chuck Headlee, RWQCB-S.F. Bay Region, 1515 Clay St., Suite 1400, Oakland. CA 94612
(No Hard Copy)
Mr. Steven Plunkett, Alameda County Health Care Services, Dept. of Environmental Health, 1131 Harbor Bay Parkway, Suite 250, Alameda, CA 94502-6577
(No Hard Copy-UPLOAD TO ALAMEDA CO.)
Mr. Hai Pham, Property Owner, 3530 MacArthur Blvd. Gas Station, Inc., 3530 MacArthur Blvd., Oakland. CA 94619

Enclosures

trans/9-8341-SHF

Chevron

Stacie H. Frerichs
Team Lead
Marketing Business Unit

Chevron Environmental Management Company
6001 Bollinger Canyon Road
San Ramon, CA 94583
Tel (925) 842-9655
Fax (925) 842-8370

March 16, 2009
(date)

Alameda County Health Care Services
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Re: Chevron Facility #9-8341

Address: 3530 MacArthur Blvd., Oakland, California

I have reviewed the attached routine groundwater monitoring report dated March 16, 2009.

I agree with the conclusions and recommendations presented in the referenced report. The information in this report is accurate to the best of my knowledge and all local Agency/Regional Board guidelines have been followed. This report was prepared by Gettler-Ryan, Inc., upon whose assistance and advice I have relied.

This letter is submitted pursuant to the requirements of California Water Code Section 13267(b)(1) and the regulating implementation entitled Appendix A pertaining thereto.

I declare under penalty of perjury that the foregoing is true and correct.

Sincerely,

SH Frerichs

Stacie H. Frerichs
Project Manager

Enclosure: Report

WELL CONDITION STATUS SHEET

Client/Facility #: **Chevron #9-8341**
Site Address: **3530 Macarthur Blvd.**
City: **Oakland, CA**

Job # **386346**
Event Date: 2/13/09
Sampler: SR

WELL ID	Vault Frame Condition	Gasket/ O-Ring (M)missing	BOLTS (M) Missing (R) Replaced	Bolt Flanges B= Broken S= Stripped R=Retap	APRON Condition C=Cracked B=Broken G=Gone	Grout Seal (Deficient) inches from TOC	Casing (Condition prevents tight cap seal)	REPLACE LOCK Y / N	REPLACE CAP Y / N	WELL VAULT Manufacture/Size/ # of Bolts	Pictures Taken Yes / No
MW-1	ok	→	NA	NA	ok	→	→	N	N	2' circular ⌀ plate vault	N
MW-2	ok	→	→	→	→	→	→	N	N	8"/Boart-Ingyr/3	↓
MW-3	ok	→	→	2(5)	ok	→	→	N	N	12"/Morrison/2	↓

Comments

GETTLER-RYAN INC.

March 10, 2009
G-R Job #386346

Ms. Stacie H. Frerichs
Chevron Environmental Management Company
6111 Bollinger Canyon Road, Room 3596
San Ramon, CA 94583

RE: First Quarter Event of February 13, 2009
Groundwater Monitoring & Sampling Report
Chevron Service Station #9-8341
3530 MacArthur Boulevard
Oakland, California

Dear Ms. H. Frerichs:

This report documents the most recent groundwater monitoring and sampling event performed by Gettler-Ryan Inc. (G-R) at the referenced site. All field work was conducted in accordance with G-R Standard Operating Procedure - Groundwater Sampling (attached).

Static groundwater levels were measured and the wells were checked for the presence of separate-phase hydrocarbons. Static water level data, groundwater elevations and separate-phase hydrocarbon thickness (if any) are presented in the attached Table 1. A Potentiometric Map is included as Figure 1.

Groundwater samples were collected from the monitoring wells and submitted to a state certified laboratory for analyses. The field data sheets for this event are attached. Analytical results are presented in the table(s) listed below. The chain of custody document and laboratory analytical report are also attached. All groundwater and decontamination water generated during sampling activities was removed from the site, per the Standard Operating Procedure.

Please call if you have any questions or comments regarding this report. Thank you.

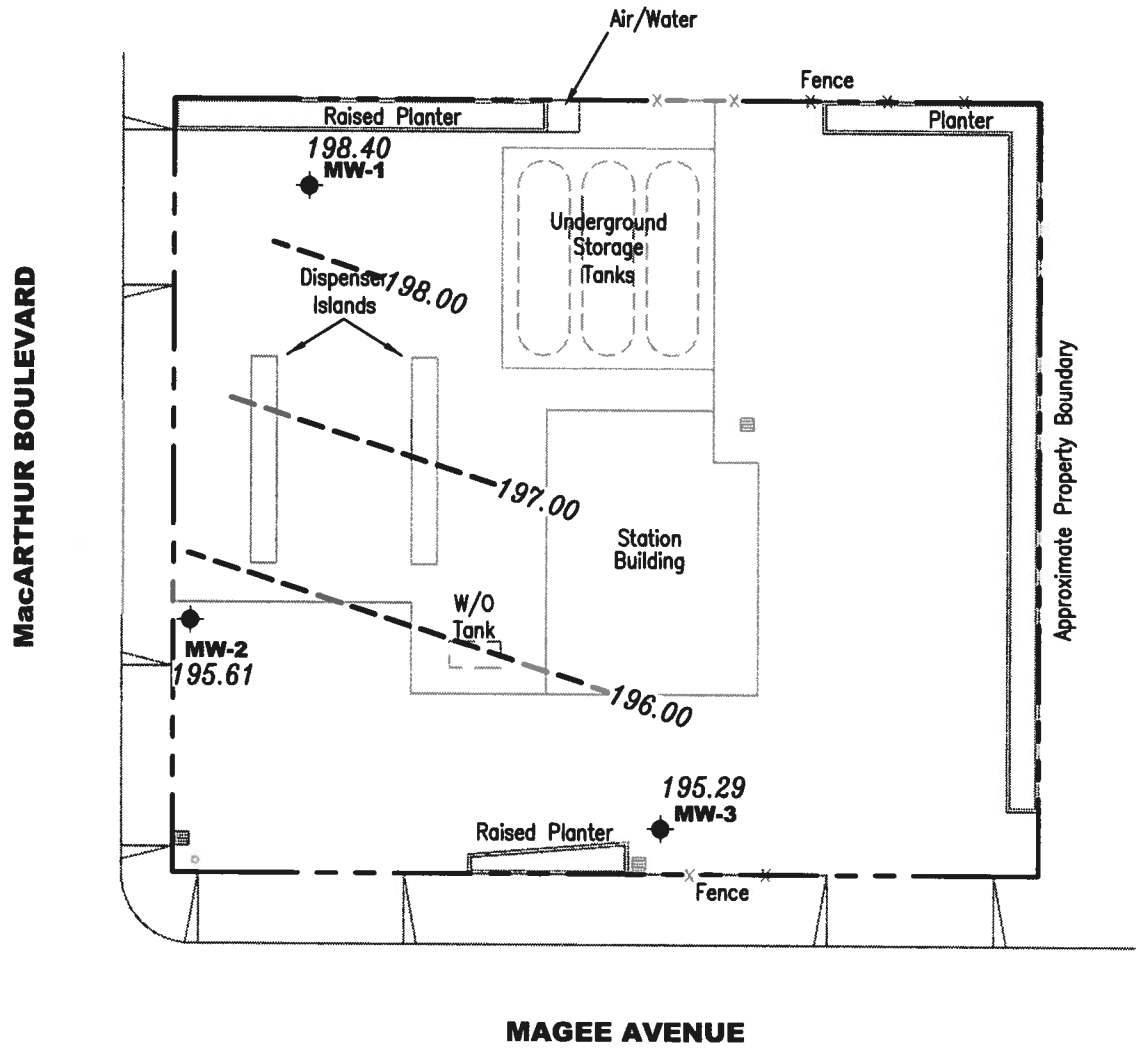
Sincerely,

Deanna L. Harding
Project Coordinator

PROFESSIONAL GEOLOGIST
DOUGLAS J. LEE
No. 6882
STATE OF CALIFORNIA

Douglas J. Lee
Senior Geologist, P.G. No. 6882

Figure 1: Potentiometric Map
Table 1: Groundwater Monitoring Data and Analytical Results
Attachments: Standard Operating Procedure - Groundwater Sampling
Field Data Sheets
Chain of Custody Document and Laboratory Analytical Reports



EXPLANATION

- Groundwater monitoring well
- 99.99 — Groundwater elevation in feet referenced to Mean Sea Level
- --99.99-- — Groundwater elevation contour, dashed where inferred

Approximate groundwater flow direction at a gradient of 0.04 Ft./Ft.

N

0 30

Scale in Feet

Gettler - Ryan Inc.
6747 Sierra Court, Suite J
Dublin, CA 94568
(925) 551-7555

POTENTIOMETRIC MAP
Chevron Service Station #9-8341
3530 MacArthur Boulevard
Oakland, California

FIGURE 1

JOB NUMBER 386346 | REVIEWED BY | DATE February 13, 2009 | REVISED DATE

FILE NAME: P:\Enviro\Chevron\9-8341\Q09-9-8341.dwg | Layout Tab: Pot1

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron Service Station #9-8341

3530 MacArthur Boulevard

Oakland, California

WELL ID/ DATE	TOC (ft.)	GWE (msl)	DTW (ft.)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	ETHANOL♦ (µg/L)
MW-1										
04/04/96	202.47	198.65	3.82	<50	<0.5	<0.5	<0.5	<0.5	ND	--
11/01/96	202.47	197.45	5.02	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/06/97	202.47	199.72	2.75	<50	<0.5	<0.5	<0.5	<0.5	14	--
04/14/97	202.47	197.71	4.76	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
07/17/97	202.47	196.72	5.75	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
10/29/97	202.47	196.97	5.50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
02/04/98	202.47	199.80	2.67	<50	4.2	<0.5	<0.5	<0.5	94	--
04/03/98	202.47	197.06	5.41	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
07/29/98	202.47	192.26	10.21	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
10/26/98	202.47	195.66	6.81	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/18/99	202.47	196.05	6.42	<50	<0.5	<0.5	<0.5	<0.5	<2.0	--
04/15/99	202.47	197.13	5.34	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
07/22/99	202.47	196.97	5.50	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
10/13/99	202.47	196.43	6.04	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/21/00	202.47	197.11	5.36	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/10/00	202.47	197.60	4.87	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
07/12/00	202.47	197.05	5.42	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--
10/05/00	202.47	196.79	5.68	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--
01/05/01	202.47	197.30	5.17	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
04/05/01	202.47	197.83	4.64	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
08/20/01	202.47	197.29	5.18	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
11/26/01	202.47	197.65	4.82	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
02/14/02	202.47	197.68	4.79	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
05/07/02	202.47	197.55	4.92	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
08/02/02	202.47	197.36	5.11	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
11/11/02	202.47	197.40	5.07	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
02/03/03	202.47	197.69	4.78	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
05/05/03	202.47	198.86	3.61	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
08/04/03[4]	202.47	197.39	5.08	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
11/19/03[4]	202.47	197.44	5.03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
02/16/04[4]	202.47	198.01	4.46	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
06/03/04[4]	202.47	197.52	4.95	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
08/20/04[4]	202.47	197.22	5.25	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
11/15/04[4]	202.47	197.86	4.61	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron Service Station #9-8341

