REQUEST FOR NO FURTHER ACTION

PROJECT SITE:
Oakland Truck Stop
8255 San Leandro Street
Oakland, California 94621

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Project No. 1034

July 31, 2013

PROFESSIONAL CERTIFICATION

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By: Cook Environmental Services, Inc.
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Tim Cook, P.E.
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1.0 Introduction

This Request for No further Action addresses the Oakland Truck Stop ("the Site"). The Site meets all requirements for closure under the Low-Threat Underground Storage Tank Case Closure Policy ("Policy"). The Water Quality Control Policy for Low-Threat Underground Storage Tank Case Closure was adopted by the State Water Board on May 1, 2012 via Resolution No. 2012-0016 and became effective August 17, 2012. The Site meets the following general requirements for closure included in the Policy:

1. The Site is located in a public water system (See Section 2.1).
2. The unauthorized release consists only of petroleum (See Section 2.2).
3. The primary release has been stopped (See Section 2.3).
4. The free product has been eliminated (See Section 2.4).
5. A conceptual site model (CSM) has been prepared according to standards from the California State LUFT Manual Guidance and Alameda County Low Threat Closure Checklist (see Section 2.5).
6. The secondary source of contamination (contaminated soil) has been excavated and removed from the Site (see Section 2.6).
7. Soil and groundwater samples were tested for MtBE and current concentrations are below Environmental Screen Levels (See Section 2.7).
8. Nuisance as defined by Water Code section 13050 does not exist at the site (See Section 2.8)

The Site also meets the following media-specific requirements for closure included in the Policy:

1. Groundwater (See Section 3.1)
2. Vapor Intrusion to Indoor Air (See Section 3.2)
3. Direct Contact and Outdoor Air Exposure (See Section 3.3)

The State Water Resources Control Board checklist for Low Threat UST Case Closure is included in **Appendix A**, and the Alameda County Environmental Health Low Threat UST Closure Checklist is included in **Appendix B**.

1.1 Site Location and Physical Setting

The Site is currently a truck stop comprised of fueling stations, a weigh station, a truck wash, a parts store, a service center and a convenience mart. The Site has been in operation since the 1960s. The surrounding area is comprised of mixed commercial and industrial properties. The Site is located approximately 1¼ mile east of San Francisco Bay and approximately ½ mile south of the Oakland-Alameda County Coliseum Complex. Elmhurst Creek provides storm drainage for the surrounding area and flows northwesterly across the west side of the Site. The Site and surrounding area are flat and the Site elevation is approximately 10 feet above mean seal level (amsl). The Site location is shown on **Figure 1.**

Numerous soil borings and monitoring wells were completed to delineate the contaminant plume. The boring logs indicate that organic clay (Bay Mud) is present from the surface to about 16 feet below grade (fbg). At some locations, clay extends deeper but with less organic matter. Discontinuous sandy lenses are encountered from 17 to 40 fbg. The sandy soil ranges from clayey silts and gravel are found in the sandy matrix. Layers of clay or silt several feet thick are present within the sandy interval in some of the borings. Groundwater was first encountered in borings at depths ranging from 5 to 11 fbg.

Monitoring wells were installed at the Site in phases. The wells are 16 to 20 feet (ft) deep. Static water levels range seasonally from approximately 2.5 to 9.5 feet above mean sea level (amsl). The groundwater flow direction is generally westerly toward San Francisco Bay. The hydraulic gradient ranges from 0.001 to 0.008 ft/ft. Assuming a gradient of 0.001 ft/ft, an effective porosity of 30 percent, and hydraulic conductivity of 9 gallons/day/ft^2, the seepage velocity of the groundwater is 0.004 ft/day. The specific conductance (SC) of groundwater ranges from 455 microsiemens (µS) to 1,835 µS, suggesting that total dissolved solids (TDS) range from 320 milligrams per liter (mg/L) to 1,285 mg/L.

Since the Site is an active truck stop, it qualifies for the soil vapor exemption. Benzene and ethylbenzene concentrations in groundwater are at levels that have no significant risk of adversely affecting human health based on the criteria set by Table 17-1 in the California State LUFT Guidance Manual.

The Site is paved with asphalt and is generally flat. Site soils are comprised of organic clay (Bay Mud) for the first 16 feet. Soils below 16 feet are comprised of varying amounts of clays, silts and sand. The Bay Mud is relatively impermeable, thus contaminant migration is hindered in this soil.

The Site lies within the Santa Clara Valley Basin, East Bay Plain Sub-Basin with respect to groundwater, according to the San Francisco Bay Regional Water Quality Control Board Basin Plan (Basin Plan). The nearest surface water recognized by the Basin Plan is Lion Creek, to the northwest. The beneficial uses of the groundwater for the entire sub-basin are municipal and domestic supply, industrial process supply, industrial service supply, and agricultural supply. The beneficial uses for Lion Creek are warm and cold freshwater habitat, wildlife habitat, and recreational uses (REC-1, contact expected, and REC-2, no contact expected).

Groundwater flow at the Site in general moves to the southwest, toward a nearby Elmhurst Creek and the Oakland Estuary, but the flow direction is heavily influenced by the tidal influence. The groundwater hydraulic gradient ranges from 0.001 to 0.008 ft/ft. Assuming a gradient of 0.001 ft/ft, an effective porosity of 0.30 and a hydraulic conductivity of 9 gal/day/ft^2, the seepage velocity is 0.004 ft/day. The depth to groundwater varies with the seasons in a sinusoidal pattern with higher elevations in the wet winter months and lower elevations in the dry summer and autumn months. Groundwater depths range from 2.40 feet below grade (fbg) to 10.7 fbg, with an average around 5 fbg. **Figure 2** shows the groundwater elevations in Site monitoring wells from the most recent sampling event (December 5, 2012).

Table 1 summarizes well construction data, the maximum, minimum and average depth to water for each well. The smear zone is defined as the depth interval between the maximum and minimum static water depth at each well. The historic range of groundwater depths were within the screened interval for all wells except MW-7 and MW-8. These well are closer to Elmhurst Creek, thus groundwater elevations are higher than at other Site wells. Hydrocarbon concentrations in wells MW-7 and MW-8 are consistently lower than in other Site wells.

Surface water runoff at the Site flows into storm drains that empty into the sanitary sewer maintained by East Bay Municipal Utility District (EBMUD). EBMUD also maintains the public water supply system to the Site and surrounding area.

1.2 Site History

In May 1998, W.A. Craig, Inc. (WAC) removed two 4,000-gallon underground storage tanks (USTs) containing gasoline and one 550-gallon UST containing waste oil. In January 1999, Penn Environmental (Penn) attempted to remove another waste oil UST and encountered difficulties due to its proximity to underground utilities. Penn requested permission from Alameda County Environmental Health (ACEH) and the City of Oakland Fire Department to close the UST in-place. According to a letter report from Penn dated May 27, 1999, ACEH and the Fire Department agreed to consider closure in-place if a water sample collected from the UST excavation contained levels of total oil and grease below regulatory requirements. Total oil and grease was not detected in the water sample and this UST was closed in-place (ACEH June 15, 1999).

In February 1999, Penn drilled 13 soil borings (B-1 through B-13) and installed groundwater monitoring wells in four of the borings (MW-1 through MW-4). Petroleum hydrocarbons were detected in soil samples from all borings except B-7. Petroleum hydrocarbons were detected in groundwater samples from all borings and monitoring wells. The highest concentration of methyl tert-butyl ether (MtBE) detected in the soil was 3.9 milligrams per kilogram (mg/Kg) in boring B2 at a depth of 4 ft. The highest concentration of total petroleum hydrocarbons as diesel (TPH-d) in the soil was 2,000 mg/Kg in boring B-6 at a depth of 4 ft. The highest concentration of MtBE detected in groundwater was 28,000 micrograms per liter (µg/L) in B-8. The highest concentration of TPH-d was 62,000 µg/L in well MW-1.

In August 1999, Aqua Science Engineers, Inc. (ASE) began quarterly groundwater monitoring. Floating product (believed to be diesel due to its darker color) was observed in well MW-1. A groundwater sample from MW-3 yielded 56,000 µg/L TPH-g, 17,000 µg/L benzene, and 6,100 µg/L MtBE.

On December 1, 1999, ASE installed wells MW-5 and MW-6. Floating product was again observed in MW-1. A soil sample from MW-5 at 6 ft yielded TPH-d at 17 mg/Kg. A soil sample from MW-6 at 6 ft yielded TPH-d at 2.0 mg/Kg.

In May and June 2000, ASE drilled eight additional soil borings. A soil sample from boring BHG at 12 fbg yielded TPH-d at 1,500 mg/Kg. A soil sample from boring BH-A at 7.5 feet

yielded TPH-g at 370 mg/Kg and benzene at 2.3 mg/Kg. A soil sample from boring BH-D at 11.5 ft yielded MtBE at 1.7 mg/Kg.

In July 2002, ASE installed three additional monitoring wells (MW-7, MW-8, and MW-9). ASE also made several attempts to drill a boring in San Leandro Street to define the eastern extent of petroleum hydrocarbons in soil and groundwater east of the Site, however, the drill rig could not penetrate beyond shallow depths.

ASE completed a Sensitive Receptor Survey (SRS) in July 2002. ASE identified three wells within a 2,000-foot radius of the Site. One was identified as an industrial supply well and two were identified as irrigation wells. Domestic or municipal water supply wells were not identified within 2,000 feet of the Site (ASE 2002).

In February 2004, ASE subcontracted Subtronic Corporation to perform a ground magnetometer survey at the Site to search for additional USTs. No USTs were found. However, buried reinforced concrete in two areas interfered with the magnetometer such that the presence of a UST could not be ruled out (ASE 2004). Subtronic subsequently conducted a ground penetrating radar geophysical survey of these two areas in September 2006. No USTs were identified in either location (ASE 2007).

On July 10, 2006, ASE collected a sample of floating product from MW-1. The laboratory indicated that the product was indicative of middle distillates such as diesel #2 or heating oil. The abundance of iso-prenoids in conjunction with the absence of normal alkanes indicated that the fuel had undergone substantial biological degradation (ASE 2007).

In September 2006, ASE advanced 11 soil borings (BH-I through BH-L and BH-S) to a depth of 50 ft, using a sonic drill rig. Borings BH-M through BH-R were installed using a Geoprobe direct push drill rig. The highest concentration of TPH-d detected in soil samples was 2,200 mg/Kg in boring BH-L at 19.5 ft. A sample in this same boring at 14.5 ft yielded the highest concentration of MtBE at 0.81 mg/Kg. A groundwater sample from BH-L yielded the highest concentration of TPH-d, 27,000 µg/L at 15-18 feet bgs (ASE 2007).

In September 2006, ASE advanced six temporary well points to define the extent of floating product in the vicinity of the dispenser islands. Floating product was measured in boring TH-6 at 2.54 ft thick. None of the other borings contained a measurable thickness of floating product, however, a petroleum hydrocarbon sheen was observed in several borings. ASE returned in

January 2007 and installed additional temporary well points TH-7 and TH-8. After six hours there was only water in boring TH-7. A water sample collected from this boring yielded TPH-d at 22,000 µg/L. The thickness of floating product in well MW-1 reached a maximum of 6.13 ft on December 9, 2005. ASE manually removed over 140 gallons of diesel from MW-1 from August 1999 to March 2007 (*Report of Soil and Groundwater Assessment*, ASE, March 9, 2007).

ASE installed monitoring well MW-10 on October 10, 2006. A water sample from this well collected on October 12, 2006 contained 1.7 µg/L MtBE and 82 µg/L tBA. No other analytes were detected.

ASE submitted a *Revised Remedial Action Plan for Underground Storage Tank and Dispenser Removal and Soil and Groundwater Remediation*, dated August 16, 2007. This plan was supplemented by the *Remedial Action Plan Addendum, Oakland Truck Stop*, dated October 19, 2007. The plans proposed site remediation through excavation, dewatering, and removal of floating product.

In a letter dated May 6, 2008, the ACEH rejected the ASE work plans and requested submittal of a Revised Corrective Action Plan. The owners contracted with Matriks Construction Company ("Matriks") to conduct quarterly groundwater monitoring and remediation. Matriks submitted a *Revised Corrective Action Plan*, dated May 7, 2008 that included construction of a French drain under the existing dispenser islands to facilitate the removal of floating product. ACEH approved the plan in a letter dated May 16, 2008. The approved plan included a reduced volume of excavation, floating product removal and the abandonment of MW-1, MW-3, and MW-6.

In July 2008, five USTs and all associated piping and dispensers were removed. Approximately 2,330 tons of hydrocarbon impacted soil and an undisclosed volume of contaminated groundwater were removed from the former UST pit and the pump island area. During the excavation process, monitoring wells MW-1, MW-3, and MW-6 were removed. A French drain was constructed beneath the dispenser islands and is in connection with extraction well EX-1. Excavation areas and the French drain are shown on **Figure 3**. Three new double-walled USTs, six new fuel dispensers, new double-walled piping and containment sumps, and a continuous monitoring system were installed to prevent further hydrocarbon releases onsite.

Cook Environmental Services, Inc. (CES) began monitoring the Site on December 20, 2011. CES has collected semi-annual groundwater sampling since that time and is presently the consultant of record.

2.0 General Site Closure Criteria

This section gives site specific data for each of the eight general criteria listed in the Low-Threat Underground Storage Tank Case Closure Policy.

2.1 Public Water System

The East Bay Municipal Utility District (EBMUD) maintains the public water system to the Site and surrounding area. EBMUD services an area of 332 square miles in Alameda County and Contra Costa County.