3530 MacArthur Boulevard

Oakland, California

WELL ID/ DATE	TOC (ft.)	GWE (msl)	DTW (ft.)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	ETHANOL♦ (µg/L)
MW-1 (cont)										
02/14/05[4]	202.47	198.18	4.29	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
05/16/05[4]	202.47	198.62	3.85	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/31/05[4]	202.47	197.19	5.28	69	12	12	<0.5	12	<0.5	--
11/30/05[4]	202.47	197.36	5.11	<50	<0.5	<0.5	<0.5	1	<0.5	--
02/17/06[4]	202.47	198.47	4.00	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/19/06[4]	202.47	198.09	4.38	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/25/06[4]	202.47	197.23	5.24	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/22/06[4]	202.47	197.09	5.38	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/01/07[4]	202.47	198.00	4.47	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
04/30/07[4]	202.47	197.96	4.51	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
07/31/07[4]	202.47	197.40	5.07	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
10/27/07[4]	202.47	197.46	5.01	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/08/08[4]	202.47	199.06	3.41	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/02/08[4]	202.47	198.17	4.30	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
07/31/08[4]	202.47	197.26	5.21	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/13/08[4]	202.47	197.65	4.82	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/13/09[4]	**202.47**	**198.40**	**4.07**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**--**
MW-2										
04/04/96	198.88	196.07	2.81	<50	<0.5	<0.5	<0.5	<0.5	6,100	--
11/01/96	198.88	195.27	3.61	<500	<5.0	<5.0	<5.0	<5.0	2,600	--
01/06/97	198.88	195.97	2.91	<2,000	31	<20	<20	<20	4,000	--
04/14/97	198.88	195.43	3.45	<2,000	<20	<20	<20	<20	5,100/5,800[1]	--
07/17/97	198.88	194.98	3.90	<500	<5.0	<5.0	<5.0	<5.0	2,300/2,900[1]	--
10/29/97	198.88	192.96	5.92	120[2]	12	<0.5	<0.5	<0.5	810/900[1]	--
02/04/98	198.88	195.05	3.83	<1,000	<10	<10	<10	<10	2,100/2,800[1]	--
04/03/98	198.88	191.55	7.33	<1,000	<10	<10	<10	<10	3,800/3,600[1]	--
07/29/98	198.88	189.86	9.02	120[3]	<0.5	<0.5	<0.5	<0.5	2,800/3,900[1]	--
10/26/98	198.88	192.77	6.11	<50	<0.5	<0.5	<0.5	<0.5	1,200	--
01/18/99	198.88	194.67	4.21	<1,000	<10	<10	<10	10.5	2,530	--
04/15/99	198.88	194.56	4.32	<50	<0.5	<0.5	<0.5	<0.5	5,270	--
07/22/99	198.88	193.73	5.15	<50	8.92	<0.5	<0.5	<0.5	1,450	--
10/13/99	198.88	192.23	6.65	<250	<2.5	<2.5	<2.5	<2.5	1,740	--

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron Service Station #9-8341

3530 MacArthur Boulevard

Oakland, California

WELL ID/ DATE	TOC (ft.)	GWE (msl)	DTW (ft.)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	ETHANOL♦ (µg/L)
MW-2 (cont)										
01/21/00	198.88	192.78	6.10	69.6	<0.5	<0.5	<0.5	<0.5	1,110	--
04/10/00	198.88	194.42	4.46	<500	<5.0	<5.0	<5.0	<5.0	1,700	--
07/12/00	198.88	195.24	3.64	<50.0	<0.500	<0.500	<0.500	<0.500	187	--
10/05/00	198.88	194.06	4.82	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--
01/05/01	198.88	195.17	3.71	<50	<0.50	<0.50	<0.50	<0.50	1,800	--
04/05/01	198.88	192.94	5.94	<50	<0.50	<0.50	<0.50	<0.50	5,500	--
08/20/01	198.88	193.18	5.70	<50	<0.50	<0.50	<0.50	<0.50	2,000	--
11/26/01	198.88	193.55	5.33	<50	<0.50	<0.50	<0.50	<1.5	990	--
02/14/02	198.88	194.42	4.46	58	<0.50	<0.50	<0.50	<1.5	1,200	--
05/07/02	198.88	194.49	4.39	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
08/02/02	198.88	194.81	4.07	<50	<0.50	<0.50	<0.50	<1.5	490	--
11/11/02	198.88	194.76	4.12	<50	<0.50	<0.50	<0.50	<1.5	470	--
02/03/03	198.88	193.93	4.95	<50	<0.50	<0.50	<0.50	<1.5	690	--
05/05/03	198.88	194.38	4.50	<50	<0.5	<0.5	<0.5	<1.5	680	--
08/04/03[4]	198.88	195.02	3.86	<50	<0.5	<0.5	<0.5	<0.5	460	<50
11/19/03[4]	198.88	195.32	3.56	<50	<0.5	<0.5	<0.5	<0.5	540	<50
02/16/04[4]	198.88	195.73	3.15	<50	<1	<1	<1	<1	1,200	<130
06/03/04[4]	198.88	195.18	3.70	<50	<0.5	<0.5	<0.5	<0.5	190	<50
08/20/04[4]	198.88	194.85	4.03	<50	<0.5	<0.5	<0.5	<0.5	130	<50
11/15/04[4]	198.88	195.54	3.34	<50	<0.5	<0.5	<0.5	<0.5	230	<50
02/14/05[4]	198.88	195.54	3.34	<50	<0.5	<0.5	<0.5	<0.5	600	<50
05/16/05[4]	198.88	194.99	3.89	<50	<0.5	<0.5	<0.5	<0.5	130	--
08/31/05[4]	198.88	194.81	4.07	<50	<0.5	<0.5	<0.5	0.8	450	--
11/30/05[4]	198.88	193.13	5.75	<50	<0.5	<0.5	<0.5	2	280	--
02/17/06[4]	198.88	195.56	3.32	<50	<0.5	<0.5	<0.5	<0.5	790	--
05/19/06[4]	198.88	193.80	5.08	<50	<0.5	<0.5	<0.5	<0.5	530	--
08/25/06[4]	198.88	194.85	4.03	<50	<0.5	<0.5	<0.5	<0.5	330	--
11/22/06[4]	198.88	193.44	5.44	<50	<0.5	<0.5	<0.5	<0.5	310	--
02/01/07[4]	198.88	195.30	3.58	<50	<0.5	<0.5	<0.5	<0.5	770	--
04/30/07[4]	198.88	194.73	4.15	<50	<0.5	<0.5	<0.5	<0.5	92	--
07/31/07[4]	198.88	194.68	4.20	<50	<0.5	<0.5	<0.5	<0.5	20	--
10/27/07[4]	198.88	195.00	3.88	<50	<0.5	<0.5	<0.5	<0.5	220	--
02/08/08[4]	198.88	194.86	4.02	<50	<0.5	<0.5	<0.5	<0.5	860	--

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron Service Station #9-8341

3530 MacArthur Boulevard

Oakland, California

WELL ID/ DATE	TOC (ft.)	GWE (msl)	DTW (ft.)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	ETHANOL♦ (µg/L)
MW-2 (cont)										
05/02/08[4]	198.88	194.50	4.38	<50	<0.5	<0.5	<0.5	<0.5	1,700	--
07/31/08[4]	198.88	194.70	4.18	<50	<0.5	<0.5	<0.5	<0.5	770	--
11/13/08[4]	198.88	195.10	3.78	<50	<0.5	<0.5	<0.5	<0.5	740	--
02/13/09[4]	**198.88**	**195.61**	**3.27**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**970**	--
MW-3										
11/01/96	199.10	194.91	4.19	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/06/97	199.10	195.29	3.81	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/14/97	199.10	194.93	4.17	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
07/17/97	199.10	194.92	4.18	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
10/29/97	199.10	193.90	5.20	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
02/04/98	199.10	194.71	4.39	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/03/98	199.10	195.78	3.32	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
07/29/98	199.10	189.24	9.86	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
10/26/98	199.10	193.59	5.51	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/18/99	199.10	194.68	4.42	<50	<0.5	<0.5	<0.5	<0.5	<2.0	--
04/15/99	199.10	194.54	4.56	<50	<0.5	<0.5	<0.5	1.16	<5.0	--
07/22/99	199.10	192.45	6.65	<50	<0.5	<0.5	<0.5	<0.5	3.94	--
10/13/99	199.10	193.79	5.31	<50	<0.5	<0.5	<0.5	<0.5	6.55	--
01/21/00	199.10	193.18	5.92	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/10/00	199.10	194.32	4.78	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
07/12/00	199.10	193.86	5.24	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--
10/05/00	199.10	195.17	3.93	<50.0	<0.500	<0.500	<0.500	<0.500	39.7	--
01/05/01	199.10	194.85	4.25	<50	<0.50	<0.50	<0.50	<0.50	2.9	--
04/05/01	199.10	194.72	4.38	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
08/20/01	199.10	194.35	4.75	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
11/26/01	199.10	193.60	5.50	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
02/14/02	199.10	194.82	4.28	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
05/07/02	199.10	194.58	4.52	85	<0.50	<0.50	<0.50	<1.5	610	--
08/02/02	199.10	194.72	4.38	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
11/11/02	199.10	195.04	4.06	<50	<0.50	<0.50	<0.50	<1.5	4.5	--
02/03/03	199.10	194.02	5.08	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
05/05/03	199.10	194.50	4.60	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron Service Station #9-8341

3530 MacArthur Boulevard

Oakland, California

WELL ID/ DATE	TOC (ft.)	GWE (msl)	DTW (ft.)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	ETHANOL♦ (µg/L)
MW-3 (cont)										
08/04/03[4]	199.10	194.75	4.35	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
11/19/03[4]	199.10	194.86	4.24	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
02/16/04[4]	199.10	195.32	3.78	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
06/03/04[4]	199.10	193.74	5.36	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
08/20/04[4]	199.10	194.75	4.35	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
11/15/04[4]	199.10	195.21	3.89	<50	<0.5	<0.5	<0.5	<0.5	2	<50
02/14/05[4]	199.10	195.18	3.92	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<50
05/16/05[4]	199.10	195.34	3.76	<50	<0.5	<0.5	<0.5	<0.5	0.6	--
08/31/05[4]	199.10	194.89	4.21	54	7	7	<0.5	12	<0.5	--
11/30/05[4]	199.10	195.31	3.79	<50	<0.5	<0.5	<0.5	1	<0.5	--
02/17/06[4]	199.10	195.04	4.06	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/19/06[4]	199.10	194.49	4.61	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/25/06[4]	199.10	194.94	4.16	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/22/06[4]	199.10	195.45	3.65	<50	<0.5	<0.5	<0.5	1	<0.5	--
02/01/07[4]	199.10	194.90	4.20	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
04/30/07[4]	199.10	195.12	3.98	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
07/31/07[4]	199.10	195.07	4.03	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
10/27/07[4]	199.10	194.66	4.44	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/08/08[4]	199.10	195.05	4.05	<50	<0.5	<0.5	<0.5	<0.5	1	--
05/02/08[4]	199.10	194.97	4.13	<50	<0.5	<0.5	<0.5	<0.5	2	--
07/31/08[4]	199.10	194.62	4.48	<50	<0.5	<0.5	<0.5	<0.5	0.6	--
11/13/08[4]	199.10	194.42	4.68	<50	<0.5	<0.5	<0.5	<0.5	1	--
02/13/09[4]	**199.10**	**195.29**	**3.81**	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**0.5**	--
TRIP BLANK										
11/01/96	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/06/97	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/14/97	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
07/17/97	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
10/29/97	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
02/04/98	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/03/98	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
07/29/98	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--

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Groundwater Monitoring Data and Analytical Results

Chevron Service Station #9-8341

3530 MacArthur Boulevard

Oakland, California

WELL ID/ DATE	TOC (ft.)	GWE (msl)	DTW (ft.)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	ETHANOL♦ (µg/L)
TRIP BLANK (cont)										
10/26/98	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/18/99	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.0	--
04/15/99	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<5.0	--
07/22/99	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
10/13/99	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
01/21/00	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<2.5	--
04/10/00	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
07/12/00	--	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--
10/05/00	--	--	--	<50.0	<0.500	<0.500	<0.500	<0.500	<2.50	--
01/05/01	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
QA										--
04/05/01	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
08/20/01	--	--	--	<50	<0.50	<0.50	<0.50	<0.50	<2.5	--
11/26/01	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
02/14/02	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
05/07/02	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
08/02/02	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
11/11/02	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
02/03/03	--	--	--	<50	<0.50	<0.50	<0.50	<1.5	<2.5	--
05/05/03	--	--	--	<50	<0.5	<0.5	<0.5	<1.5	<2.5	--
08/04/03[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/19/03[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/16/04[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
06/03/04[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/20/04[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/15/04[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/14/05[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/16/05[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/31/05[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/30/05[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/17/06[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/19/06[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
08/25/06[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/22/06[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron Service Station #9-8341

3530 MacArthur Boulevard

Oakland, California

WELL ID/ DATE	TOC (ft.)	GWE (msl)	DTW (ft.)	TPH-GRO (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	ETHANOL♦ (µg/L)
QA (cont)										--
02/01/07[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
04/30/07[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
07/31/07[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
10/27/07[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/08/08[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
05/02/08[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
07/31/08[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
11/13/08[4]	--	--	--	<50	<0.5	<0.5	<0.5	<0.5	<0.5	--
02/13/09[4]	--	--	--	**<50**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	**<0.5**	--

Table 1

Groundwater Monitoring Data and Analytical Results

Chevron Service Station #9-8341

3530 MacArthur Boulevard

Oakland, California

EXPLANATIONS:

Groundwater monitoring data and analytical results prior to April 10, 2000, were compiled from reports prepared by Blaine Tech Services, Inc.

TOC = Top of Casing
(ft.) = Feet
GWE = Groundwater Elevation
(msl) = Mean sea level
DTW = Depth to Water
TPH = Total Petroleum Hydrocarbons

GRO = Gasoline Range Organics
B = Benzene
T = Toluene
E = Ethylbenzene
X = Xylenes
MTBE = Methyl Tertiary Butyl Ether

ND = Not Detected
-- = Not Measured/Not Analyzed
(µg/L) = Micrograms per liter
QA = Quality Assurance/Trip Blank

♦ Ethanol by EPA Method 8260.

1 Confirmation run.

2 Chromatogram report indicates an unidentified hydrocarbon and gas.

3 Chromatogram report indicates an unidentified hydrocarbon.

4 BTEX and MTBE by EPA Method 8260.

STANDARD OPERATING PROCEDURE - GROUNDWATER SAMPLING

Gettler-Ryan Inc. field personnel adhere to the following procedures for the collection and handling of groundwater samples prior to analysis by the analytical laboratory. Prior to sample collection, the type of analysis to be performed is determined. Loss prevention of volatile compounds is controlled and sample preservation for subsequent analysis is maintained.

Prior to sampling, the presence or absence of free-phase hydrocarbons is determined using an interface probe. Product thickness, if present, is measured to the nearest 0.01 foot and is noted in the field notes. In addition, all depth to water level measurements are collected with a static water level indicator and are also recorded in the field notes, prior to purging and sampling any wells.

After water levels are collected and prior to sampling, if purging is to occur, each well is purged a minimum of three well casing volumes of water using pre-cleaned pumps (stack, suction, Grundfos), or disposable bailers. Temperature, pH and electrical conductivity are measured a minimum of three times during the purging. Purging continues until these parameters stabilize.

Groundwater samples are collected using disposable bailers. The water samples are transferred from the bailer into appropriate containers. Pre-preserved containers, supplied by analytical laboratories, are used when possible. When pre-preserved containers are not available, the laboratory is instructed to preserve the sample as appropriate. Duplicate samples are collected for the laboratory to use in maintaining quality assurance/quality control standards. The samples are labeled to include the job number, sample identification, collection date and time, analysis, preservation (if any), and the sample collector's initials. The water samples are placed in a cooler, maintained at 4°C for transport to the laboratory. Once collected in the field, all samples are maintained under chain of custody until delivered to the laboratory.

The chain of custody document includes the job number, type of preservation, if any, analysis requested, sample identification, date and time collected, and the sample collector's name. The chain of custody is signed and dated (including time of transfer) by each person who receives or surrenders the samples, beginning with the field personnel and ending with the laboratory personnel.

A laboratory supplied trip blank accompanies each sampling set. For sampling sets greater than 20 samples, 5% trip blanks are included. The trip blank is analyzed for some or all of the same compounds as the groundwater samples.

As requested by Chevron Environmental Management Company, the purge water and decontamination water generated during sampling activities is transported by IWM to Chemical Waste Management located in Kettleman Hills, California.

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #9-8341 Job Number: 386346
Site Address: 3530 Macarthur Blvd. Event Date: 2/13/09 (inclusive)
City: Oakland, CA Sampler: SR

Well ID MW- 1 Date Monitored: 2/13/09
Well Diameter 2 in.
Total Depth 27.28 ft.
Depth to Water 4.07 ft.

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

23.21 xVF .17 = 3.9 x3 case volume = Estimated Purge Volume: 12 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 8.71

Purge Equipment:
Disposable Bailer
Stainless Steel Bailer
Stack Pump ✓
Suction Pump
Grundfos
Peristaltic Pump
QED Bladder Pump
Other:

Sampling Equipment:
Disposable Bailer ✓
Pressure Bailer
Discrete Bailer
Peristaltic Pump
QED Bladder Pump
Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1215 Weather Conditions: cloudy
Sample Time/Date: 1238 12/13/09 Water Color: clear Odor: Y / (N)
Approx. Flow Rate: ≈2 gpm. Sediment Description: —
Did well de-water? N If yes, Time: — Volume: — gal. DTW @ Sampling: 4.81

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm (µS))	Temperature (C) F)	D.O. (mg/L)	ORP (mV)
1217	4	7.00	603	16.6		
1219	8	7.13	581	16.9		
1221	12	7.21	554	17.0		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW- 1	6 x voa vial	YES	HCL	LANCASTER	TPH-G(8015)/BTEX+MTBE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #9-8341 Job Number: 386346
Site Address: 3530 Macarthur Blvd. Event Date: 2/13/09 (inclusive)
City: Oakland, CA Sampler: SR

Well ID MW-2 Date Monitored: 2/13/09
Well Diameter 2 in.
Total Depth 32.75 ft.
Depth to Water 3.27 ft.

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

29.48 xVF .17 = 5.0 x3 case volume = Estimated Purge Volume: 15 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 9.16

Purge Equipment:
Disposable Bailer
Stainless Steel Bailer
Stack Pump ✓
Suction Pump
Grundfos
Peristaltic Pump
QED Bladder Pump
Other:

Sampling Equipment:
Disposable Bailer ✓
Pressure Bailer
Discrete Bailer
Peristaltic Pump
QED Bladder Pump
Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1327 Weather Conditions: cloudy
Sample Time/Date: 1350 12/13/09 Water Color: lt. brown Odor: Y (N)
Approx. Flow Rate: ≈2.5 gpm. Sediment Description: cloudy
Did well de-water? N If yes, Time: — Volume: — gal. DTW @ Sampling: 7.38

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm - (µS))	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1329	5	7.47	685	19.4		
1331	10	7.24	669	19.3		
1333	15	7.16	657	19.5		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-2	6 x voa vial	YES	HCL	LANCASTER	TPH-G(8015)/BTEX+MTBE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

GETTLER-RYAN INC.

WELL MONITORING/SAMPLING FIELD DATA SHEET

Client/Facility#: Chevron #9-8341 Job Number: 386346
Site Address: 3530 Macarthur Blvd. Event Date: 12/13/09 (inclusive)
City: Oakland, CA Sampler: SR

Well ID MW-3 Date Monitored: 12/13/09
Well Diameter 2 in.
Total Depth 32.32 ft.
Depth to Water 3.81 ft.