The area surround the Site is primarily commercial and industrial. The nearest residential is approximately 1,000 feet northwest of the Site. Land use is not likely to change in the near future. In 2006, a Preferential Pathway Study ruled out subsurface utility lines as likely pathways for contaminant migration.

2.2 Unauthorized Release Consists Only of Petroleum Products

The unauthorized release is comprised strictly of petroleum products (primarily diesel). Diesel fuel and waste oil were the only liquids stored in the USTs located at the Site.

2.3 Unauthorized Release from the UST System Has Stopped

In May 1998, three USTs and the pump dispensers were removed from the Site: two 4,000-gallon diesel tanks and one 550-gallon waste oil tank. In June of 1999, another waste oil tank was closed in place. It was not removed because of its proximity to utility lines.

Five USTs were removed from the Site on July 8, 2008. The fuel dispensers, associated supply and vent piping and contaminated soil and groundwater were also removed during construction activities. A release from the USTs was obvious based on observation of floating product in the UST excavation and highly contaminated soils in the vicinity of the former pump dispensers. Details of the UST removal and soil removal action are provided in the *Interim Remedial Action Report*, dated September 18, 2008. Three new double-walled USTs, six new fuel dispensers, new double-walled piping and containment sumps, and a continuous monitoring system were installed to prevent further hydrocarbon releases onsite.

2.4 Free Product Removed to the Maximum Extent Practicable

Free-phase floating hydrocarbons were removed from monitoring well MW-1 from August 1999 to March 2008, on schedules ranging from weekly to monthly. According to ASE's report dated March 9, 2007, over 140 gallons of free-phase floating diesel had been removed from monitoring well MW-1 as of March 2007. Additional dewatering of the UST excavation and the French drain located in the vicinity of the fuel islands in front of the station took place in May 2008. There is no documentation in the file in regard to the volume of water removed or how much free product was removed. However, based on a personal communication with Tom Henderson, the president of Matriks Construction Company, over 20,000 gallons of groundwater was removed from the UST and French drain excavations. The water was treated onsite using granular activated carbon and was discharged to the sanitary sewer under a permit from EBMUD. After that time, the presence of free product was abated such that hydrocarbon concentrations have decreased dramatically in all Site monitoring wells and only a rainbow sheen is present in wells MW-5, EX-1 and EX-2 at this time.

2.5 Conceptual Site Model Prepared

This Conceptual Site Model (CSM) is submitted in compliance with guidelines established in Chapter 14 of the California Leaking Underground Fuel Tank Guidance Manual, September 2012 and the Alameda County Low Threat Closure Checklist.

This CSM characterizes the Site in diagrammatic and narrative form to show the possible and confirmed relationships between the source(s) of contamination, pathways and receptors. The supporting data and analyses used to develop this CSM were derived from multiple reports submitted to the Alameda County Environmental Health Department (ACEH) and the San Francisco Bay Regional Water Quality Control Board (RWQCB) from 1998 to 2012.

The objectives of this CSM are:

- To convey an understanding of the origin, nature, and lateral and vertical extent of contamination;
- To identify potential contaminant fate-and-transport processes and pathways;
- To identify potential human and environmental receptors that may be impacted by contamination associated with the Site;
- To guide site investigation activities and identify additional data needed (if any) to draw reasonable conclusions regarding the source(s), pathways, and receptors; and
- To frame the evaluation of risk to human health, safety, and the environment posed by releases from the Site.

The initial sources of contamination were leaking underground storage tanks (USTs): two 4,000 gal gasoline USTs, and one 550 gal waste oil tank and a pump island. The two USTs and pump islands were removed in May of 1998. In June 1999, another waste oil UST was discovered and closed in-place rather than removed, due to proximity to utility lines. In July of 2008, 1100 cubic yards of contaminated soil (approximately 2,330 tons) and the associated groundwater was excavated from the UST excavation and pump island areas. The soil was disposed offsite and the groundwater was treated with granular activated carbon prior to discharge to the sanitary sewer under a permit from EBMUD. Documentation of the soil excavation and disposal is contained in the *Interim Remedial Action Report*, dated September 18, 2008.

The main contaminants of concern (COCs) are total petroleum hydrocarbons as diesel (TPH-d), total petroleum hydrocarbons as motor oil (TPH-mo), total petroleum hydrocarbons as gasoline (TPH-g), benzene, toluene, ethylbenzene and xylenes (BTEX) and methyl tert butyl ether (MtBE). These COCs have impacted the soil and groundwater at the Site. All MtBE concentrations in groundwater samples are currently below the ESL (5 µg/L).

There was initially a large amount of free product in well MW-1. Approximately 140 gallons of free product was bailed from MW-1 from August 1999 to July 2008. The observation of free product in Site wells was abated after the UST replacement and soil removal action in July 2008. **Figure 5** shows the amount of free product observed, with the corresponding groundwater depth, in well MW-1 and its replacement well, EX-1. Most of the free product has been removed from the Site, however, a rainbow sheen and a strong diesel odor were observed in wells EX-1, EX-2 and MW-5 the last time these wells were sampled on December 5, 2012.

The lateral extents of the contaminant plumes (as TPH-d) in the groundwater are shown **Figure 6**, and the vertical extent is shown with a series of cross sections (**Figures 7, 8, and 9**). The contaminant plumes are centered on two high concentration areas (the fueling islands and the UST location), and contaminant concentrations fall quickly with distance.

Figure 10 shows the concentration vs. time data for various contaminants in wells MW-3/EX-2 (EX-2 is the nearest replacement for MW-3 after the excavation). After the excavation, contaminant concentrations fall considerably. **Figure 11** shows concentration trends in groundwater samples collected from well MW-2. MW-2 has shown a recent rise in TPH-g and TPH-g concentrations. This is expected, as the contaminant plume from the former USTs

appears to be migrating in that direction. The decreased hydrocarbon concentrations in well EX-2 support this hypothesis. Additional well concentration data is included in **Figures 12 to 18.**

Contaminated soil left over from the initial UST removal in 1999 was a secondary source. Much of this soil was removed during the excavation in July 2008. Following the excavation, free product disappeared and the average contaminant concentrations in the groundwater dropped.

Non-petroleum constituents have not been used at the Site and none have been detected in soil and groundwater samples collected from the Site.

Soil vapor intrusion into the service station building is exempt from consideration since the Site is an active gas station. The most likely point of exposure is contact with excavated soils and groundwater, in the form of dermal contact or ingestion. This is a possible concern if future construction work, such as trenching, is required.

Utility lines were assessed as a contaminant pathway in 2006, and two sewer lines were found (one abandoned, one active) may be preferred pathways. However, no evidence was found that contaminants are travelling along the sewer line and the concentration gradient data does not support movement along the sewers.

A Sensitive Receptor Survey was conducted by ASE in 2002. Three water supply wells were discovered within 2,000 feet of the Site: two irrigation wells and one industrial supply well. No municipal or domestic wells were identified. **Figure 4** shows potential sensitive receptors within 2,000 feet of the Site. The wells were drilled long ago, and their present usage status is unknown. The contaminant plumes are approximately 1,200 feet away from the nearest well, so the wells are considered safe. Elmhurst Creek, the nearby stream, is also a potential receptor. **Table 2** summarizes details on these nearby water supply wells.

The most likely receptors are: 1) construction workers that are trenching through or otherwise coming in direct contact with contaminated soil and groundwater and 2) aquatic receptors in nearby Elmhurst Creek. Contaminant concentrations in wells closest to the creek MW-7 and MW-8 have historically yielded petroleum hydrocarbon concentrations below laboratory detection limits, thus it is unlikely that the contaminant plumes are affecting the aquatic receptors in Elmhurst Creek. Groundwater in the vicinity of the Site is not currently being used as a drinking water resource.

The contaminant degradation rates for the groundwater were calculated for EX-1 and EX-2. These wells were chosen because they represent both excavation sites and were installed after the 2008 excavation, and would not carry a bias from before this time. The rates for each contaminant were determined using the exponential regression function in Microsoft Excel. **Table 3** shows the degradation rates and R^2 values for the fit of the regression to the data curve. The degradation rate in the soil was assumed to be approximately the same as in the groundwater.

The mass remaining was calculated using the following soil assumptions: the porosity is 0.3 and the contaminant plume depth is from 5 to 20 feet below ground. The approximate density of the soil was calculated from mass and volume of soil removed during the excavation. The volume

of the extracted soil was assumed to be 10% more than what the volume would be in the ground. The contaminant mass remaining in the soil was calculated by extrapolating the 2008 data using the contaminant degradation rate for the ground water. Because of this assumption, the proportion of initial (July 2008) to final (Dec. 2012) contaminate mass is the same for groundwater and soil. **Table 4** shows the mass of remaining contaminants in groundwater and soil.

2.6 Secondary Source of Contamination Excavated and Removed

As mentioned previously in the Site History section, approximately 2,330 tons of hydrocarbon impacted soil and an undisclosed volume of contaminated groundwater were removed from the former UST pit and the pump island area in July 2008. During the excavation process, monitoring wells MW-1, MW-3, and MW-6 were removed. Manifests for the soil disposal are included in Appendix E of the *Interim Remedial Action Report*, dated September 18, 2008.

2.7 Soil and Groundwater Samples Tested for MtBE

Soil and groundwater samples were tested for MtBE and current groundwater concentrations are below ESLs or will reach ESLs within a reasonable period of time. The only wells with MtBE concentrations higher that the MtBE ESL (5.0 µg/L) during the most recent monitoring event (December 5, 2012) were MW-2 (7.0 µg/L) and EX-2 (15 µg/L). Well MW-2 has shown a steady decrease in MtBE concentrations since September 21, 2004 when it was 730 µg/L. EX-2 has shown a steady decrease in MtBE concentrations since September 27, 2008 when it was 210 µg/L. Based on these trends, we fully expect MtBE concentrations in all wells to reach the ESL for MtBE within a reasonable period. The most recent soil data from the Site was collected in July 2008 during the excavation of 2,330 tons of hydrocarbon impacted soil. At that time 10 of 30 soil samples were above the ESL for shallow soil (0.023 mg/kg). It is likely that MtBE concentrations in soil have dropped below ESLs at this time. As discussed in the Media Specific Criteria section below, the most likely receptors at the Site will be direct contact with workers trenching through contaminated soils. Thus ESLs that are reflective of dermal exposure are the most applicable standards are discussed below in the section titled Direct Contact and Outdoor Air Exposure

2.8 Nuisance as Defined by Water Code Section 13050 Does Not Exist at Site

Based on the LTCP Water Code section 13050, the site does not qualify as a water nuisance. Land use at the Site and the surrounding area will remain commercial-industrial for the foreseeable future.

3.0 Media Specific Site Closure Criteria

Releases from USTs can impact human health and the environment through contact with any or all of the following contaminated media: groundwater, surface water, soil, and soil vapor. Although this contact can occur through ingestion, dermal contact, or inhalation of the various media, the most common drivers of health risk are ingestion of groundwater from drinking water

wells, inhalation of vapors accumulated in buildings, contact with near surface contaminated soil, and inhalation of vapors in the outdoor environment. To simplify the analysis under the Low Threat Underground Storage Tank Case Closure Policy, these media and pathways are evaluated and the most common exposure scenarios are combined into three media-specific criteria:

1. Groundwater

2. Vapor Intrusion to Indoor Air

3. Direct Contact and Outdoor Air Exposure

Each of these media-specific criteria for the Site is discussed below.

3.1 Groundwater

The San Francisco Bay RWQCB evaluated the beneficial uses of groundwater within the East Bay Plain (East Bay Plain Groundwater Basin Beneficial Use Report, SFBRWQCB, June 1999) and stated the following:

> "Within the East Bay Plain, there are groundwater pollution plumes that may warrant less aggressive remediation on a case-by-case basis. In certain cases, aggressive cleanup may not be warranted when the plume is shallow, concentrations are declining and no beneficial uses are threatened. The requirement for aggressive cleanup can pose a serious obstacle to redevelopment of blighted urban areas in the East Bay. This report outlines "basin specific" situations where less aggressive remediation may be warranted. Ultimately, the remedial options that would be part of a less aggressive strategy depend on site specific conditions. However, likely options would include restricting groundwater remediation to the source area only, allowing monitored natural attenuation, or implementing pump-and-treat solely to limit plume migration."

Based on an analysis of historical groundwater data summarized in **Table 5**, the contaminant plume is confined to shallow depths and is stable or decreasing in aerial extent. Remedial measures such as the removal of grossly contaminated soil and free product from the water table have been completed.

Based on the Groundwater-Specific Criteria listed in the Low Threat UST Case Closure Policy, the Site meets three of the four characteristics of a Class 2 site in the Low Threat Underground Storage Tank Case Closure Policy in that the following criteria are met:

1. The contaminant plume that exceeds water quality objectives is less than 250 feet in length.
2. Free product has been removed to the maximum extent practicable, may still be present below the Site where the release originated, but does not extend off-site.
3. The plume has been stable or decreasing for a minimum of five years.
4. The nearest existing water supply well is greater than 1,000 feet from the defined plume boundary.

The only criteria that is not met is that the nearest existing surface water body (Elmhurst Creek) is within 1,000 feet of the defined plume. This creek is a man-made storm water channel that is connected to San Francisco Bay. There is no visual evidence, such as the presence of a rainbow sheen on the creek, to indicate that the contaminant plume from the Site has impacted the creek. In addition, the two wells nearest the creek, MW-7 and MW-8, have been non-detect for BTEX and TPH since 2005, and well below the MtBE ESLs since monitoring started. The creek runs through a highly industrialized portion of East Oakland and is classified as an estuarine surface water body. Using ESLs for estuarine surface water bodies contained in Summary Table F of the 2013 Tier 1 Lookup Tables (SFRWQCB, 2013), the following ESLs are appropriate ESLs for groundwater discharging to Elmhurst Creek.