Volume Factor (VF)	3/4"= 0.02	1"= 0.04	2"= 0.17	3"= 0.38
	4"= 0.66	5"= 1.02	6"= 1.50	12"= 5.80

☐ Check if water column is less then 0.50 ft.

28.51 xVF .17 = 4.8 x3 case volume = Estimated Purge Volume: 15 gal.

Depth to Water w/ 80% Recharge [(Height of Water Column x 0.20) + DTW]: 9.51

Purge Equipment:
Disposable Bailer
Stainless Steel Bailer
Stack Pump ✓
Suction Pump
Grundfos
Peristaltic Pump
QED Bladder Pump
Other:

Sampling Equipment:
Disposable Bailer ✓
Pressure Bailer
Discrete Bailer
Peristaltic Pump
QED Bladder Pump
Other:

Time Started: (2400 hrs)
Time Completed: (2400 hrs)
Depth to Product: ft
Depth to Water: ft
Hydrocarbon Thickness: ft
Visual Confirmation/Description:
Skimmer / Absorbant Sock (circle one)
Amt Removed from Skimmer: gal
Amt Removed from Well: gal
Water Removed:
Product Transferred to:

Start Time (purge): 1255 Weather Conditions: cloudy
Sample Time/Date: 1315 12/13/09 Water Color: lt. brown Odor: Y / (N)
Approx. Flow Rate: ≈2.5 gpm. Sediment Description: cloudy
Did well de-water? N If yes, Time: — Volume: — gal. DTW @ Sampling: 6.21

Time (2400 hr.)	Volume (gal.)	pH	Conductivity (µmhos/cm (µS))	Temperature (C / F)	D.O. (mg/L)	ORP (mV)
1257	5	7.69	570	16.9		
1259	10	7.51	591	16.9		
1301	15	7.44	604	17.1		

LABORATORY INFORMATION

SAMPLE ID	(#) CONTAINER	REFRIG.	PRESERV. TYPE	LABORATORY	ANALYSES
MW-3	6 x voa vial	YES	HCL	LANCASTER	TPH-G(8015)/BTEX+MTBE(8260)

COMMENTS:

Add/Replaced Lock: _____ Add/Replaced Plug: _____ Add/Replaced Bolt: _____

Chevron California Region Analysis Request/Chain of Custody

Lancaster Laboratories

02139-04

Acct. #: 12099 | For Lancaster Laboratories use only Sample # 5600705-08 | Group #: 009768

CRA MTI Project #: 61H-1650 | G# 1132325

Facility #: SS#9-8341 G-R#386346 Global ID#T0600101790

Site Address: 3530 MACARTHUR BLVD., OAKLAND, CA

Chevron PM: MTI | Lead Consultant: CRAKJ

Consultant/Office: G-R, Inc., 6747 Sierra Court, Suite J, Dublin, CA 94568

Consultant Prj. Mgr.: Deanna L. Harding (deanna@grinc.com)

Consultant Phone #: 925-551-7555 | Fax #: 925-551-7899

Sampler: Steve Rice

Sample Identification	Date Collected	Time Collected	Grab	Composite	Matrix: Soil	Water	Oil	Air	Potable	NPDES	Total Number of Containers	BTEX + MTBE 8260	8021	TPH 8015 MOD GRO	TPH 8015 MOD DRO	Silica Gel Cleanup	8260 full scan	Oxygenates	Total Lead Method	Dissolved Lead Method
												H	H							
QA	2/13/09		X			X					2	X	X							
MW-1		1238	X			X					6	X	X							
MW-2		1350	X			X					6	X	X							
MW-3	↓	1315	X			X					6	X	X							

Preservative Codes
H = HCl | T = Thiosulfate
N = HNO_3 | B = NaOH
S = H_2SO_4 | O = Other

- ☐ J value reporting needed
- ☒ Must meet lowest detection limits possible for 8260 compounds

8021 MTBE Confirmation
- ☐ Confirm highest hit by 8260
- ☐ Confirm all hits by 8260
- ☐ Run ____ oxy's on highest hit
- ☐ Run ____ oxy's on all hits

Comments / Remarks

Turnaround Time Requested (TAT) (please circle)
STD. TAT | 72 hour | 48 hour | 24 hour | 4 day | 5 day

Data Package Options (please circle if required)
QC Summary | Type I - Full | Type VI (Raw Data) | ☐ Coelt Deliverable not needed | WIP (RWQCB) | Disk

EDF/EDD

	Date	Time		Date	Time
Relinquished by:	2/13/09	1440	Received by:	13FEB09	1446
Relinquished by:	2/13/09		Received by:	2/13/09	
Relinquished by:			Received by:		
Relinquished by Commercial Carrier: UPS FedEx Other			Received by:	2/14/09	0820
Temperature Upon Receipt 1.2-3.1 C°			Custody Seals Intact? Yes No		

Lancaster Laboratories
2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

ANALYTICAL RESULTS

Prepared for:

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

916-677-3407

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

SAMPLE GROUP

The sample group for this submittal is 1132325. Samples arrived at the laboratory on Saturday, February 14, 2009. The PO# for this group is 98341 and the release number is MTI.

Client Description	Lancaster Labs Number
QA-T-090213 NA Water	5600705
MW-1-W-090213 Grab Water	5600706
MW-2-W-090213 Grab Water	5600707
MW-3-W-090213 Grab Water	5600708

ELECTRONIC COPY TO Gettler-Ryan, Inc. Attn: Cheryl Hansen

Lancaster Laboratories

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Analysis Report

Questions? Contact your Client Services Representative
Jill M Parker at (717) 656-2300

Respectfully Submitted,

Marla S. Lord

Marla S. Lord
Senior Specialist

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. WW5600705 **Group No. 1132325**

QA-T-090213 NA Water
Facility# 98341 Job# 386346 MTI# 61H-1650 GRD
3530 MacArthur-Oakland T0600101790 QA
Collected:02/13/2009

Account Number: 12099

Submitted: 02/14/2009 10:20
Reported: 02/24/2009 at 19:22
Discard: 03/27/2009

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

MACQA

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	ug/l	1
06054	BTEX+MTBE by 8260B					
02010	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	ug/l	1
05401	Benzene	71-43-2	N.D.	0.5	ug/l	1
05407	Toluene	108-88-3	N.D.	0.5	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	0.5	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	0.5	ug/l	1

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	02/19/2009 02:36	Marie D John	1
06054	BTEX+MTBE by 8260B	SW-846 8260B	1	02/18/2009 13:29	Daniel H Heller	1
01146	GC VOA Water Prep	SW-846 5030B	1	02/19/2009 02:36	Marie D John	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/18/2009 13:29	Daniel H Heller	1

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. WW5600706 **Group No. 1132325**

MW-1-W-090213 Grab Water
Facility# 98341 Job# 386346 MTI# 61H-1650 GRD
3530 MacArthur-Oakland T0600101790 MW-1
Collected:02/13/2009 12:38 by SR

Account Number: 12099

Submitted: 02/14/2009 10:20
Reported: 02/24/2009 at 19:22
Discard: 03/27/2009

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

MAC01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	ug/l	1
06054	BTEX+MTBE by 8260B					
02010	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	ug/l	1
05401	Benzene	71-43-2	N.D.	0.5	ug/l	1
05407	Toluene	108-88-3	N.D.	0.5	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	0.5	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	0.5	ug/l	1

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	02/19/2009 08:03	Marie D John	1
06054	BTEX+MTBE by 8260B	SW-846 8260B	1	02/18/2009 09:54	Daniel H Heller	1
01146	GC VOA Water Prep	SW-846 5030B	1	02/19/2009 08:03	Marie D John	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/18/2009 09:54	Daniel H Heller	1

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Analysis Report

Lancaster Laboratories Sample No. WW5600707 **Group No. 1132325**

MW-2-W-090213 Grab Water
Facility# 98341 Job# 386346 MTI# 61H-1650 GRD
3530 MacArthur-Oakland T0600101790 MW-2
Collected:02/13/2009 13:50 by SR

Account Number: 12099

Submitted: 02/14/2009 10:20
Reported: 02/24/2009 at 19:22
Discard: 03/27/2009

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

MAC02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	ug/l	1
06054	BTEX+MTBE by 8260B					
02010	Methyl Tertiary Butyl Ether	1634-04-4	970	0.5	ug/l	1
05401	Benzene	71-43-2	N.D.	0.5	ug/l	1
05407	Toluene	108-88-3	N.D.	0.5	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	0.5	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	0.5	ug/l	1

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	02/19/2009 08:25	Marie D John	1
06054	BTEX+MTBE by 8260B	SW-846 8260B	1	02/18/2009 13:56	Daniel H Heller	1
01146	GC VOA Water Prep	SW-846 5030B	1	02/19/2009 08:25	Marie D John	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/18/2009 13:56	Daniel H Heller	1

Lancaster Laboratories

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Analysis Report

Lancaster Laboratories Sample No. WW5600708 **Group No. 1132325**

MW-3-W-090213 Grab Water
Facility# 98341 Job# 386346 MTI# 61H-1650 GRD
3530 MacArthur-Oakland T0600101790 MW-3
Collected:02/13/2009 13:15 by SR

Account Number: 12099

Submitted: 02/14/2009 10:20
Reported: 02/24/2009 at 19:22
Discard: 03/27/2009

Chevron c/o CRA
Suite 110
2000 Opportunity Drive
Roseville CA 95678

MAC03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Units	Dilution Factor
01728	TPH-GRO N. CA water C6-C12	n.a.	N.D.	50	ug/l	1
06054	BTEX+MTBE by 8260B					
02010	Methyl Tertiary Butyl Ether	1634-04-4	0.5	0.5	ug/l	1
05401	Benzene	71-43-2	N.D.	0.5	ug/l	1
05407	Toluene	108-88-3	N.D.	0.5	ug/l	1
05415	Ethylbenzene	100-41-4	N.D.	0.5	ug/l	1
06310	Xylene (Total)	1330-20-7	N.D.	0.5	ug/l	1

State of California Lab Certification No. 2116

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Chronicle

CAT No.	Analysis Name	Method	Trial#	Analysis Date and Time	Analyst	Dilution Factor
01728	TPH-GRO N. CA water C6-C12	SW-846 8015B	1	02/20/2009 02:52	Katrina T Longenecker	1
06054	BTEX+MTBE by 8260B	SW-846 8260B	1	02/18/2009 14:49	Daniel H Heller	1
01146	GC VOA Water Prep	SW-846 5030B	1	02/20/2009 02:52	Katrina T Longenecker	1
01163	GC/MS VOA Water Prep	SW-846 5030B	1	02/18/2009 14:49	Daniel H Heller	1