Chemical	Estuarine ESL (ug/L)
TPH-g	500
TPH-d	640
benzene	46
toluene	40
ethylbenzene	30
xylenes	100
MtBE	180
tBA	18,000

When estuarine surface water ESLs are compared to the most recent data from Site monitoring wells (December 5, 2013), the only constituents above ESLs are TPH-d in wells MW-5 (4,100 ug/L), EX-1 (10,000 ug/L) and EX-2 (1,200 ug/L) and TPH-g in well MW-2 (1,100 ug/L).

Based on the relatively low concentrations of hydrocarbons in monitoring wells and the fact that the plume has stabilized or is shrinking, the Site qualifies for closure as a Class 5 site. The requirement for a Class 5 site under the Low Threat UST Case Closure Policy is:

> "The regulatory agency determines, based on an analysis of site-specific conditions that under current and reasonably anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame."

3.2 Vapor Intrusion to Indoor Air

The Site is an active commercial petroleum fueling facility as meets the requirements for exemption under this media specific criterion.

3.3 Direct Contact and Outdoor Air Exposure

As shown in **Table 6**, the maximum concentration of hydrocarbon constituents in 146 soil samples collected from 1999 through 2008 is less than those listed in Table 1 of the Low Threat Underground Storage Tank Case Closure Policy for constituents such as benzene and ethylbenzene. There is no naphthalene data; however, based on concentration trends in BTEX

constituents, it is unlikely that naphthalene in soil would exceed concentrations that would pose a significant risk of adversely affecting human health.

4.0 CONCLUSIONS

Based on the data presented in this Request for No Further Action, the Site meets the General and Media Specific Criteria for case closure under the Low Threat Underground Storage Tank Case Closure Policy. The case should be closed given that the stipulations in the following section are followed.

5.0 RECOMMENDATIONS

Per California Health and Safety Code Section 25296.20(a) and Division 7, the Porter Cologne Water Quality Control Act under AB 681, we recommend notification of all current fee title holders within 200 feet of the Site be notified that this Site is being considered for case closure. The RWQCB will take reasonable steps necessary to accommodate responsible landowner participation in the site closure process and will consider all input and recommendations from any responsible landowner wishing to participate.

Upon written certification that all appropriate notifications have been made, the RWQCB may wait thirty days before making a final determination or issuing a closure letter to allow the fee title holders the opportunity to comment. After the 30-day public comment period has expired, we recommend that the RWQCB grant conditional closure to this LUST case contingent on the proper destruction of seventeen monitoring wells and ten ozone sparge wells associated with this Site. Well destruction permits will be obtained from the Alameda County Department of Public Works. The wells will be drilled out to their full depth and grouted with neat cement. A Well Closure Report documenting the proper destruction of all monitoring and sparge wells will be prepared by CES and submitted to the RWQCB.

Once the RWQCB reviews the Well Closure Report, we recommend that a No Further Action (NFA) letter be issued to the Responsible Party.

TABLES

Table 1. Well Construction Summary

Well ID	Date Installed	Total Depth (feet)	Screened Interval (feet)	Water-Bearing Zone	Screen Slot Size (inches)	Filter Pack Interval (feet)	Bentonite Interval (feet)	Grout Interval (feet)	TOC Elevation (feet amsl)	DTW (ft)		
										Max	Min	Average
MW-1	02/18/99	16.5	15.5-5.5	Clay	0.02	16.5-4.5	4.5-3	3--1	11.02	10.70	4.61	6.87
EX-1	07/28/08	13.5	13.5 - 1	3/4 Crush rock	0.5	NA	NA	NA	8.21	6.45	2.85	4.46
MW-2	02/19/99	16.5	15.5.5	Clayey Fine Sand	0.02	16.5-4.5	4.5-3	3--1	10.63	9.12	4.25	5.94
MW-3	02/18/99	16.5	15.5 - 5.5	Clay	0.02	16.5-4.5	4.5-3	3--1	10.33	6.95	3.75	5.30
MW-4	02/19/99	16.5	15 - 5.5	Clay	0.02	16.5-4.5	4.5-3	3--1	10.42	6.16	4.00	5.26
MW-5	12/01/99	15	15 - 5	Clay	0.02	15-4	4-3.5	3.5-1.5	10.13	7.47	3.96	4.99
MW-6	12/01/99	15	15 - 5	Sandy Silt	0.02	15-4	4-3.5	3.5-1.5	10.71	7.55	3.66	5.21
EX-2	07/28/08	17	17 - 1	Pea Gravel	0.5	NA	NA	NA	8.18	5.90	2.40	4.41
MW-7	07/08/02	16.5	16.5 - 5	Silty Sand, Clayey Silt	0.02	16.5-4	4-3.5	3.5-1.5	9.08	4.89	2.77	3.95
MW-8	07/08/02	15.5	15 - 5	Silty Sand, Clayey Silt	0.02	15.5-4	4-3.5	3.5-1.5	9.61	4.94	3.26	4.17
MW-9	07/08/02	20	20 - 5	Silty Sand, Silty Clay	0.02	20-4	4-3.5	3.5-1.5	10.99	6.38	4.12	5.52
MW-10	10/10/06	20	20 - 5	Silty Clay	0.02	20-4	4-3.5	3.5-1.5	11.40	6.59	5.14	6.03

Table 2. Water Supply Wells Within 2000 feet

Address	City	State	Well Owner	Owner Address	Type	Year Drilled
Near 81st St and San Leandro St. intersection	Oakland	CA	American Brass and Iron Foundry	7825 San Leandro St.	Industrial	1977
8609 G St.	Oakland	CA	Lucchesi	8609 G St.	Irrigation	pre-2002
1001 81st Ave	Oakland	CA	A. R. Compagia	1001 81st St.	Irrigation	1941

Table 3. Degradation Rates for Contaminants

Well ID	TPH-g	TPH-d	TPH-mo	B	T	E	X	MtBE	DIPE	EtBE	tAME	tBA
EX-1	0.00146	0.00251	0.00451	Const.	Const.	Const.	Const.	0.00254	0.00173	0.00173	0.00173	0.00161
EX-2	0.0013	0.00116	0.00173	0.00376	0.00143	0.00149	0.00121	0.00173	0.00084	0.00084	0.00084	0.00076
R^2 EX-1	0.706	0.4376	0.2937	N/A	N/A	N/A	N/A	0.905	0.9562	0.9562	0.9562	0.9401
R^2 EX-2	0.477	0.526	0.8084	0.7482	0.5175	0.5055	0.3401	0.9007	0.8014	0.8014	0.8014	0.5873
Average	0.00138	0.001835	0.00312	0.00376	0.00143	0.00149	0.00121	0.002135	0.001285	0.001285	0.001285	0.001185
All rates are in µg/(L*d)												

Table 4. Mass of Remaining Contaminants in Groundwater and Soil

Mass (g)	TPH-g	TPH-d	Benzene	Toluene	Ethylbenzene	Xylene	MtBE	DIPE	ETBE	TAME	TBA
Groundwater	831.74	10596.82	2.58	7.11	1.92	2.45	20.43	10.84	10.84	10.84	1671.59
Soil	143961.92	860900.89	284.98	181.86	2070.13	1340.84	126.38	4.41	4.41	4.41	6.35
Totals	144793.66	871497.71	287.56	188.96	2072.05	1343.30	146.80	15.25	15.25	15.25	1677.94
Totals (kg)	144.79	871.50	0.29	0.19	2.07	1.34	0.15	0.02	0.02	0.02	1.68
All masss calculations are in grams except for the second total value, which is in kg											

Table 5. Groundwater Analytical Results

Well ID	Date	DTW (ft)	TPH-g	TPH-d	TPH-mo	B	T	E	X	MtBE	DIPE	EtBE	tAME	tBA
EX-1	09/27/08	-	Not Sampled Due to Free-Floating Hydrocarbons 0.005 feet											
	12/30/08	-	Not Sampled Due to Free-Floating Hydrocarbons 0.005 feet											
	03/28/09	-	Not Sampled Due to Free-Floating Hydrocarbons 0.005 feet											
	09/12/09	6.45	550	73,000	24,000	<0.5	<0.5	<0.5	<0.5	35	<10	<10	<10	1,400
	03/30/10	2.76	170	520,000	290,000	<0.5	<0.5	<0.5	<0.5	16	<10	<10	<10	1,400
	09/30/10	4.80	300	33,000	16,000	<0.5	<0.5	<0.5	<0.5	<5.0	<5.0	<5.0	<5.0	880
	01/19/11	2.58	120	5,600	3,800	<0.5	<0.5	<0.5	<0.5	<5.0	<5.0	<5.0	<5.0	970
	12/20/11	3.50	100	5,400	N/A	<0.5	<0.5	<0.5	<0.5	<2.5	<2.5	<2.5	<2.5	340
	05/21/12	5.75	62	17,000	N/A	<0.5	<0.5	<0.5	<0.5	<1.7	<1.7	<1.7	<1.7	350
	12/05/12	5.40	100	10,000	N/A	<0.5	<0.5	<0.5	<0.5	<1.7	<1.7	<1.7	<1.7	260
EX-2	09/27/08	-	990	2,100	NA	130	<10	<10	<10	210	<10	<10	<10	1,400
	12/30/08	2.63	730	9,100	2,600	72	1.3	1.7	0.53	100	<5.0	<5.0	<5.0	930
	03/28/09	2.40	66	3,900	2,300	85	<5.0	<5.0	<5.0	98	<5.0	<5.0	<5.0	590
	09/12/09	5.90	470	4,400	1,800	7.3	0.96	<0.5	<0.5	140	<5.0	<5.0	<5.0	880
	03/30/10	5.49	170	1,800	840	0.79	<0.5	<0.5	<0.5	79	<5.0	<5.0	<5.0	1,100
	09/29/10	4.50	120	1,400	830	1.5	0.54	<0.5	1.4	56	<5.0	<5.0	<5.0	1,100
	01/19/11	5.08	100	1,200	850	<0.5	<0.5	<0.5	<0.5	39	<5.0	<5.0	<5.0	590
	12/20/11	3.53	180	400	N/A	0.62	0.78	<0.5	<0.5	29	<2.5	<2.5	2.5	680
	05/21/12	5.41	92	1,500	N/A	<0.5	<0.5	<0.5	<0.5	10	<2.5	<2.5	<2.5	280
	12/05/12	4.71	52	1,200	N/A	0.65	<0.5	<0.5	<0.5	15	<1.7	<1.7	<1.7	320
MW-1	08/16/99	-	Not Sampled Due to Free-Floating Hydrocarbon											
	12/06/99	5.93	Not Sampled Due to Free-Floating Hydrocarbons 0.12 feet											
	03/08/00	6.57	Not Sampled Due to Free-Floating Hydrocarbons 0.21 feet											
	06/14/00	6.70	Not Sampled Due to Free-Floating Hydrocarbons 0.72 feet											
	12/11/00	5.75	Not Sampled Due to Free-Floating Hydrocarbons 0.60 feet											
	03/06/01	7.60	Not Sampled Due to Free-Floating Hydrocarbons 0.40 feet											
	06/06/01	6.80	Not Sampled Due to Free-Floating Hydrocarbons 1.48 feet											
	09/04/01	7.47	Not Sampled Due to Free-Floating Hydrocarbons 0.20 feet											
	03/11/02	6.49	Not Sampled Due to Free-Floating Hydrocarbons											
	06/06/02	6.49	Not Sampled Due to Free-Floating Hydrocarbons 0.67 feet											
	09/04/02	6.89	Not Sampled Due to Free-Floating Hydrocarbons 0.54 feet											
	12/17/02	4.65	Not Sampled Due to Free-Floating Hydrocarbons											
	03/07/03	6.55	Not Sampled Due to Free-Floating Hydrocarbons 1.19 feet											
	06/05/03	9.77	Not Sampled Due to Free-Floating Hydrocarbons 4.63 feet											
	09/19/03	6.56	Not Sampled Due to Free-Floating Hydrocarbons 0.32 feet											
	12/12/03	5.63	Not Sampled Due to Free-Floating Hydrocarbons 0.41 feet											
	03/15/04	7.11	Not Sampled Due to Free-Floating Hydrocarbons 0.40 feet											
	06/22/04	-	Not Sampled Due to Free-Floating Hydrocarbons											
	09/21/04	-	Not Sampled Due to Free-Floating Hydrocarbons											
	12/30/04	-	Not Sampled Due to Free-Floating Hydrocarbons											
	04/06/05	5.70	Not Sampled Due to Free-Floating Hydrocarbons 1.40 feet											
	09/29/05	5.40	Not Sampled Due to Free-Floating Hydrocarbons 1.00 feet											
	12/09/05	10.70	Not Sampled Due to Free-Floating Hydrocarbons 6.13 feet											

Table 5. Groundwater Analytical Results

	03/06/06	9.05	Not Sampled Due to Free-Floating Hydrocarbons 5.05 feet											
	06/20/06	4.61	Not Sampled Due to Free-Floating Hydrocarbons 0.40 feet											
	08/23/06	5.51	Not Sampled Due to Free-Floating Hydrocarbons 2.43 feet											
	11/16/06	-	Not Sampled Due to Free-Floating Hydrocarbons 0.93 feet											
	03/20/07	9.69	Not Sampled Due to Free-Floating Hydrocarbons 4.77 feet											
	05/17/07	9.55	Not Sampled Due to Free-Floating Hydrocarbons 4.63 feet											
	08/16/07	6.95	Not Sampled Due to Free-Floating Hydrocarbons 1.05 feet											
	12/05/07	5.50	Not Sampled Due to Free-Floating Hydrocarbons 1.40 feet											
	02/27/08	7.28	Not Sampled Due to Free-Floating Hydrocarbons 1.40 feet											
	06/28/08	-	Not Sampled Due to Free-Floating Hydrocarbons 1.17 feet											
	07/03/08	-	Well Abandoned											
	08/16/99	6.30	2,200	970	<500	3.8	<2.0	3	<4.0	<20	NA	NA	NA	NA
	12/06/99	8.46	1,900	400	<500	16	<0.5	1.5	<0.5	5.2	NA	NA	NA	NA
	03/08/00	9.12	1,600	530	<500	9.7	<0.5	2.7	<0.5	27	NA	NA	NA	NA
	06/14/00	8.34	2,000	75	<100	2.8	<0.5	3.4	<0.5	16	3.4	<0.5	<0.5	64
	12/11/00	5.94	1,000	120	<100	2.6	<0.5	<0.5	<0.5	15	2.9	<0.5	<0.5	62
	03/06/01	4.70	1,500	1400	NA	2.2	<0.5	1.7	<0.5	22	3.4	<0.5	<0.5	83
	06/06/01	6.03	1,700	190	NA	2.6	<0.5	2.3	<0.5	26	3.2	<0.5	<0.5	83
	09/04/01	6.34	2,000	450	NA	2.7	<0.5	2.1	<0.5	33	3.4	<0.5	<0.5	93
	03/11/02	4.89	1,100	410	NA	1.0	<0.5	0.5	<0.5	26	2.5	<0.5	<0.5	69
	06/06/02	5.69	900	430	NA	1.2	<0.5	<0.5	<0.5	23	2.8	<0.5	<0.5	73
	09/04/02	6.17	910	510	NA	1.6	<0.5	<0.5	<0.5	45	2.5	<0.5	<0.5	67
	12/17/02	4.39	190	220	NA	0.65	<0.5	<0.5	<0.5	34	1.5	<0.5	<0.5	46
	03/07/03	5.44	380	300	NA	0.81	<0.5	<0.5	<0.5	50	1.9	<0.5	<0.5	73
	06/05/03	5.59	2,200	2,200	NA	1.7	<0.5	1.5	<0.5	180	4.9	<0.5	1.3	110
	09/19/03	6.09	2,300	520	NA	2.0	<0.5	2.1	<0.5	180	3.7	<0.5	1.1	120
	12/12/03	5.13	3,000	2200	NA	2.1	<0.5	1.7	<0.5	250	4.5	<0.5	1.6	130
MW-2	03/15/04	5.71	Not Sampled - Truck Parked on Well											
	06/22/04	5.80	1,600	420	NA	1.3	<0.5	1.0	<0.5	580	4.6	<0.5	3.9	340
	09/21/04	6.64	2,500	<400	NA	1.2	<0.5	1.5	<0.5	730	5.9	<0.5	4.9	550
	12/30/04	6.04	1,800	<300	NA	1.2	<1.0	<1.0	<1.0	540	5	<1.0	3.6	400
	04/06/05	-	Not Sampled - Truck Parked on Well											
	09/29/05	-	Not Sampled - Truck Parked on Well											
	12/09/05	5.60	1,000	720	NA	1.0	<0.7	<0.7	<0.7	330	6.5	<0.7	2.3	1,800
	03/06/06	4.25	1,000	<80	NA	1.2	<0.5	0.6	<0.5	290	5.4	<0.5	1.9	1,600
	06/20/06	5.04	1,100	<80	NA	1.6	<0.5	1.0	<0.5	280	5.8	<0.5	1.5	<1,500
	08/23/06	5.70	1,600	<200	NA	1.5	<0.9	<0.9	<0.9	290	5.5	<0.9	1.8	2,100
	11/16/06	-	350	120	NA	0.56	<0.5	<0.5	<0.5	180	4.1	<0.5	0.96	1,300
	03/20/07	6.45	460	110	NA	0.67	<0.5	<0.5	<0.5	160	4.3	<0.5	0.9	1,500
	05/17/07	6.74	710	85	NA	<0.5	<0.5	<0.5	<0.5	160	4.4	<0.5	0.88	2,000
	08/16/07	7.19	460	200	NA	<0.9	<0.9	<0.9	<0.9	150	6.1	<0.9	<0.9	2,700
	12/05/07	5.64	1,500	<80	NA	<0.9	<0.9	<0.9	<0.9	66	3.8	<0.9	<0.9	2,000
	02/27/08	4.64	810	<80	NA	0.54	<0.5	<0.5	<0.5	97	3.6	<0.5	0.52	1,400
	06/28/08	5.68	1,100	280	NA	2.4	5.4	<0.5	<0.5	92	<10	<10	<10	1,600

Table 5. Groundwater Analytical Results

MW-2	09/27/08	7.42	1,500	290	<250	<10	<10	<10	<10	61	<10	<10	<10	1,200
	12/30/08	5.29	1,500	960	2500	1.5	8.4	0.71	1.2	64	<5.0	<5.0	<5.0	1,400
	03/28/09	4.94	1,200	200	<250	<5.0	<5.0	<5.0	<5.0	67	<5.0	<5.0	<5.0	1,200
	09/12/09	5.78	770	230	<250	0.86	6.2	0.89	<0.5	53	<10	<10	<10	1,000
	03/30/10	5.49	780	210	<250	2.0	7.1	<0.5	2.4	72	<5.0	<5.0	<5.0	870
	09/29/10	6.30	1,200	440	1,200	<2.0	8.5	0.8	2.3	46	<1.2	<1.2	<1.2	400
	01/19/11	5.54	1,900	320	940	2.5	16	0.68	1.2	41	<2.5	<2.5	<2.5	450
	12/20/11	6.20	2,100	240	N/A	2.4	15	0.86	7.7	14	<2.5	<2.5	<2.5	250
	05/17/12	5.76	1,400	960	N/A	1.8	10	1.3	2.2	9.6	<1.2	<1.2	<1.2	170
	12/05/12	5.00	1,100	450	N/A	1.7	10	<0.5	1.3	7.0	<5.0	<5.0	<5.0	130
MW-3	08/16/99	5.85	56,000	10,000	<500	17,000	2,600	2,600	1,200	6,100	NA	NA	NA	NA
	12/06/99	5.7	40,000	9,100	<500	16,000	140	1,800	100	4,000	NA	NA	NA	NA
	03/08/00	5.32	22,000	4,500	<500	11,000	72	1,100	130	3,400	NA	NA	NA	NA
	06/14/00	6.95	34,000	16,000	<100	13,000	94	1,300	160	4,800	31	<10	21	2,700
	12/11/00	6.22	24,000	14,000	<100	13,000	88	750	120	4,300	<50	<50	<50	2,300
	03/06/01	4.83	34,000	12,000	NA	15,000	100	1,100	130	4,000	<50	<50	<50	2,100
	06/06/01	5.62	34,000	20,000	NA	14,000	94	550	110	4,400	<50	<50	<50	2,300
	09/04/01	5.91	29,000	19,000	NA	13,000	83	480	83	4,100	<50	<50	<50	3,400
	03/11/02	4.42	12,000	14,000	NA	2,900	<20	110	<20	530	<20	<20	<20	330
	06/06/02	5.19	20,000	14,000	NA	10,000	<50	200	51	2,400	<50	<50	<50	1,200
	09/04/02	5.72	24,000	17,000	NA	11,000	<50	140	<50	3,200	<50	<50	<50	1,400
	12/17/02	3.96	4,900	17,000	NA	2,000	<10	52	12	360	<10	<10	<10	220
	03/07/03	4.88	8,700	16,000	NA	1,300	<10	43	11	770	<10	<10	<10	360
	06/05/03	5.05	27,000	14,000	NA	10,000	53	220	53	5,000	<50	<50	<50	1,600
	09/19/03	5.62	120,000	13,000	NA	20,000	170	710	250	6,100	<25	<25	<25	2,600
	12/12/03	4.68	29,000	27,000	NA	12,000	74	240	79	5,600	17	<10	30	2,100
	03/15/04	4.52	28,000	21,000	NA	11,000	72	220	64	8,200	<50	<50	<50	2,900
	06/22/04	6.49	29,000	7,600	NA	11,000	71	220	54	8,400	<50	<50	<50	3,000
	09/21/04	5.72	33,000	<5,000	NA	12,000	67	190	56	8,200	<25	<25	47	3,200
	12/30/04	4.72	30,000	13,000	NA	11,000	62	170	49	8,900	<25	<25	49	3,200
	04/06/05	3.78	29,000	46,000	NA	10,000	55	170	47	8,800	<25	<25	50	4,400
	09/29/05	5.85	28,000	1,800	NA	8,700	74	190	53	7,300	<15	<15	53	4,500
	12/09/05	5.01	17,000	19,000	NA	5,600	40	110	30	4,400	<15	<15	30	2,800
	03/06/06	3.75	11,000	16,000	NA	3,600	26	96	22	2,400	<7.0	<7.0	19	1,400
	06/20/06	4.81	18,000	20,000	NA	6,900	45	130	29	500	9.5	<7.0	34	2,900
	08/23/06	5.22	22,000	9,500	NA	6,200	33	100	19	4,800	9.8	<9.0	34	3,100
	11/16/06	-	16,000	16,000	810	5,800	26	87	18	2,700	10	<9.0	20	1,800
	03/20/07	5.06	23,000	12,000	410	7,600	39	100	21	5,000	16	<8.0	35	3,200
	05/17/07	6.35	22,000	18,000	NA	10,000	44	110	27	5,500	<15	<15	41	3,200
	08/16/07	6.46	16,000	63,000	NA	5,900	33.0	66	25	4,600	<15	<15	39	3,400
	12/05/07	4.82	21,000	6,400	890	8,000	55	120	42	4,600	<15	<15	34	4,600
	02/27/08	4.54	35,000	40,000	870	8,800	54	100	38	4,300	<15	<15	38	3,300
	06/28/08	6.41	31,000	7,500	NA	12,000	61	140	42	7,300	<120	<120	<120	4,700
	07/03/08	-	Well Abandoned											

Table 5. Groundwater Analytical Results

MW-4	08/16/99	6.12	61	1,100	<500	<0.5	<0.5	<0.5	<1.0	86	NA	NA	NA	NA
	12/06/99	5.98	130	220	<500	<1.0	<1.0	<1.0	<1.0	130	NA	NA	NA	NA
	03/08/00	4.32	<50	220	<500	<0.5	<0.5	<0.5	<0.5	130	NA	NA	NA	NA
	06/14/00	5.58	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	100	<0.5	<0.5	<0.5	20
	12/11/00	5.70	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	110	<0.5	<0.5	<0.5	16
	03/06/01	4.46	<50	670	NA	<0.5	<0.5	<0.5	<0.5	110	<0.5	<0.5	<0.5	9.9
	06/06/01	5.89	<50	790	NA	<0.5	<0.5	<0.5	<0.5	110	<0.5	<0.5	<0.5	20
	09/04/01	6.16	<50	950	NA	<0.5	<0.5	<0.5	<0.5	110	<0.5	<0.5	<0.5	26
	03/11/02	4.67	<50	250	NA	<0.5	<0.5	<0.5	<0.5	84	<0.5	<0.5	<0.5	21
	06/06/02	5.50	<50	710	NA	<0.5	<0.5	<0.5	<0.5	92	<0.5	<0.5	<0.5	21
	09/04/02	5.97	<50	1,100	NA	<0.5	<0.5	<0.5	<0.5	150	<0.5	<0.5	<0.5	18
	12/17/02	4.22	<50	470	NA	<0.5	<0.5	<0.5	<0.5	120	<0.5	<0.5	<0.5	<5.0
	03/07/03	5.23	<50	470	NA	<0.5	<0.5	<0.5	<0.5	120	<0.5	<0.5	0.52	18
	06/05/03	5.38	<50	2,000	NA	<0.5	<0.5	<0.5	<0.5	110	<0.5	<0.5	0.5	23
	09/19/03	5.91	<50	830	NA	<0.5	<0.5	<0.5	<0.5	110	<0.5	<0.5	<0.8	23
	12/12/03	4.91	<50	1700	NA	<0.5	<0.5	<0.5	<0.5	120	<0.5	<0.5	<0.5	16
	03/15/04	4.94	<50	2,200	NA	<0.5	<0.5	<0.5	<0.5	110	<0.5	<0.5	<0.5	20
	09/21/04	6.01	<50	620	NA	<0.5	<0.5	<0.5	<0.5	93	<0.5	<0.5	<0.5	31
	04/06/05	4.09	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	59	<0.5	<0.5	<0.5	50
	09/29/05	5.56	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	17	<0.5	<0.5	<0.5	120
	12/09/05	5.28	<50	760	NA	<0.5	<0.5	<0.5	<0.5	9.5	<0.5	<0.5	<0.5	94
	03/06/06	4.00	<50	470	NA	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	68
	06/20/06	5.14	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	120
	08/23/06	5.51	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	8.2	<0.5	<0.5	<0.5	140
	11/09/06	5.64	<50	200	410	<0.5	<0.5	<0.5	<0.5	7.7	<0.5	<0.5	<0.5	130
	03/20/07	4.90	<50	860	NA	<0.5	<0.5	<0.5	<0.5	6.3	<0.5	<0.5	<0.5	42
	05/17/07	5.18	<50	600	NA	<0.5	<0.5	<0.5	<0.5	5.6	<0.5	<0.5	<0.5	32
	08/16/07	5.81	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	4.6	<0.5	<0.5	<0.5	64
	12/05/07	5.20	1,300	2,600	5,600	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	30
	02/27/08	4.43	<50	270	400	<0.5	<0.5	<0.5	<0.5	3.7	<0.5	<0.5	<0.5	9.3
	06/28/08	5.58	<50	150	NA	<0.5	<0.5	<0.5	<0.5	5.9	<0.5	<0.5	<0.5	37
	09/27/08	5.72	<50	160	360	<0.5	<0.5	<0.5	<0.5	3.9	<0.5	<0.5	<0.5	33
	12/30/08	4.87	<50	200	320	<0.5	<0.5	<0.5	<0.5	6.3	<0.5	<0.5	<0.5	16
	03/28/09	4.68	<50	120	<250	<0.5	<0.5	<0.5	<0.5	2.3	<0.5	<0.5	<0.5	4.5
	09/12/09	5.58	<50	130	330	<0.5	<0.5	<0.5	<0.5	4.2	<0.5	<0.5	<0.5	13
	03/30/10	5.01	<50	240	680	<0.5	<0.5	<0.5	<0.5	1.3	<0.5	<0.5	<0.5	4.4
	09/29/10	5.94	<50	130	510	<0.5	<0.5	<0.5	<0.5	2.0	<0.5	<0.5	<0.5	3.9
	01/19/11	5.04	<50	660	3,000	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	4.6
	12/20/11	5.94	<50	660	N/A	<0.5	<0.5	<0.5	<0.5	2.0	<0.5	<0.5	<0.5	7.5
	05/17/12	5.29	<50	190	N/A	<0.5	<0.5	<0.5	<0.5	0.9	<0.5	<0.5	<0.5	2.5
	12/05/12	4.47	<50	170	N/A	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	5.2
MW-5	12/06/99	5.94	450	2,000	<500	<1.0	<1.0	<1.0	<1.0	21	NA	NA	NA	NA
	03/08/00	4.06	51	530	<500	<0.5	<0.5	<0.5	<0.5	84	NA	NA	NA	NA
	06/14/00	5.25	380	1,400	<100	<0.5	<0.5	<0.5	<0.5	160	12	<0.5	<0.5	22