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 •717-656-2300 Fax:717-656-2681• www.lancasterlabs.com

Analysis Report

Quality Control Summary

Client Name: Chevron c/o CRA
Reported: 02/24/09 at 07:22 PM

Group Number: 1132325

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: 09048C20A	Sample number(s): 5600705-5600707							
TPH-GRO N. CA water C6-C12	N.D.	50.	ug/l	100	100	75-135	0	30
Batch number: 09050A20A	Sample number(s): 5600708							
TPH-GRO N. CA water C6-C12	N.D.	50.	ug/l	100	118	75-135	17	30
Batch number: P090492AA	Sample number(s): 5600705-5600708							
Methyl Tertiary Butyl Ether	N.D.	0.5	ug/l	98		73-119		
Benzene	N.D.	0.5	ug/l	96		78-119		
Toluene	N.D.	0.5	ug/l	95		85-115		
Ethylbenzene	N.D.	0.5	ug/l	94		82-119		
Xylene (Total)	N.D.	0.5	ug/l	95		83-113		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 09048C20A	Sample number(s): 5600705-5600707 UNSPK: 5600706								
TPH-GRO N. CA water C6-C12	127		63-154						
Batch number: 09050A20A	Sample number(s): 5600708 UNSPK: P602000								
TPH-GRO N. CA water C6-C12	127		63-154						
Batch number: P090492AA	Sample number(s): 5600705-5600708 UNSPK: 5600706								
Methyl Tertiary Butyl Ether	100	101	69-127	1	30				
Benzene	101	101	83-128	0	30				
Toluene	100	101	83-127	1	30				
Ethylbenzene	99	100	82-129	1	30				
Xylene (Total)	98	99	82-130	1	30				

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: TPH-GRO N. CA water C6-C12
Batch number: 09048C20A
Trifluorotoluene-F

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Analysis Report

Quality Control Summary

Client Name: Chevron c/o CRA
Reported: 02/24/09 at 07:22 PM

Group Number: 1132325

Surrogate Quality Control

5600705	85
5600706	84
5600707	87
Blank	85
LCS	119
LCSD	116
MS	131
Limits:	63-135

Analysis Name: TPH-GRO N. CA water C6-C12
Batch number: 09050A20A
Trifluorotoluene-F

5600708	84
Blank	85
LCS	117
LCSD	122
MS	131
Limits:	63-135

Analysis Name: BTEX+MTBE by 8260B
Batch number: P090492AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5600705	100	99	97	88
5600706	99	100	96	87
5600707	99	98	96	88
5600708	100	99	97	88
Blank	99	102	97	89
LCS	99	103	96	90
MS	100	102	96	91
MSD	100	102	97	91
Limits:	80-116	77-113	80-113	78-113

*- Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Lancaster Laboratories
Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	**BMQL**	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	**MPN**	Most Probable Number
IU	International Units	**CP Units**	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	**NTU**	nephelometric turbidity units
C	degrees Celsius	**F**	degrees Fahrenheit
Cal	(diet) calories	**lb.**	pound(s)
meq	milliequivalents	**kg**	kilogram(s)
g	gram(s)	**mg**	milligram(s)
ug	microgram(s)	**l**	liter(s)
ml	milliliter(s)	**ul**	microliter(s)
m3	cubic meter(s)	**fib >5 um/ml**	fibers greater than 5 microns in length per ml

< less than – The number following the sign is the limit of quantitation, the smallest amount of analyte which can be reliably determined using this specific test.

> greater than

ppm parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.

ppb parts per billion

Dry weight basis Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quatitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*****	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

APPENDIX E

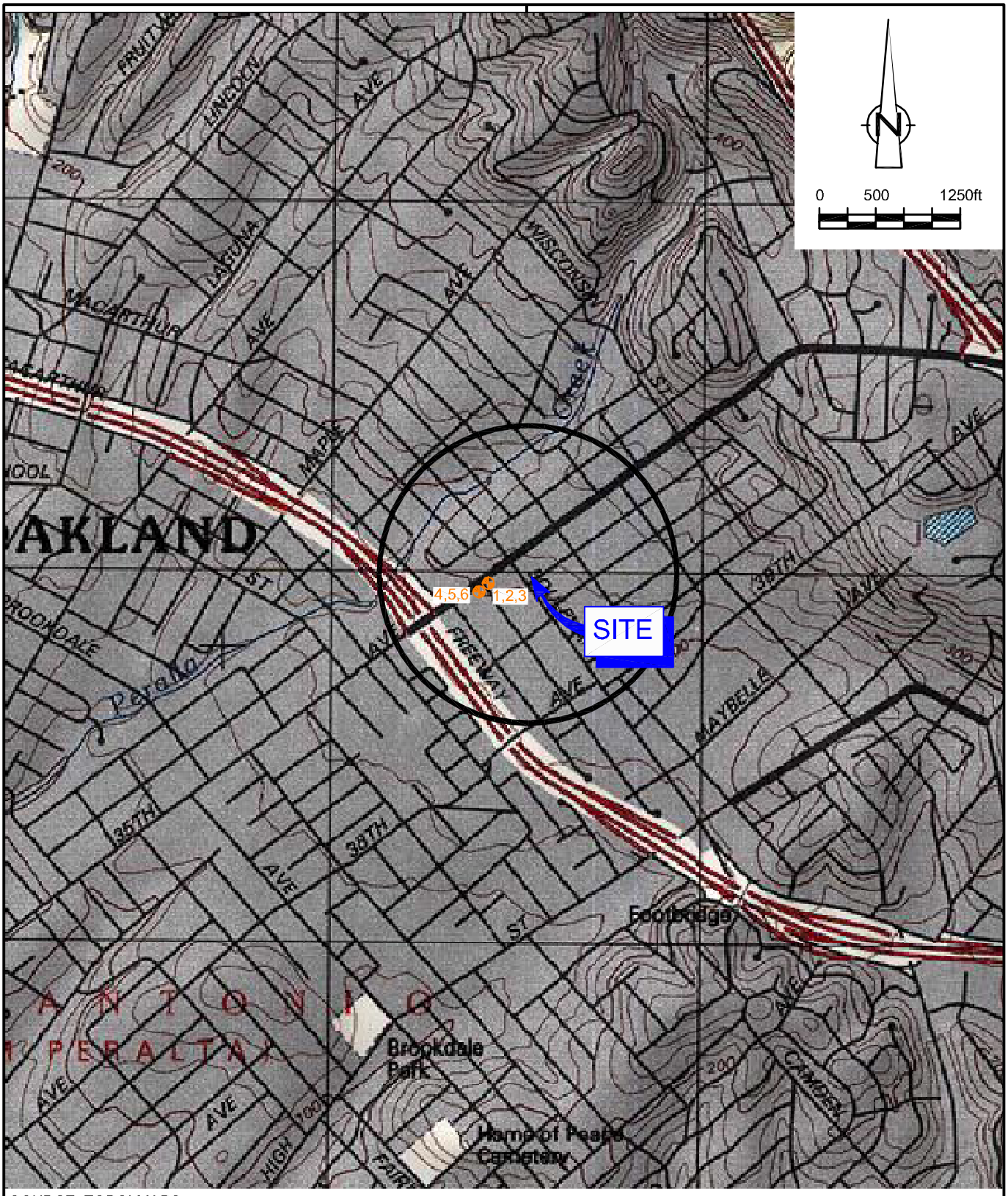
AREA WELL SURVEY DATA

WELL SURVEY DATA

FORMER CHEVRON SERVICE STATION 9-8341
3530 MACARTHUR BOULEVARD
OAKLAND, CALIFORNIA

Figure 1 I.D.	*Water Well Drillers Report Number*	*Township/Range Section/Track*	*Name/Owner*	*Location*	*Sensitive Receptor Type*	*Date Installed*	*Depth (fbg)*	*Screened Interval (fbg)*	*Approximate Distance from Site*
1	01-545F	01S-03W-33	Exxon	3450 35th Avenue	Monitoring Well	7/15/1992	45	25-45	1/8 mile
2	01-545G	01S-03W-33	Exxon	3450 35th Avenue	Monitoring Well	7/15/1992	45	25-45	1/8 mile
3	01-545H	01S-03W-33	Exxon	3450 35th Avenue	Monitoring Well	7/15/1992	45	25-45	1/8 mile
4	--	01S-03W-33	Unocal	3420 35th Avenue	Monitoring Well	--	--	--	1/8 mile
5	--	01S-03W-33	Unocal	3420 35th Avenue	Monitoring Well	--	--	--	1/8 mile
6	--	01S-03W-33	Unocal	3420 35th Avenue	Monitoring Well	--	--	--	1/8 mile

Abbreviations & Notes
- - = No Data
fbg = feet below grade
Well Locations provided by the State of California Department of Water Resources