Table 5. Groundwater Analytical Results

MW-5	12/11/00	5.45	540	590	<100	<0.5	<0.5	<0.5	<0.5	240	9.5	<0.5	<0.5	32
	03/06/01	4.12	510	2,900	NA	<0.5	<0.5	<0.5	<0.5	140	13	<0.5	<0.5	19
	06/06/01	5.56	280	2,700	NA	<0.5	<0.5	<0.5	<0.5	180	13	<0.5	<0.5	26
	09/04/01	5.84	630	2,600	NA	<0.5	<0.5	<0.5	<0.5	180	9.4	<0.5	<0.5	29
	03/11/02	4.38	97	3,500	NA	<0.5	<0.5	<0.5	<0.5	29	0.8	<0.5	<0.5	7
	06/06/02	5.16	61	3,500	NA	<0.5	<0.5	<0.5	<0.5	150	2.9	<0.5	<0.5	34
	09/04/02	5.62	92	6,100	NA	<0.5	<0.5	<0.5	<0.5	370	3.6	<0.5	<0.5	72
	12/17/02	4.12	110	2,100	NA	<0.5	<0.5	<0.5	<0.5	110	4.2	<0.5	<0.5	14
	03/07/03	4.89	71	1,600	NA	<0.5	<0.5	<0.5	<0.5	150	2.2	<0.5	<0.5	35
	06/05/03	5.04	95	3,300	NA	<0.5	<0.5	<0.5	<0.5	170	4.6	<0.5	<0.5	43
	09/19/03	5.56	100	1,400	NA	<0.5	<0.5	<0.5	<0.5	310	5.2	<0.5	0.68	86
	12/12/03	4.72	<50	7,600	NA	<0.5	<0.5	<0.5	<0.5	270	5.9	<0.5	0.7	91
	03/15/04	4.61	95	1,700	NA	<0.5	<0.5	<0.5	<0.5	290	6.7	<0.5	0.92	200
	09/21/04	5.68	78	990	NA	<0.5	<0.5	<0.5	<0.5	270	4.7	<0.5	0.96	880
	04/06/05	3.98	64	1,200	NA	<0.5	<0.5	<0.5	<0.5	120	4.8	<0.5	<0.5	780
	09/29/05	5.28	100	640	NA	<0.5	<0.5	<0.5	<0.5	77	3.7	<0.5	<0.5	4,000
	12/09/05	5.05	99	3,700	NA	<0.5	<0.5	<0.5	<0.5	66	6.8	<0.5	<0.5	3,000
	03/06/06	3.96	66	760	NA	<0.5	<0.5	<0.5	<0.5	42	2.9	<0.5	<0.5	1,600
	06/20/06	4.51	84	1,300	NA	<0.5	<0.5	<0.5	<0.5	42	3.6	<0.5	<0.5	3,000
	08/23/06	7.47	<200	410	NA	2.1	<2.0	<2.0	<2.0	37	2.8	<2.0	<2.0	4,800
	11/09/06	5.42	<200	700	<100	<2.0	<2.0	<2.0	<2.0	28	3.0	<2.0	<2.0	5,600
	03/20/07	4.83	<200	430	NA	<2.0	<2.0	<2.0	<2.0	22	3.0	<2.0	<2.0	3,800
	05/17/07	5.29	<200	500	NA	<2.0	<2.0	<2.0	<2.0	18	3.5	<2.0	<2.0	4,300
	08/16/07	5.31	<200	1,600	NA	<2.0	<2.0	<2.0	<2.0	13	3.0	<2.0	<2.0	6,400
	12/05/07	4.90	<200	1,400	120	<2.0	<2.0	<2.0	<2.0	8.2	2.6	<2.0	<2.0	4,700
	02/27/08	4.17	<90	1,300	190	<0.9	<0.9	<0.9	<0.9	6.0	1.8	<0.9	<0.9	2,800
	06/28/08	5.24	140	3,000	NA	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<50	4,300
	09/27/08	5.42	120	2,800	1,000	<50	<50	<50	<50	<50	<50	<50	<50	6,600
	12/30/08	4.60	86	1,400	430	<0.5	<0.5	<0.5	<0.5	<25	<25	<25	<25	5,000
	03/28/09	4.41	120	1,700	500	<50	<50	<50	<50	<50	<50	<50	<50	6,400
	09/12/09	5.28	88	6,100	1,900	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<50	8,600
	03/30/10	4.32	90	640	300	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<50	10,000
	09/29/10	5.61	120	2,600	1,100	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<50	5,700
	01/19/11	4.25	88	1,000	640	<0.5	<0.5	<0.5	<0.5	<50	<50	<50	<50	5,600
	12/20/11	5.33	120	690	N/A	<0.5	<0.5	<0.5	<0.5	<5	<50	<50	<50	5,900
	05/17/12	4.89	120	4,400	N/A	<0.5	<0.5	<0.5	<0.5	<5	<25	<25	<25	3,900
	12/05/12	4.40	95	4,100	N/A	<0.5	<0.5	<0.5	0.64	<12	<12	<12	<12	1,900
MW-6	12/06/99	5.80	13,000	<50	<500	180	21	11	24	<100	NA	NA	NA	NA
	03/08/00	4.10	<10,000	4,600	<500	230	26	18	39	12,000	NA	NA	NA	NA
	06/14/00	5.64	8,400	12,000	<100	180	12	10	22	15,000	<5.0	<5.0	70	3,300
	12/11/00	5.72	<5,000	10,000	<100	180	<50	<50	<50	14,000	<50	<50	74	2,900
	03/06/01	4.32	5,300	6,700	NA	220	<50	<50	<50	13,000	<50	<50	84	2,100
	06/06/01	5.81	5,000	2,300	NA	210	<25	<25	<25	14,000	<25	<25	84	4,200
	09/04/01	6.12	5,400	2,200	NA	190	12	<10	23	15,000	<10	<10	79	4,000

Table 5. Groundwater Analytical Results

MW-6	03/11/02	4.49	4,600	11,000	NA	160	<25	<25	<25	15,000	<25	<25	39	5,100
	06/06/02	5.33	<5,000	14,000	NA	200	<50	<50	<50	17,000	<50	<50	77	8,700
	09/04/02	5.92	<5,000	50,000	NA	140	<50	<50	<50	21,000	<50	<50	52	7,500
	12/17/02	3.85	<5,000	9,100	NA	130	<50	<50	<50	16,000	<50	<50	64	6,300
	03/07/03	4.96	<5,000	12,000	NA	160	<50	<50	<50	20,000	<50	<50	53	7,500
	06/05/03	5.18	<5,000	23,000	NA	230	<50	<50	<50	19,000	<50	<50	86	7,100
	09/19/03	5.81	8,900	24,000	NA	220	<25	<25	<25	15,000	<25	<25	74	8,100
	12/12/03	4.73	8,000	24,000	NA	190	<25	<25	32	14,000	<25	<25	65	7,400
	03/15/04	5.65	4,400	26,000	NA	190	<25	<25	<25	9,900	<25	<25	61	6,700
	06/22/04	5.34	3,500	7,000	NA	150	<20	<20	<20	9,200	<20	<20	51	6,100
	09/21/04	5.89	4,600	12,000	NA	210	<20	<20	<20	8,800	<20	<20	55	7,000
	12/30/04	4.35	5,300	11,000	NA	190	<20	<20	<20	6,300	<20	<20	53	4,900
	04/06/05	3.66	5,100	680	NA	190	13	12	32	3,700	<5.0	<5.0	42	4,600
	09/29/05	6.00	4,900	2,800	NA	130	8.9	<5.0	13	2,100	<5.0	<5.0	23	3,200
	12/09/05	5.17	3,600	10,000	NA	110	7.1	<5.0	7.9	2,700	<5.0	<5.0	22	4,200
	03/06/06	4.55	3,900	900	NA	120	9.3	5.2	13	3,000	<0.5	<0.5	26	4,400
	06/20/06	4.96	3,600	1,500	NA	140	10	5.2	18	1,600	<3.0	<3.0	23	3,600
	08/23/06	5.42	4,300	<800	NA	140	11	4.6	13	2,000	<4.0	<4.0	22	4,000
	11/09/06	5.57	3,200	1,700	<100	110	6.9	<4.0	8.2	1,500	<4.0	<4.0	16	3,900
	03/20/07	4.59	2,100	920	NA	120	7.9	<4.0	7.1	2,000	<4.0	<4.0	20	4,000
	05/17/07	5.12	3,800	600	NA	140	9.5	<4.0	15	1,700	<4.0	<4.0	21	3,200
	08/16/07	7.55	3,500	780	NA	160	9.3	<3.0	14	1,800	<3.0	<3.0	21	3,600
	12/05/07	5.3	4,500	<600	<100	100	7.8	<4.0	14	1,400	<4.0	<4.0	15	4,900
	02/27/08	4.33	3,100	<1,500	<100	82	6.1	<2.0	7.9	760	<2.0	<2.0	9.6	4,800
	06/28/08	5.54	4,700	17,000	NA	160	13	4.0	11	1,700	<50	<50	<50	6,200
	07/03/08	-	Well Abandoned											
MW-7	09/04/02	4.67	<50	130	NA	<0.5	<0.5	<0.5	<0.5	3.4	<0.5	<0.5	<0.5	<5.0
	12/17/02	3.11	<50	220	NA	<0.5	<0.5	<0.5	<0.5	2.8	<0.5	<0.5	<0.5	<5.0
	03/07/03	3.89	<50	140	NA	<0.5	<0.5	<0.5	<0.5	1.8	<0.5	<0.5	<0.5	<5.0
	06/05/03	3.57	<50	200	NA	<0.5	<0.5	<0.5	<0.5	2.5	<0.5	<0.5	<0.5	<5.0
	09/19/03	4.57	<50	320	NA	<0.5	<0.5	<0.5	<0.5	5	<0.5	<0.5	<0.5	<5.0
	12/12/03	3.48	<50	380	NA	<0.5	<0.5	<0.5	<0.5	2.3	<0.5	<0.5	<0.5	<5.0
	03/15/04	-	Not Sampled - Truck Parked on Well											
	09/21/04	-	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	2.6	<0.5	<0.5	<0.5	<5.0
	04/06/05	-	<50	120	NA	<0.5	<0.5	<0.5	<0.5	9.2	<0.5	<0.5	<0.5	<5.0
	09/29/05	4.27	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	12	<0.5	<0.5	<0.5	<5.0
	12/09/05	4.86	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	10	<0.5	<0.5	<0.5	<5.0
	03/06/06	2.80	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	9	<0.5	<0.5	<0.5	<5.0
	06/20/06	3.60	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	<5.0
	08/23/06	4.89	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	8.5	<0.5	<0.5	<0.5	<5.0
	11/09/06	4.23	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	5.7	<0.5	<0.5	<0.5	<5.0
	03/20/07	3.55	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	2.1	<0.5	<0.5	<0.5	<5.0
	05/17/07	4.02	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	2.0	<0.5	<0.5	<0.5	<5.0
	08/16/07	4.35	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<5.0

Table 5. Groundwater Analytical Results

MW-7	12/05/07	-	Not Sampled - Truck Parked on Well										
	02/27/08	3.11	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	0.81	<0.5	<0.5	<0.5	<5.0
	06/28/08	4.16	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	<2.0
	09/27/08	4.41	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	0.92	<0.5	<0.5	<0.5	<2.0
	12/30/08	-	Not Sampled - Truck Parked on Well										
	03/28/09	-	Not Sampled - Truck Parked on Well										
	09/12/09	4.23	<50	87	<250	<0.5	<0.5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5	<2.0
	03/30/10	-	Stopped Sampling										
MW-8	09/04/02	4.94	<50	170	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	12/17/02	3.26	<50	100	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0
	03/07/03	4.01	<50	62	NA	<0.5	<0.5	<0.5	<0.5	33	<0.5	<0.5	<0.5	<5.0
	06/05/03	4.28	<50	270	NA	<0.5	<0.5	<0.5	<0.5	13	<0.5	<0.5	<0.5	<5.0
	09/19/03	4.87	<50	250	NA	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	<5.0
	12/12/03	3.77	<50	420	NA	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	<5.0
	03/15/04	3.53	<50	250	NA	<0.5	<0.5	<0.5	<0.5	6.4	<0.5	<0.5	<0.5	<5.0
	09/21/04	4.70	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	<5.0
	04/06/05	3.50	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	8	<0.5	<0.5	<0.5	<5.0
	09/29/05	4.62	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	18	<0.5	<0.5	<0.5	<5.0
	12/09/05	3.92	<50	86	NA	<0.5	<0.5	<0.5	<0.5	9.7	<0.5	<0.5	<0.5	<5.0
	03/06/06	-	Not Sampled - Truck Parked on Well										
	06/20/06	3.84	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	6.6	<0.5	<0.5	<0.5	<5.0
	08/23/06	-	Not Sampled - Truck Parked on Well										
	11/09/06	4.39	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	9.3	<0.5	<0.5	<0.5	<5.0
	03/20/07	-	<50	250	NA	<0.5	<0.5	<0.5	<0.5	10	<0.5	<0.5	<0.5	<5.0
	05/17/07	3.95	<50	350	NA	<0.5	<0.5	<0.5	<0.5	3.3	<0.5	<0.5	<0.5	<5.0
	08/16/07	4.46	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	11	<0.5	<0.5	<0.5	<5.0
	12/05/07	4.3	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	13	<0.5	<0.5	<0.5	<5.0
	02/27/08	-	Stopped Sampling										
MW-9	09/04/02	6.26	<2,500	1,000	NA	<25	<25	<25	<25	12,000	<25	<25	70	1700
	12/17/02	4.23	<2,000	880	NA	<20	<20	<20	<20	4,500	<20	<20	23	2300
	03/07/03	5.26	<500	450	NA	<5	<5	<5	<5	1,700	<5	<5	8.4	6600
	06/05/03	5.56	<500	4,500	NA	<5	<5	<5	<5	120	<5	<5	<5.0	17,000
	09/19/03	6.25	<1,000	4,500	NA	<10	<10	<10	<10	38	<10	<10	<10	15,000
	12/12/03	-	Not Sampled - Truck Parked on Well										
	03/15/04	5.04	<1,000	82	NA	<10	<10	<10	<10	38	<10	<10	<10	18,000
	09/21/04	6.24	<1,000	2,600	NA	<10	<10	<10	<10	17	<10	<10	<10	16,000
	12/30/04	-	Not Sampled - Truck Parked on Well										
	04/06/05	4.12	<700	<50	NA	<7	<7	<7	<7	55	<7	<7	<7	15,000
	09/29/05	5.55	<700	<50	NA	<7	<7	<7	<7	34	<7	<7	<7	1,300
	12/09/05	5.51	<400	3,200	NA	46	<4.0	<4.0	<4.0	12	<4.0	<4.0	<4.0	8,200
	03/06/06	-	Not Sampled - Truck Parked on Well										
	06/20/06	-	Not Sampled - Truck Parked on Well										
	08/23/06	4.78	<250	<50	NA	9.6	<2.5	<2.5	<2.5	18	<2.5	<2.5	<2.5	6,000
	11/09/06	5.87	<150	<50	NA	13	<1.5	<1.5	<1.5	3	<1.5	<1.5	<1.5	3,900

Table 5. Groundwater Analytical Results

MW-9	03/20/07	5.02	<150	<50	NA	<0.5	<0.5	<0.5	<0.5	3	<0.5	<0.5	<0.5	2,900
	05/17/07	5.53	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	6	<0.5	<0.5	<0.5	880
	08/16/07	-	Not Sampled - Truck Parked on Well											
	12/05/07	-	Not Sampled - Truck Parked on Well											
	02/27/08	-	Not Sampled - Truck Parked on Well											
	06/28/08	5.9	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	<5.0	<5.0	<5.0	<5.0	950
	09/27/08	-	Not Sampled - Truck Parked on Well											
	12/30/08	-	Not Sampled - Truck Parked on Well											
	03/28/09	-	Not Sampled - Truck Parked on Well											
	09/12/09	5.91	<50	170	300	<0.5	<0.5	<0.5	<0.5	<1.7	<1.7	<1.7	<1.7	330
	03/30/10	5.59	<50	110	<250	<0.5	<0.5	<0.5	<0.5	2.2	<1.0	<1.0	<1.0	190
	09/29/10	-	Not Sampled - Truck Parked on Well											
	01/19/11	5.58	<50	100	<250	<0.5	<0.5	<0.5	<0.5	<1.2	<1.2	<1.2	<1.2	240
	12/20/11	6.38	<50	90	N/A	<0.5	<0.5	<0.5	<0.5	<5.0	<5.0	<5.0	<5.0	200
	05/21/12	5.88	<50	120	N/A	<0.5	<0.5	<0.5	<0.5	<1.0	<1.0	<1.0	<1.0	190
	12/05/12	5.20	<50	130	N/A	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	140
MW-10	10/12/06	6.02	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	27
	11/09/06	6.24	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	82
	03/20/07	5.21	<50	270	NA	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	84
	05/17/07	6.21	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	1.4	<0.5	<0.5	<0.5	55
	08/16/07	6.56	<50	<50	NA	<0.5	<0.5	<0.5	<0.5	1.7	<0.5	<0.5	<0.5	28
	12/05/07	6.42	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	0.94	<0.5	<0.5	<0.5	13
	02/27/08	-	<50	<50	<100	<0.5	<0.5	<0.5	<0.5	1.2	<0.5	<0.5	<0.5	7.3
	06/28/08	6.27	<50	63	NA	<0.5	<0.5	<0.5	<0.5	0.83	<0.5	<0.5	<0.5	8.7
	09/27/08	6.50	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	0.53	<0.5	<0.5	<0.5	3.3
	12/30/08	5.64	<50	<50	<250	<0.5	<0.5	<0.5	<0.5	0.73	<0.5	<0.5	<0.5	<0.5
	03/28/09	5.46	4,700	58	<250	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5	<0.5	<2.0
	09/12/09	6.32	<50	230	830	<0.5	<0.5	<0.5	<0.5	0.65	<0.5	<0.5	<0.5	<2.0
	03/30/10	5.78	<50	66	<250	<0.5	<0.5	<0.5	<0.5	0.87	<0.5	<0.5	<0.5	<2.0
	09/29/10	6.59	<50	100	350	<0.5	<0.5	<0.5	<0.5	0.55	<0.5	<0.5	<0.5	<2.0
	01/19/11	5.67	<50	180	610	<0.5	<0.5	<0.5	<0.5	0.53	<5.0	<0.5	<0.5	<2.0
	12/20/11	6.51	<50	<50	N/A	<0.5	<0.5	<0.5	<0.5	0.57	<5.0	<0.5	<0.5	<2.0
	05/17/12	6.02	<50	<50	N/A	<0.5	<0.5	<0.5	<0.5	0.63	<0.5	<0.5	<0.5	<2.0
	12/05/12	5.14	<50	72	N/A	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<2.0
ESL	**N/A**		**210**	**210**	**210**	**46**	**130**	**43**	**100**	**1,800**	**NE**	**NE**	**NE**	**18,000**
All measurements are in µg/L														

Table 6. Soil Analytical Results

Sample ID	Date Sampled	Depth (ft)	TPH-g	TPH-d	B	T	E	X	MtBE	TPH-mo	DIPE	ETBE	TAME	TBA	Methanol	Ethanol
021999-B1-1C	2/19/1999	4.0	24	1,600	0.062	0.057	0.14	0.61	0.23	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B1-2C	2/19/1999	11.0	21	330	0.040	0.047	0.16	0.64	0.71	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B1-3C	2/19/1999	16.0	<1.0	10	<0.0050	<0.0050	<0.0050	<0.0050	0.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B2-1C	2/19/1999	4.0	67	660	0.330	0.074	0.29	0.34	3.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B2-2C	2/19/1999	11.0	20	460	0.044	<0.020	0.081	0.29	0.035	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B2-3C	2/19/1999	16.0	<1.0	47	<0.0050	<0.0050	<0.0050	<0.0050	0.05	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B4-1B	2/19/1999	3.5	3.9	13	0.067	0.0051	<0.0050	0.024	0.18	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B4-2B	2/19/1999	7.5	6.1	250	0.140	0.0059	0.024	0.051	0.0099	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B4-3C	2/19/1999	12.0	170	350	1.5	0.11	3.2	0.34	0.16	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B4-4C	2/19/1999	16.0	170	120	1.400	0.56	0.82	1.5	0.053	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B6-1C	2/19/1999	4.0	360	2,000	2.2	0.38	1.7	2.4	0.095	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B6-2C	2/19/1999	11.0	340	650	2.600	1.3	10	9.8	0.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B6-3C	2/19/1999	16.0	24	7	1.1	0.047	0.2	0.18	<0.020	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B7-1C	2/8/1999	4.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B7-2C	2/8/1999	8.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B7-3C	2/8/1999	12.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B7-4C	2/8/1999	16.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B8-1C	2/8/1999	4.0	45	810	0.160	0.092	0.14	0.22	0.36	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B8-2B	2/8/1999	7.5	2.4	<1.0	0.024	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B8-3B	2/8/1999	11.5	67	95	0.490	0.064	0.2	<0.050	2.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B8-4B	2/8/1999	16.0	1200	890	5.6	2.6	5.1	1.1	0.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B9-1C	2/8/1999	4.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B9-2C	2/8/1999	8.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B9-3B	2/8/1999	11.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.012	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B9-4B	2/8/1999	15.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.011	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW1-1C	2/18/1999	4.0	3.9	82	0.058	0.01	0.074	0.16	0.018	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW1-2C	2/18/1999	8.0	<1.0	110	<0.0050	<0.0050	0.011	0.0086	0.071	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW1-3C	2/18/1999	12.0	3.1	540	<0.0050	0.0065	0.025	0.053	0.013	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW1-4C	2/18/1999	16.0	<1.0	3	<0.0050	<0.0050	<0.0050	<0.0050	0.016	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW3-1C	2/18/1999	4.0	160	2,800	2.500	0.11	3.5	2.5	0.24	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW3-2C	2/18/1999	8.0	230	1,100	5.5	0.14	5.5	0.56	0.25	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW3-3C	2/18/1999	12.0	120	250	2.700	0.092	3.9	0.73	0.37	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 6. Soil Analytical Results

021999-MW3-4C	2/18/1999	16.0	43	15	1.1	0.084	0.49	0.35	0.92	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B3-1C	2/19/1999	4.0	N/A	N/A	0.022	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B3-2C	2/19/1999	11.0	N/A	N/A	<0.0050	<0.0050	0.0052	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-B3-3B	2/19/1999	15.5	N/A	N/A	N/A	N/A	0.33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW2-1C	2/19/1999	4.0	N/A	N/A	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW2-2B	2/19/1999	10.5	N/A	N/A	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW2-3B	2/19/1999	15.5	N/A	N/A	<0.0050	<0.0050	0.17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW4-1C	2/19/1999	4.0	N/A	N/A	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW4-2C	2/19/1999	11.0	N/A	N/A	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
021999-MW4-3C	2/19/1999	16.0	N/A	N/A	<0.0050	<0.0050	<0.0050	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MW-5	12/1/1999	6.0	<1.0	17	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<50	N/A	N/A	N/A	N/A	N/A	N/A
MW-6	12/1/1999	6.0	2	<1.0	<0.0050	<0.0050	<0.0050	0.013	0.025	<50	N/A	N/A	N/A	N/A	N/A	N/A
BH-A	5/31/2000	7.5	370	670	2.3	0.16	4.7	1.1	<0.050	<200	<0.050	<0.050	<0.050	<0.50	N/A	N/A
BH-A	5/31/2000	11.5	210	130	1.300	0.52	3.7	15	<0.020	<10	<0.020	<0.020	<0.020	<0.20	N/A	N/A
BH-B	5/31/2000	7.5	4.4	3	0.04	<0.0050	<0.0050	<0.0050	<0.0050	24	<0.0050	<0.0050	<0.0050	0.012	N/A	N/A
BH-B	5/31/2000	11.5	190	120	0.048	0.03	0.37	0.02	0.41	<10	<0.020	<0.020	<0.020	<0.20	N/A	N/A
BH-C	5/31/2000	11.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	1	<10	<0.0050	<0.0050	0.025	0.49	N/A	N/A
BH-D	5/31/2000	11.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	1.7	<10	<0.0050	<0.0050	0.024	0.57	N/A	N/A
BH-E	5/31/2000	11.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	14	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A
BH-F	5/31/2000	11.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A
BH-G	6/1/2000	12.0	270	1,500	<0.020	0.028	<0.020	<0.020	0.05	<10	<0.020	<0.020	<0.020	<0.20	N/A	N/A
BH-H	6/1/2000	8.0	150	1,100	0.029	0.024	<0.020	<0.020	0.06	<10	<0.020	<0.020	<0.020	<0.20	N/A	N/A
BH-H	6/1/2000	12.0	3	320	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.020	N/A	N/A
MW-7	7/8/2002	10.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A
MW-8	7/8/2002	11.0	<1.0	4	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	N/A	N/A
MW-9	7/8/2002	13.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	0.0058	15	<0.0050	<0.0050	<0.0050	0.0051	N/A	N/A
BH-I	9/25/2006	9.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	0.49	<0.20	<0.010
BH-I	9/25/2006	14.5	7.9	5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	2.2	<0.20	<0.010
BH-I	9/25/2006	19.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	16	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-I	9/25/2006	24.5	<1.0	4	<0.0050	<0.0050	<0.0050	<0.0050	0.012	<10	<0.0050	<0.0050	<0.0050	1	<0.20	<0.010
BH-I	9/25/2006	29.5	<1.0	3	<0.0050	<0.0050	<0.0050	<0.0050	0.018	<10	<0.0050	<0.0050	<0.0050	0.098	<0.20	<0.010
BH-I	9/25/2006	34.5	<1.0	4	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-I	9/25/2006	39.5	<1.0	9	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	13	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-I	9/25/2006	44.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010