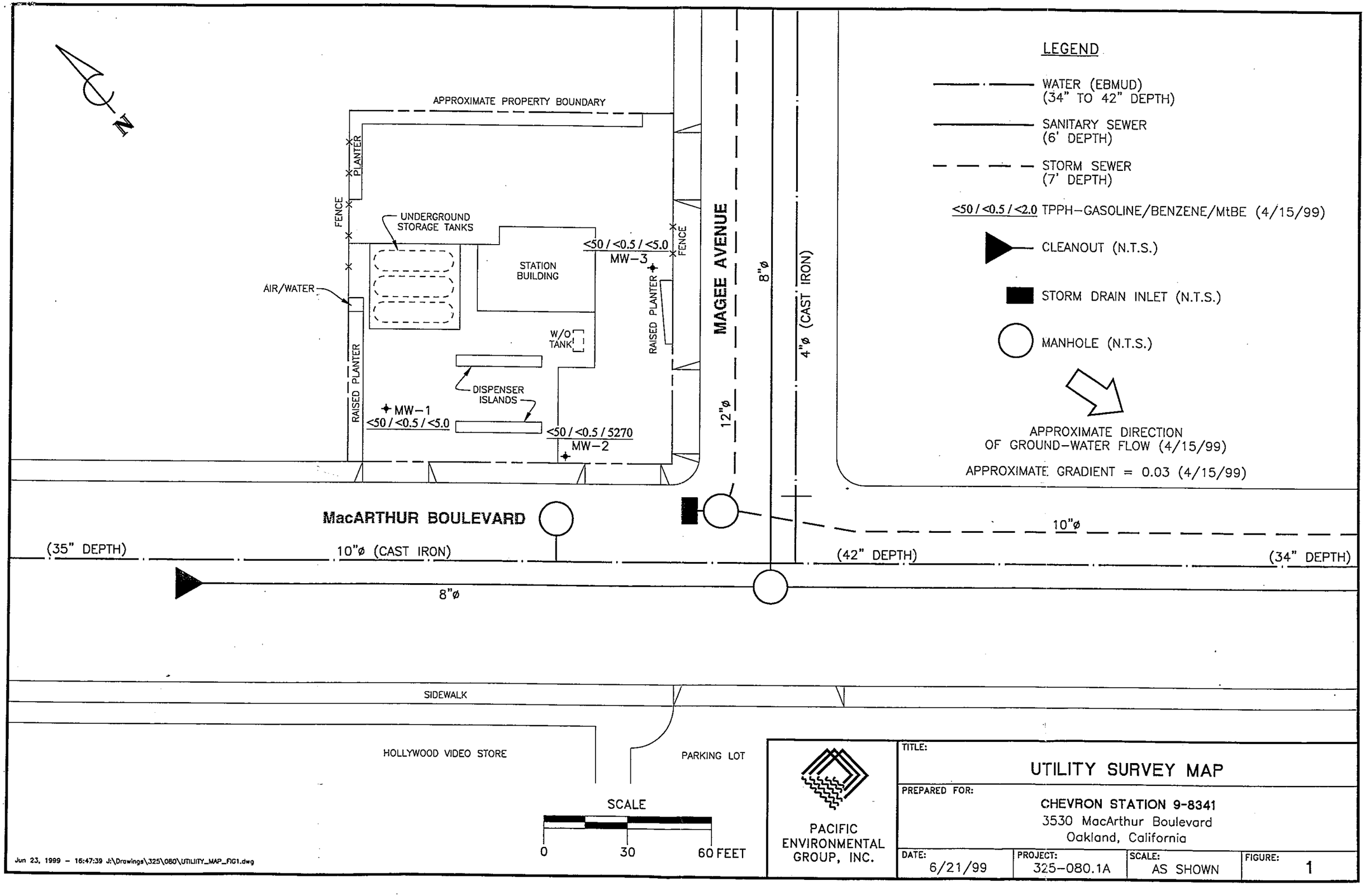
SOURCE: TOPO! MAPS.

AREA WELL SURVEY MAP
CHEVRON SERVICE STATION 9-8341
3530 MACARTHUR BOULEVARD
Oakland, California

611650-204(003)GN-WA002 MAR 25/2009

APPENDIX F

PREFERENTIAL PATHWAY STUDY INFORMATION



Jun 23, 1999 – 16:47:39 J:\Drawings\325\080\UTILITY_MAP_FIG1.dwg

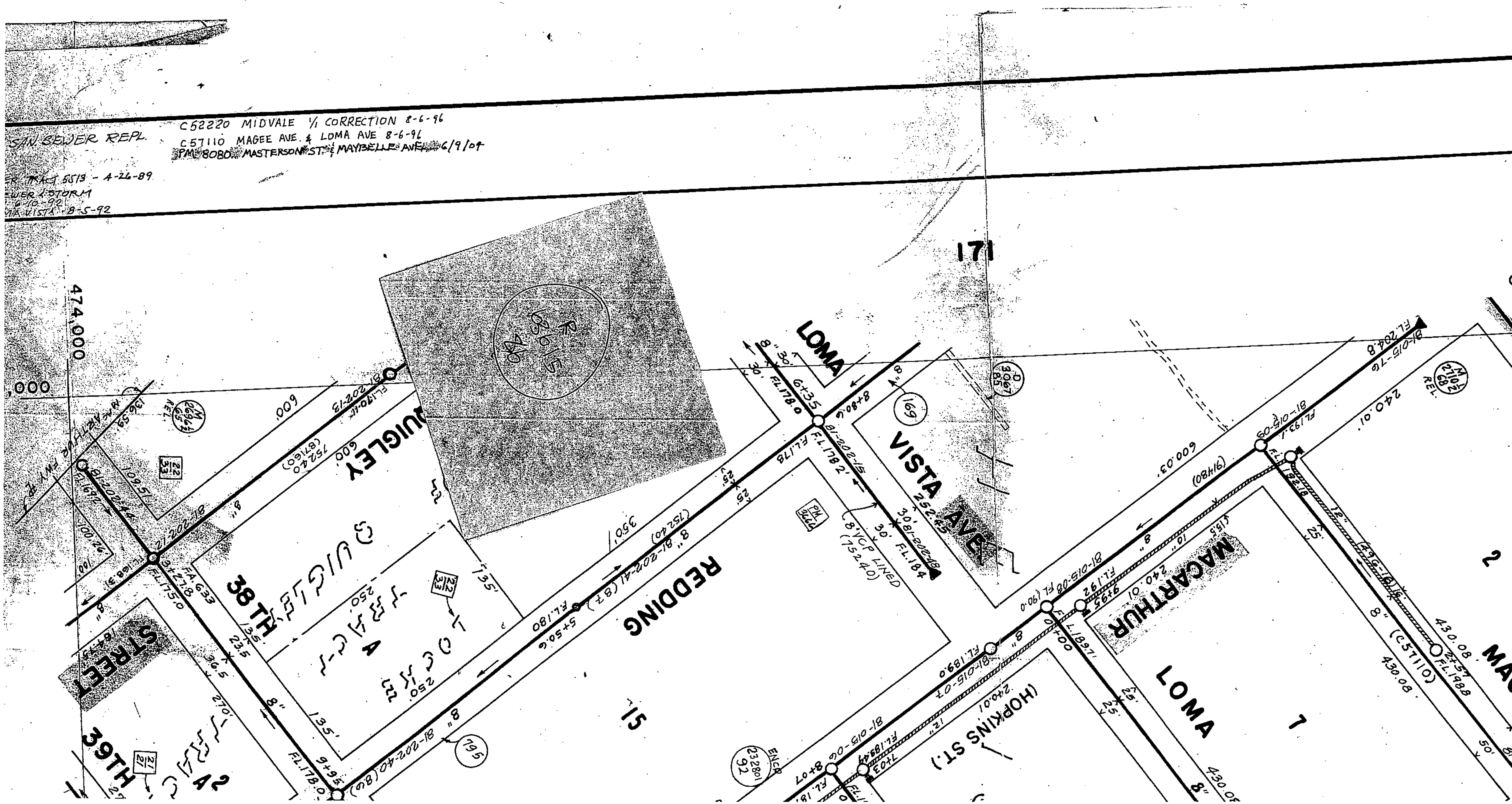
PACIFIC ENVIRONMENTAL GROUP, INC.