Table 6. Soil Analytical Results

BH-I	9/25/2006	49.9	<1.0	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-J	9/25/2006	9.5	340	780	3.900	0.05	1.5	0.15	0.23	18	<0.050	<0.050	<0.050	0.28	<5.0	<0.50
BH-J	9/25/2006	14.5	320	270	0.99	0.053	0.92	0.21	0.47	<10	<0.050	<0.050	<0.050	<0.25	<5.0	<0.50
BH-J	9/25/2006	19.5	<1.0	8	0.019	<0.0050	<0.0050	<0.0050	0.011	<10	<0.0050	<0.0050	<0.0050	0.8	<0.20	<0.010
BH-J	9/25/2006	24.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	0.32	<0.20	<0.010
BH-J	9/25/2006	34.5	<1.0	7	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	0.017	<0.20	<0.010
BH-J	9/25/2006	39.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-J	9/25/2006	44.5	<1.0	5	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-J	9/25/2006	49.9	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-K	9/26/2006	9.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	0.21	<0.20	<0.010
BH-K	9/26/2006	13.0	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-K	9/26/2006	14.5	<1.0	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-K	9/26/2006	24.5	<1.0	4	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	0.17	<0.20	<0.010
BH-K	9/26/2006	29.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-K	9/26/2006	34.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-K	9/26/2006	39.5	<1.0	3	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-K	9/26/2006	44.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-K	9/26/2006	49.5	<1.0	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-L	9/26/2006	9.5	61	1,600	0.12	<0.025	<0.025	0.073	0.15	30	<0.025	<0.025	<0.025	0.36	<2.5	<0.25
BH-L	9/26/2006	14.5	170	1,400	0.510	0.027	<0.025	0.054	0.81	18	<0.025	<0.025	<0.025	0.5	<5.0	<0.25
BH-L	9/26/2006	16.0	<1.0	6	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	1.4	<0.20	<0.010
BH-L	9/26/2006	19.5	230	2,200	0.380	<0.040	<0.040	0.058	0.78	<100	<0.040	<0.040	<0.040	0.52	<8.0	<0.40
BH-L	9/26/2006	24.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	0.47	<0.20	<0.010
BH-L	9/26/2006	29.5	<1.0	3	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	0.36	<0.20	<0.010
BH-L	9/26/2006	34.5	<1.0	3	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	0.018	<0.20	<0.010
BH-L	9/26/2006	44.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-L	9/26/2006	49.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-M	9/27/2006	9.5	<1.0	6	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	21	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	0.012
BH-M	9/27/2006	14.5	<1.0	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-N	9/27/2006	9.5	<1.0	15	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	42	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-N	9/27/2006	14.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-O	9/28/2006	9.5	<1.0	21	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	100	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-P	9/28/2006	9.5	<1.0	10	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	37	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-Q	9/28/2006	9.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010

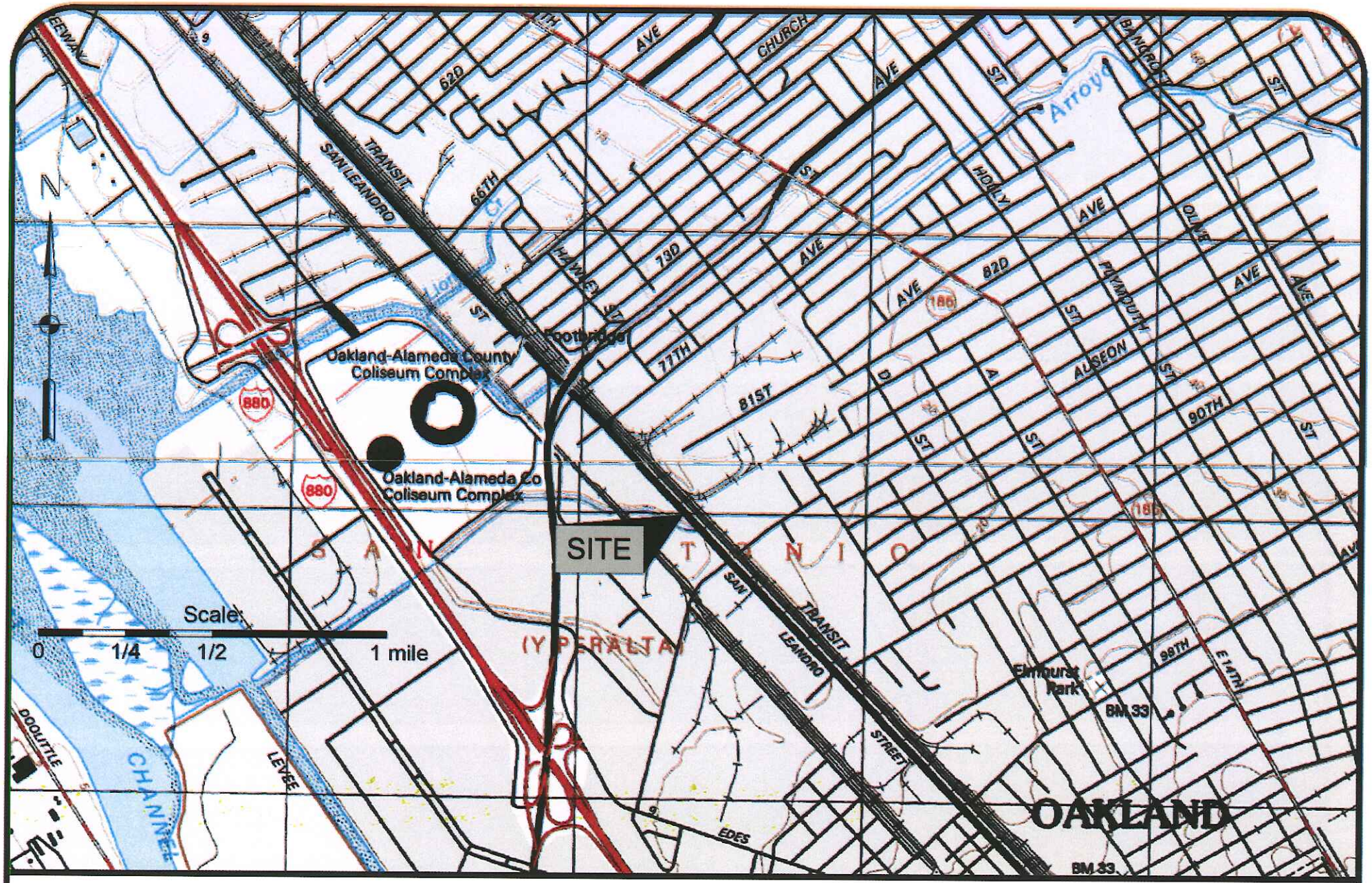
Table 6. Soil Analytical Results

BH-R	9/28/2006	9.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	9.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	14.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	19.5	<1.0	3	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	24.5	<1.0	3	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	29.5	<1.0	4	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	34.5	<1.0	6	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	14	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	39.5	<1.0	2	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	44.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
BH-S	9/28/2006	49.5	<1.0	<1.0	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<10	<0.0050	<0.0050	<0.0050	<0.0050	<0.20	<0.010
1N	7/8/2008	10.0	160	930	<0.10	<0.10	<0.10	<0.10	<0.010	N/A	<0.010	<0.010	<0.010	0.22	<5.0	<0.50
2N	7/8/2008	10.0	240	1,700	<0.050	<0.050	0.12	0.19	<0.020	N/A	<0.020	<0.020	<0.020	2.8	<10	<1.0
3N	7/8/2008	10.0	360	2,200	<0.17	<0.17	<0.17	<0.17	<0.020	N/A	<0.020	<0.020	<0.020	<0.20	<10	<1.0
4N	7/8/2008	10.0	130	490	<0.050	<0.050	<0.050	<0.050	<0.010	N/A	<0.010	<0.010	<0.010	0.36	<5.0	<0.50
5N	7/8/2008	10.0	610	1,700	0.42	0.1	0.38	0.61	<0.050	N/A	<0.050	<0.050	<0.050	0.57	<25	<2.5
1S	7/8/2008	10.0	130	490	<0.10	<0.10	<0.10	<0.10	<0.010	N/A	<0.010	<0.010	<0.010	1	<5.0	<0.50
2S	7/8/2008	10.0	150	870	<0.10	<0.10	<0.10	<0.10	<0.025	N/A	<0.025	<0.025	<0.025	2.6	<12	<1.2
3S	7/8/2008	10.0	2400	7,500	<1.0	1.4	<1.0	2.5	<0.20	N/A	<0.20	<0.20	<0.20	<2.0	<100	<10
4S	7/8/2008	10.0	970	4,800	0.75	1.1	0.51	0.99	0.049	N/A	<0.033	<0.033	<0.033	<0.33	<17	<1.7
5S	7/8/2008	10.0	1100	6,400	<0.50	<0.50	<0.50	<0.50	<0.010	N/A	<0.010	<0.010	<0.010	0.3	<5.0	<0.50
P1	7/9/2008	6.0	580	1,500	<0.25	<0.25	<0.25	1.9	0.93	1300	<0.050	<0.050	0.087	0.51	<25	<2.5
P2	7/9/2008	6.0	200	1,900	<0.50	<0.50	<0.50	<0.50	0.078	1200	<0.033	<0.033	<0.033	1.3	<17	<1.7
P3	7/9/2008	6.0	560	3,400	<0.10	<0.10	<0.10	1	<0.10	2700	<0.10	<0.10	<0.10	<1.0	<50	<5.0
P4	7/9/2008	6.0	800	10,000	<0.10	<0.10	<0.10	0.67	<0.20	1500	<0.20	<0.20	<0.20	<2.0	<100	<10
P5	7/9/2008	6.0	60	63	0.037	0.031	0.018	0.089	1.7	330	<0.20	<0.20	<0.20	14	<100	<10
P6	7/9/2008	6.0	1100	6,500	<0.50	<0.50	<0.50	<0.50	2	7800	<0.20	<0.20	<0.20	<2.0	<100	<10
P7	7/9/2008	6.0	1800	5,700	<1.0	2.3	<1.0	<1.0	2.2	3000	<0.20	<0.20	0.45	<2.0	<100	<10
P8	7/9/2008	6.0	1100	3,800	<1.0	<1.0	<1.0	<1.0	0.31	1800	<0.050	<0.050	<0.050	<0.50	<25	<2.5
P9	7/9/2008	6.0	1400	7,000	<0.50	0.79	<0.50	2.2	<0.33	5400	<0.33	<0.33	<0.33	<3.3	<170	<17
P10	7/9/2008	6.0	1100	4,800	<0.50	<0.50	<0.50	<0.50	<0.33	2400	<0.33	<0.33	<0.33	<3.3	<170	<17
P11	7/9/2008	6.0	2200	9,300	<0.50	<0.50	<0.50	5.5	0.53	7700	<0.50	<0.50	<0.50	<5.0	<250	<25
P12	7/9/2008	6.0	830	7,000	<0.50	<0.50	<0.50	<0.50	0.24	4500	<0.20	<0.20	<0.20	<2.0	<100	<10
T1	7/9/2008	11.0	77	360	<0.50	<0.50	<0.50	<0.50	<0.005	N/A	<0.005	<0.005	<0.005	<0.05	<2.5	<0.25
T2	7/9/2008	11.0	56	880	<0.10	<0.10	<0.10	<0.10	<0.005	N/A	<0.005	<0.005	<0.005	0.092	<2.5	<0.25