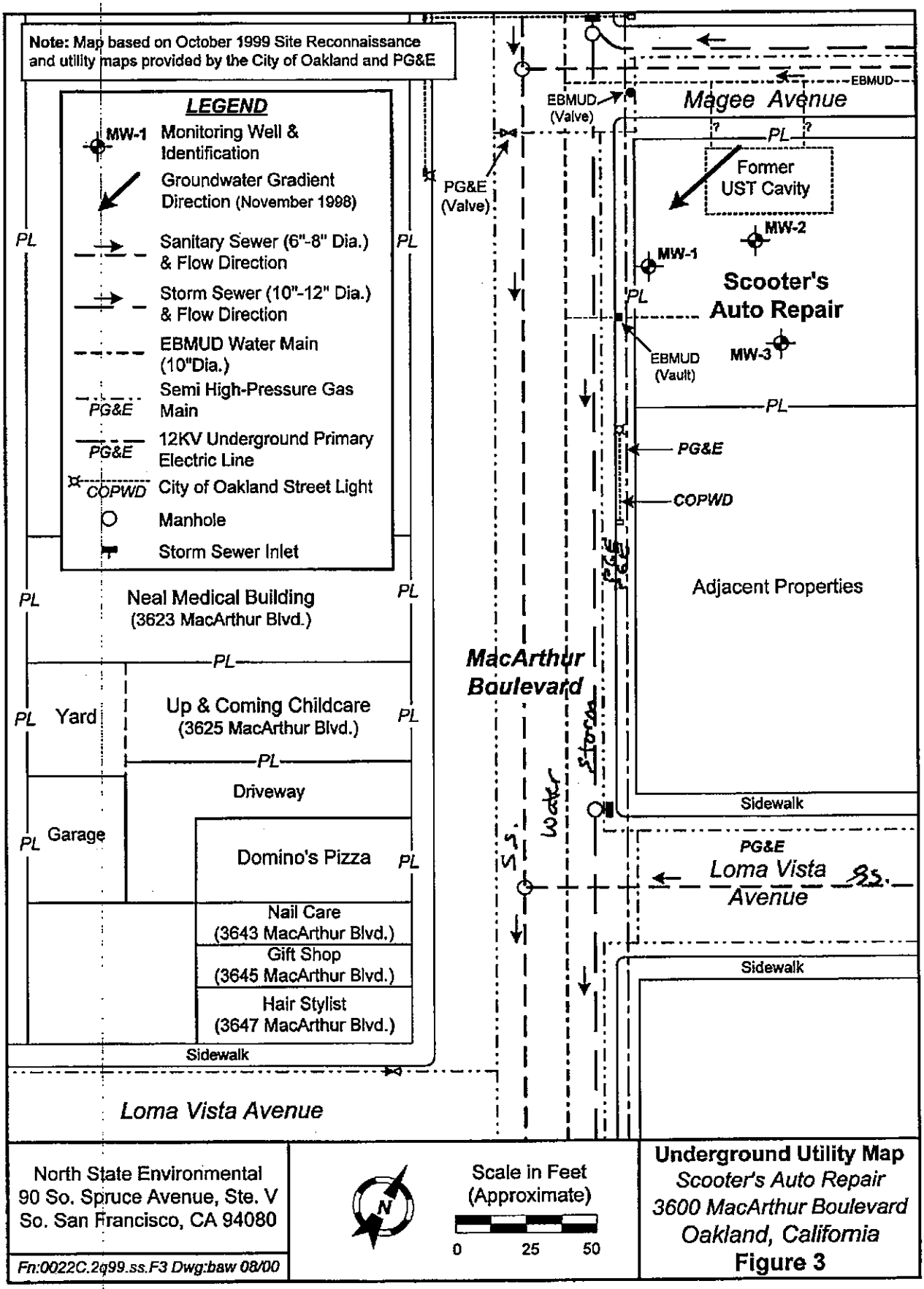
TITLE: UTILITY SURVEY MAP

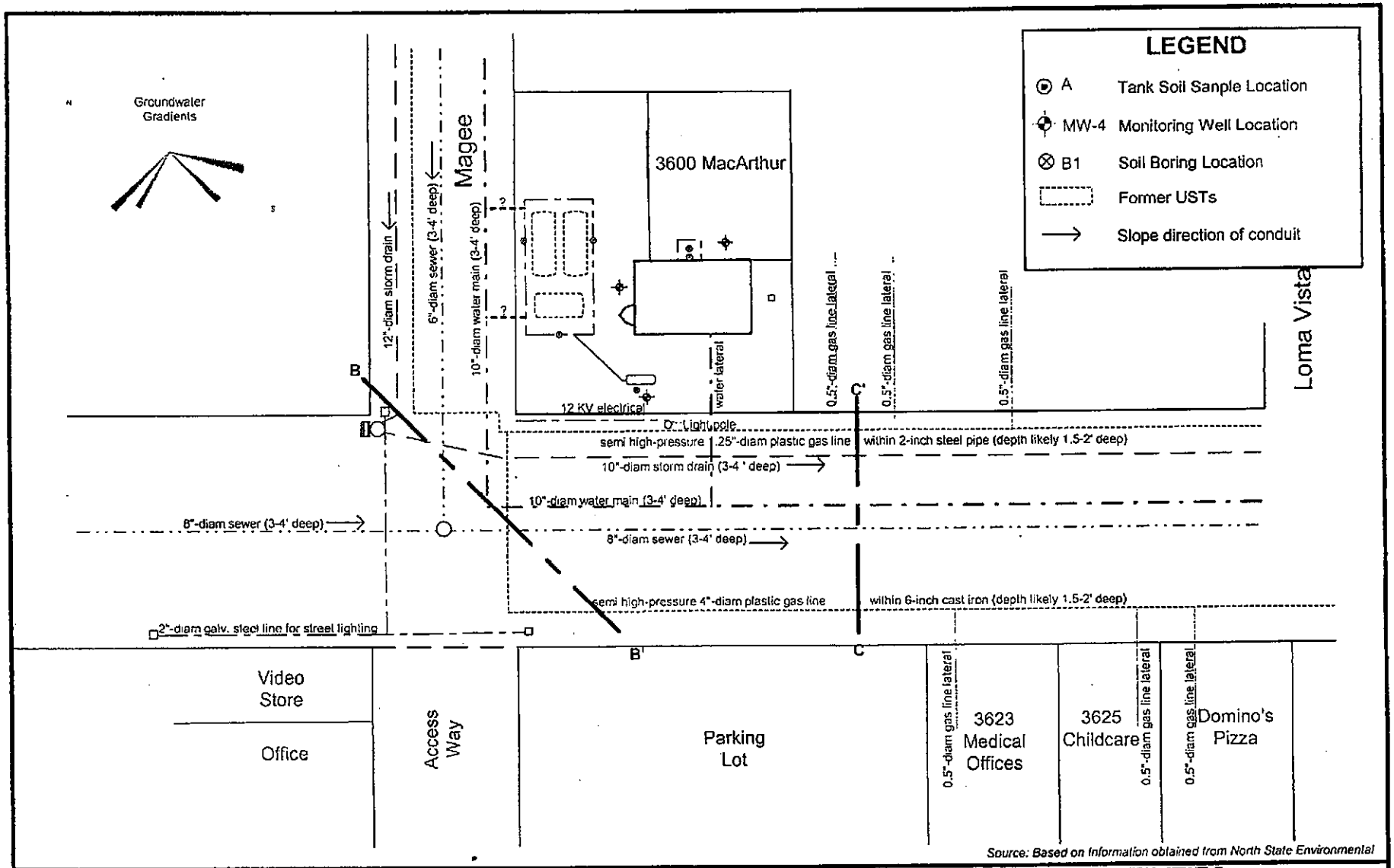
PREPARED FOR: CHEVRON STATION 9-8341
3530 MacArthur Boulevard
Oakland, California

DATE:	PROJECT:	SCALE:	FIGURE:
6/21/99	325-080.1A	AS SHOWN	1

1" = 100'


C52220 MIDVALE 1/1 CORRECTION 8-6-96
C57110 MAGEE AVE. & LOMA AVE 8-6-96
PM 8080 MASTERSON ST. & MAYBELLE AVE. 6/9/04
SAN. SEWER REPL.
474,000
171
LOMA
VISTA AVE
REDDING
38TH STREET
39TH
MACARTHUR
LOMA
(HOPKINS ST.)
QUIGLEY
15
7
2


Note: Map based on October 1999 Site Reconnaissance and utility maps provided by the City of Oakland and PG&E
LEGEND
MW-1 Monitoring Well & Identification
Groundwater Gradient Direction (November 1998)
Sanitary Sewer (6"-8" Dia.) & Flow Direction
Storm Sewer (10"-12" Dia.) & Flow Direction
EBMUD Water Main (10"Dia.)
PG&E Semi High-Pressure Gas Main
PG&E 12KV Underground Primary Electric Line
COPWD City of Oakland Street Light
Manhole
Storm Sewer Inlet
EBMUD
Magee Avenue
EBMUD (Valve)
PG&E (Valve)
PL
Former UST Cavity
MW-2
MW-1
Scooter's Auto Repair
MW-3
EBMUD (Vault)
PG&E
COPWD
Adjacent Properties
Neal Medical Building (3623 MacArthur Blvd.)
Yard
Up & Coming Childcare (3625 MacArthur Blvd.)
Driveway
Garage
Domino's Pizza
Nail Care (3643 MacArthur Blvd.)
Gift Shop (3645 MacArthur Blvd.)
Hair Stylist (3647 MacArthur Blvd.)
Sidewalk
MacArthur Boulevard
Storm
Water
PG&E
Loma Vista Avenue
Loma Vista Avenue
North State Environmental
90 So. Spruce Avenue, Ste. V
So. San Francisco, CA 94080
Fn:0022C.2q99.ss.F3 Dwg:baw 08/00
N
Scale in Feet (Approximate)
0 25 50
Underground Utility Map
Scooter's Auto Repair
3600 MacArthur Boulevard
Oakland, California
Figure 3



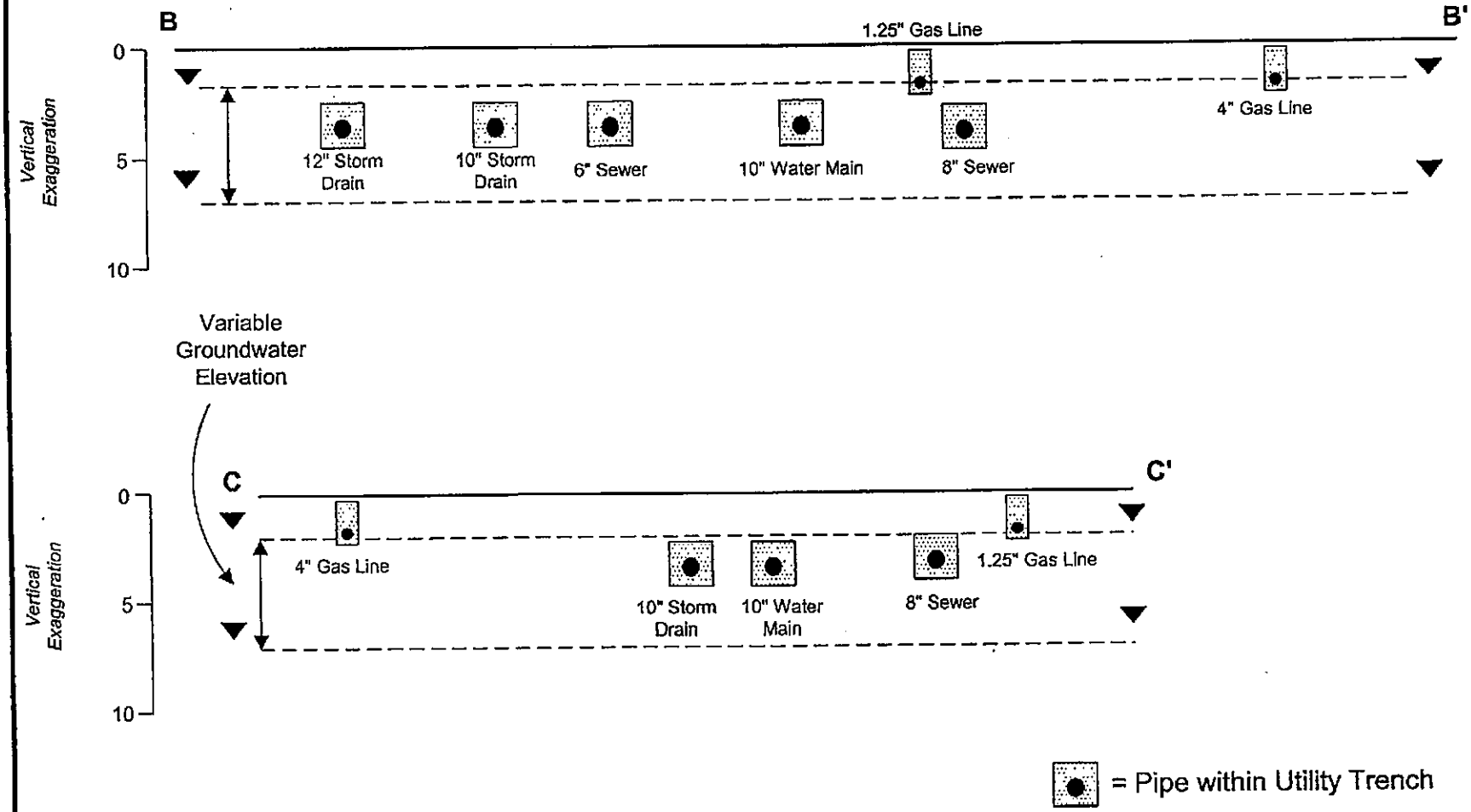
Source: Based on information obtained from North State Environmental

KODIAK CONSULTING, LLC
660 4th Street, #288
San Francisco, CA 94107

Scale In Feet
0 25 50

Fig 4: Utilities By: A. Le May 9/04

SUBSURFACE UTILITIES
Scooter's Auto Repair
3600 MacArthur Boulevard
Oakland, California
FIGURE 4



KODIAK CONSULTING, LLC
660 4th Street, #288
San Francisco, CA 94107

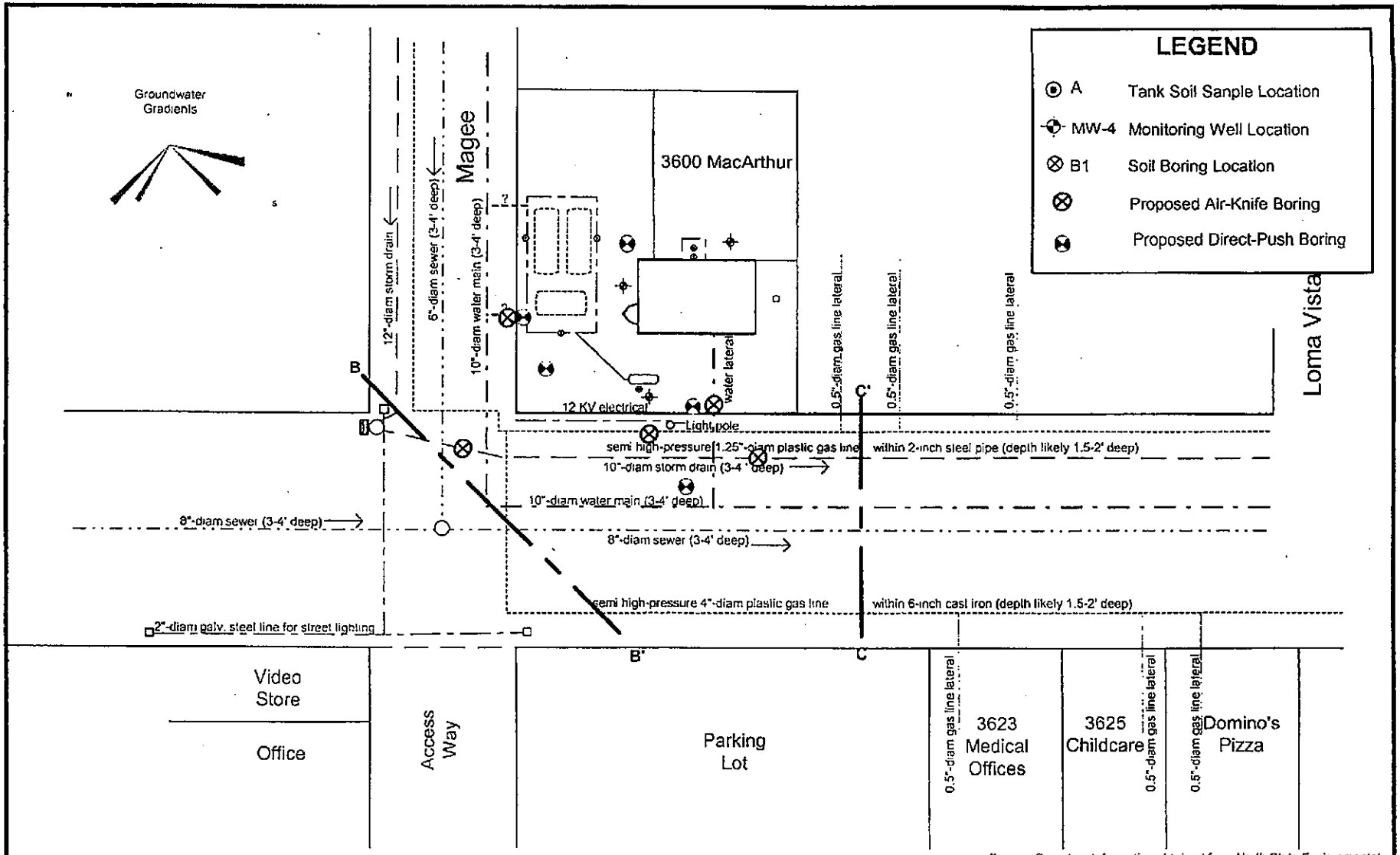
Fig 5: X-Sections By: A. Le May 12/04

Utilities Trenches and Pipes Not To Scale

Horizontal Scale in Feet (Approximate)

0 15

CROSS SECTION B-B' AND C-C'
Scooter's Auto Repair
3600 MacArthur Boulevard
Oakland, California
FIGURE 5



Source: Based on information obtained from North State Environmental

KODIAK CONSULTING, LLC
660 4th Street, #288
San Francisco, CA 94107

Scale In Feet
0 25 50

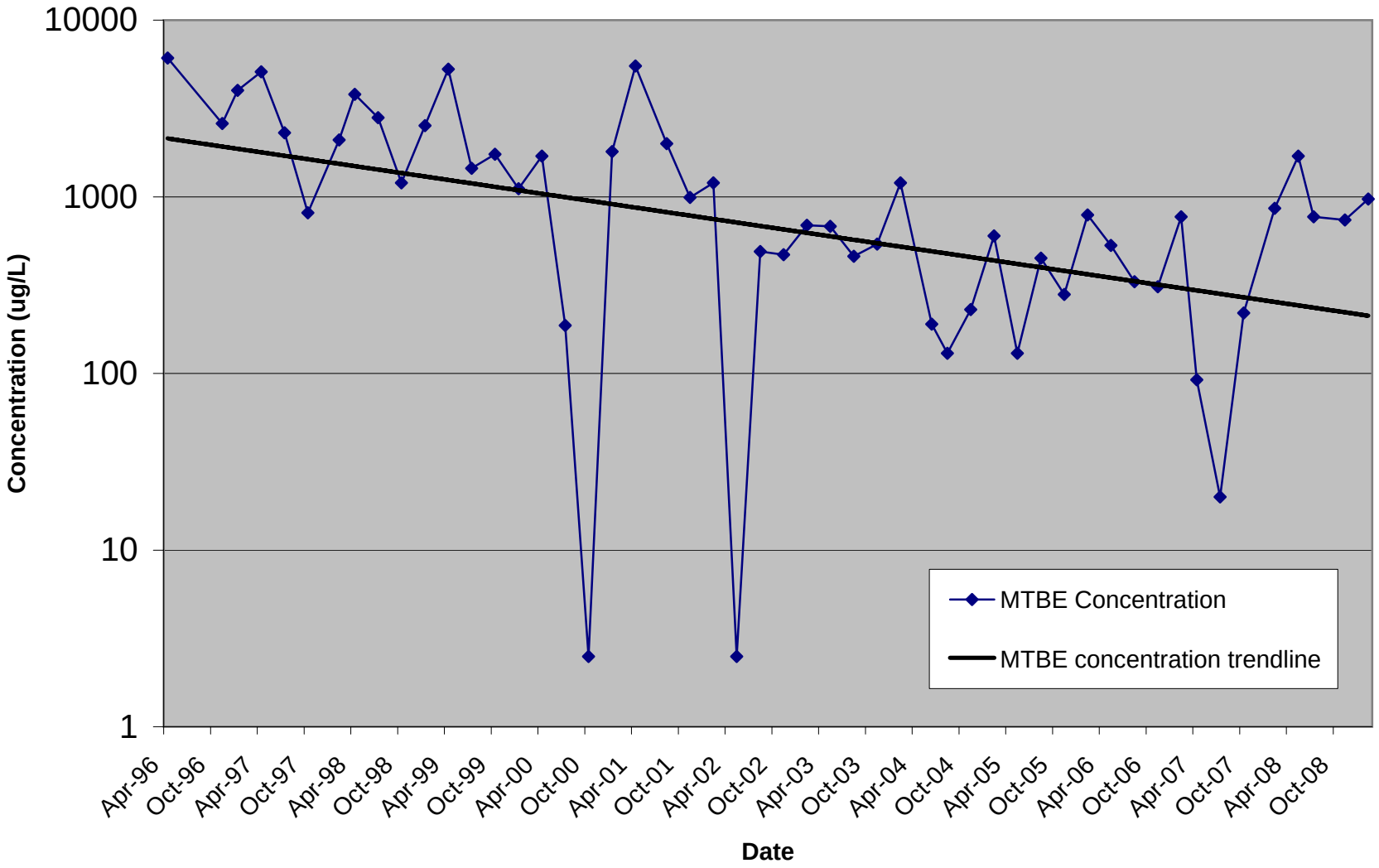
PROPOSED BORINGS LOCATION MAP 2
Scooter's Auto Repair
3600 MacArthur Boulevard
Oakland, California
FIGURE 8

Fig 8: Proposed Borings 2 ASL 12/04

APPENDIX G

MW-2 MTBE CONCENTRATION VERSUS TIME GRAPH

Concentration of MTBE in MW-2 Versus Time



APPENDIX H

STANDARD FIELD PROCEDURES

STANDARD FIELD PROCEDURES FOR GEOPROBE® SAMPLING

This document describes Conestoga-Rovers & Associates' standard field methods for GeoProbe® soil and ground water sampling. 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 or engineer working under the supervision of a California Professional Geologist (PG) 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 separate-phase hydrocarbon saturation percentage,
- Observed odor and/or discoloration,
- Other significant observations (i.e., cementation, presence of marker horizons, mineralogy), and
- Estimated permeability.

Soil Sampling

GeoProbe® soil samples are collected from borings driven using hydraulic push technologies. Prior to drilling, the first 8 ft of the boring are cleared using an air or water knife and vacuum extraction. This minimizes the potential for impacting utilities.

A minimum of one and one half ft of the soil column is collected for every five ft of drilled depth. Additional soil samples can be collected near the water table and at lithologic changes. Samples are collected using samplers lined with polyethylene or brass tubes driven into undisturbed sediments at the bottom of the borehole. The ground surface immediately adjacent to the boring is used as a datum to measure sample depth. The horizontal location of each boring is measured in the field relative to a permanent on-site reference using a measuring wheel or tape measure.

Drilling and sampling equipment is steam-cleaned or washed 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 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

After a soil sample has been collected, soil from the remaining tubing is placed inside a sealed plastic bag and set aside to allow hydrocarbons to volatilize from the soil. After ten to fifteen minutes, a portable GasTech® or photo ionization detector measures volatile hydrocarbon vapor concentrations in the bag's headspace, extracting the vapor through a slit in the plastic bag. The measurements are used along with the field observations, odors, stratigraphy and ground water depth to select soil samples for analysis.

Grab Ground Water Sampling

Ground water samples are collected from the open borehole using bailers, advancing disposable Tygon® tubing into the borehole and extracting ground water using a diaphragm pump, or using a hydro-punch style sampler with a bailer or tubing. 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.

Duplicates and Blanks

Blind duplicate water samples are 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 quality assurance/quality control (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.