Table 6. Soil Analytical Results

T3	7/9/2008	11.0	39	80	<0.050	<0.050	<0.050	<0.050	0.39	N/A	<0.020	<0.020	<0.020	0.4	<10	<1.0
ST-1	7/11/2008	6.0	1100	1,700	<0.25	<0.25	<0.25	<0.25	<0.10	N/A	<0.10	<0.10	<0.10	<1.0	<50	<5.0
ST-2	7/11/2008	6.0	110	3,300	<0.10	<0.10	<0.10	<0.10	<0.050	N/A	<0.050	<0.050	<0.050	<0.50	<25	<2.5
ST-3	7/11/2008	6.0	1400	21,000	<0.50	<0.50	<0.50	<0.50	0.22	N/A	<0.020	<0.020	0.038	1.1	<10	<1.0
ST-4	7/11/2008	6.0	1600	7,500	<0.25	<0.25	<0.25	<0.25	<0.25	N/A	<0.25	<0.25	<0.25	<2.5	<120	<12
UST-1	7/11/2008	6.0	390	1,900	<0.17	<0.17	<0.17	<0.17	<0.050	N/A	<0.050	<0.050	<0.050	<0.50	<25	<2.5
SP-1	7/16/2008	N/A	1300	2,600	1.3	<0.20	1.8	1.4	0.55	N/A	<0.25	<0.25	<0.25	<2.5	<120	<12
SP-2	7/16/2008	N/A	1600	1,500	1.500	<0.25	3.1	1.9	0.36	N/A	<0.25	<0.25	<0.25	<2.5	<120	<12
SP-3	7/16/2008	N/A	20	34	0.27	0.014	0.028	0.061	<0.70	N/A	<0.033	<0.033	<0.033	1.2	<17	<1.7
SP-4	7/16/2008	N/A	120	110	0.150	<0.10	0.212	0.16	0.67	N/A	<0.033	<0.033	<0.033	0.64	<17	<1.7
SP-5	7/16/2008	N/A	2900	1,400	2.5	0.65	11	6.6	<0.50	N/A	<0.50	<0.50	<0.50	<5.0	<250	<25
SP-6	7/16/2008	N/A	230	1,000	<0.10	<0.10	0.29	<0.10	0.23	N/A	<0.20	<0.20	<0.20	<2.0	<100	<10
All measurements are in mg/kg																

FIGURES



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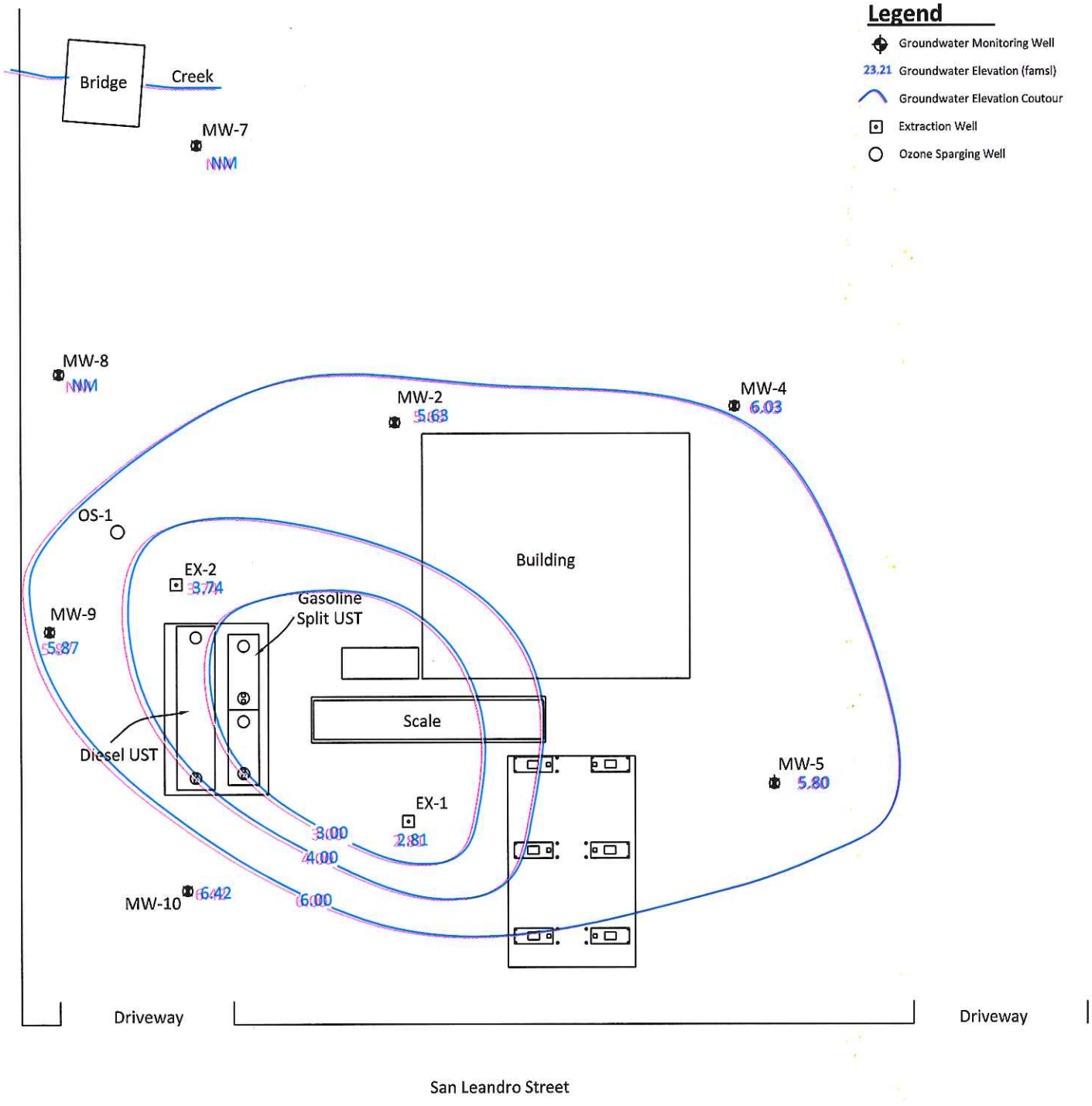
Location Map

Oakland Truck Stop
8255 San Leandro Street
Oakland, California

Project: 1034	Figure: 1
Date: 07/15/13	
Scale: As Shown	



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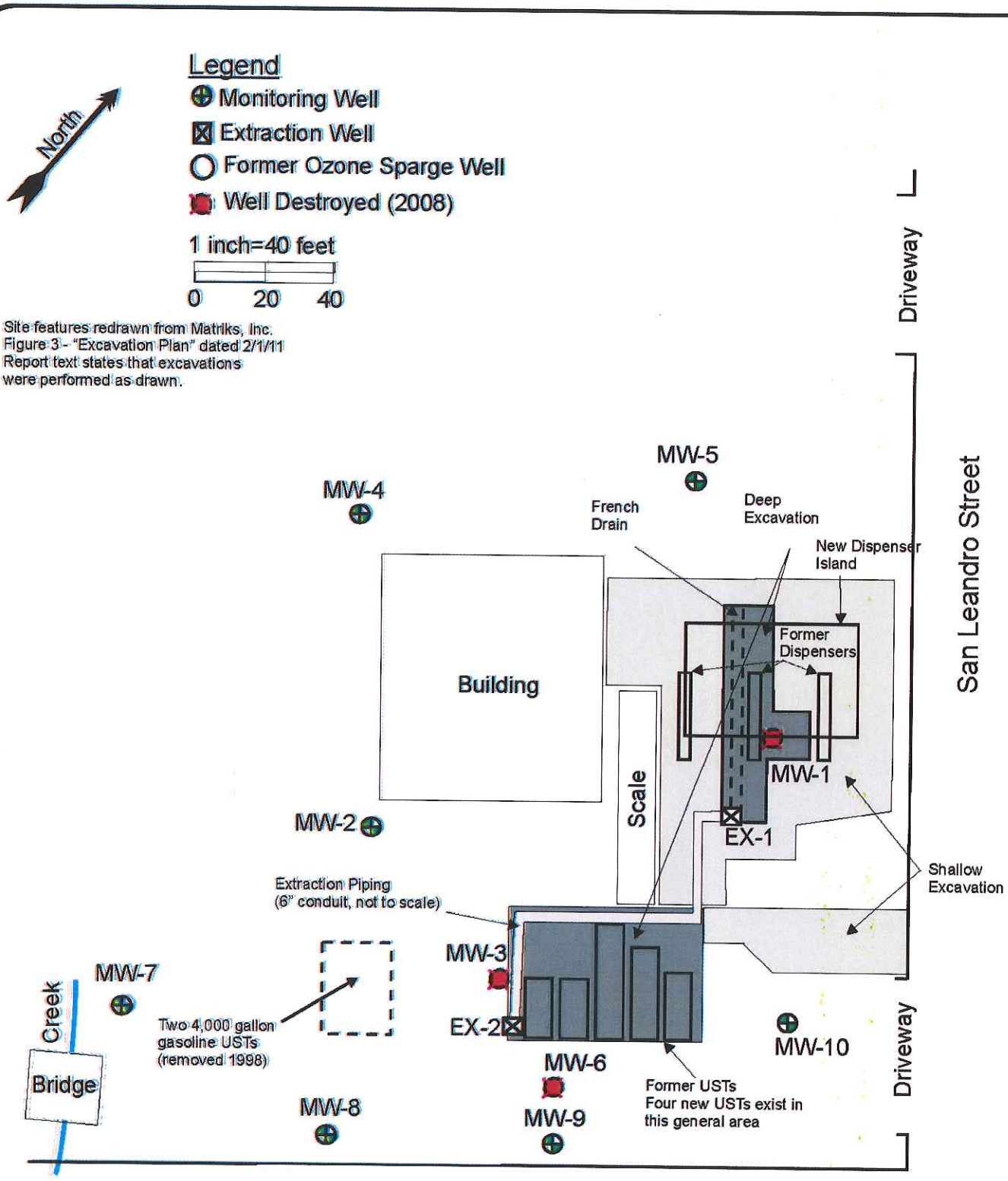
Groundwater Elevations
Dec. 5, 2012

Oakland Truck Stop
8255 San Leandro Street
Oakland, California

Project #: 1034	Figure: 2
Date: 07/15/13	
Scale: as shown	



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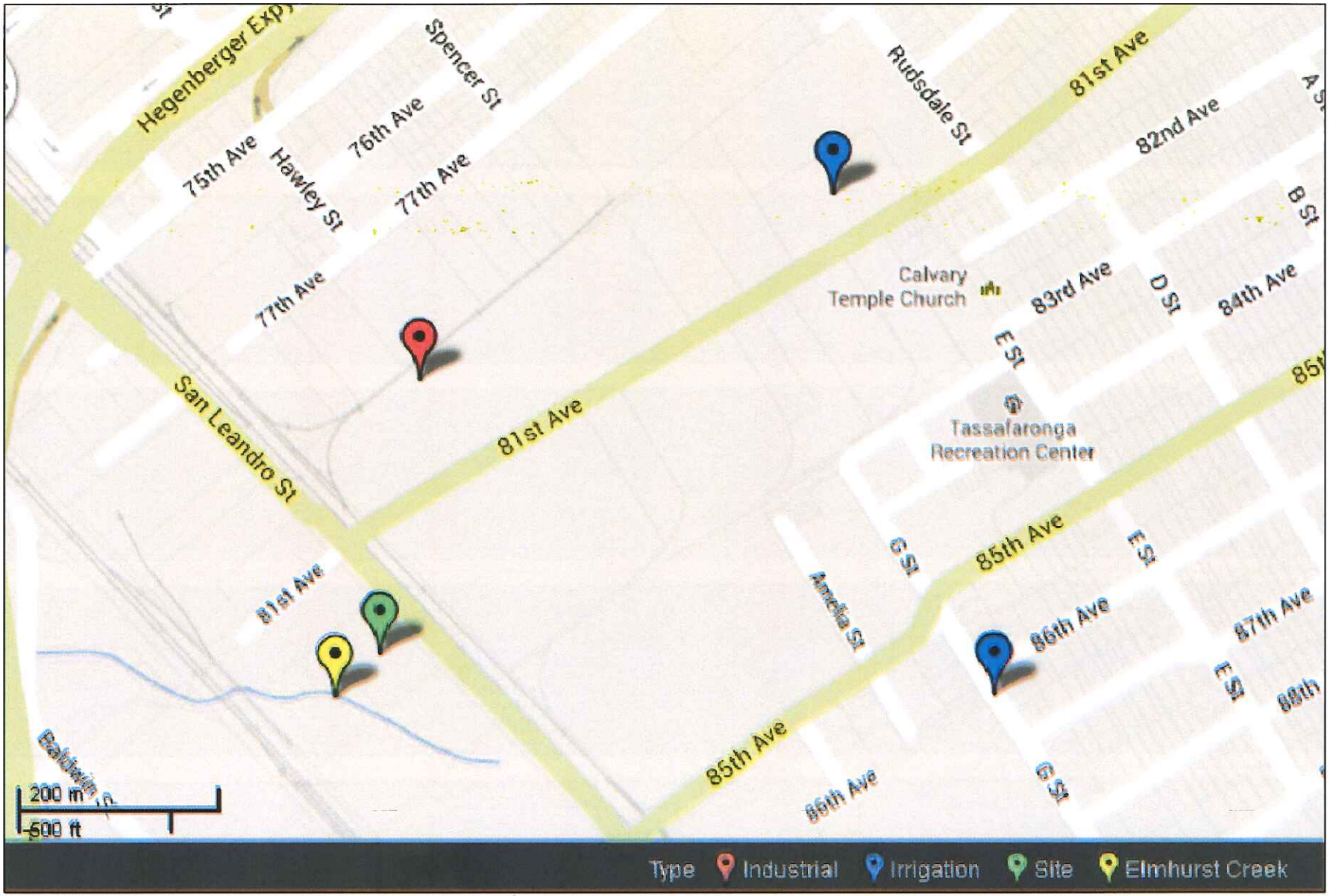
Site Plan
Oakland Truck Stop
8255 San Leandro Street
Oakland, California

Project: 1034
Date: 7/3/12
Scale: 1"=40'

3



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Potential Sensitive Receptors

Oakland Truck Stop
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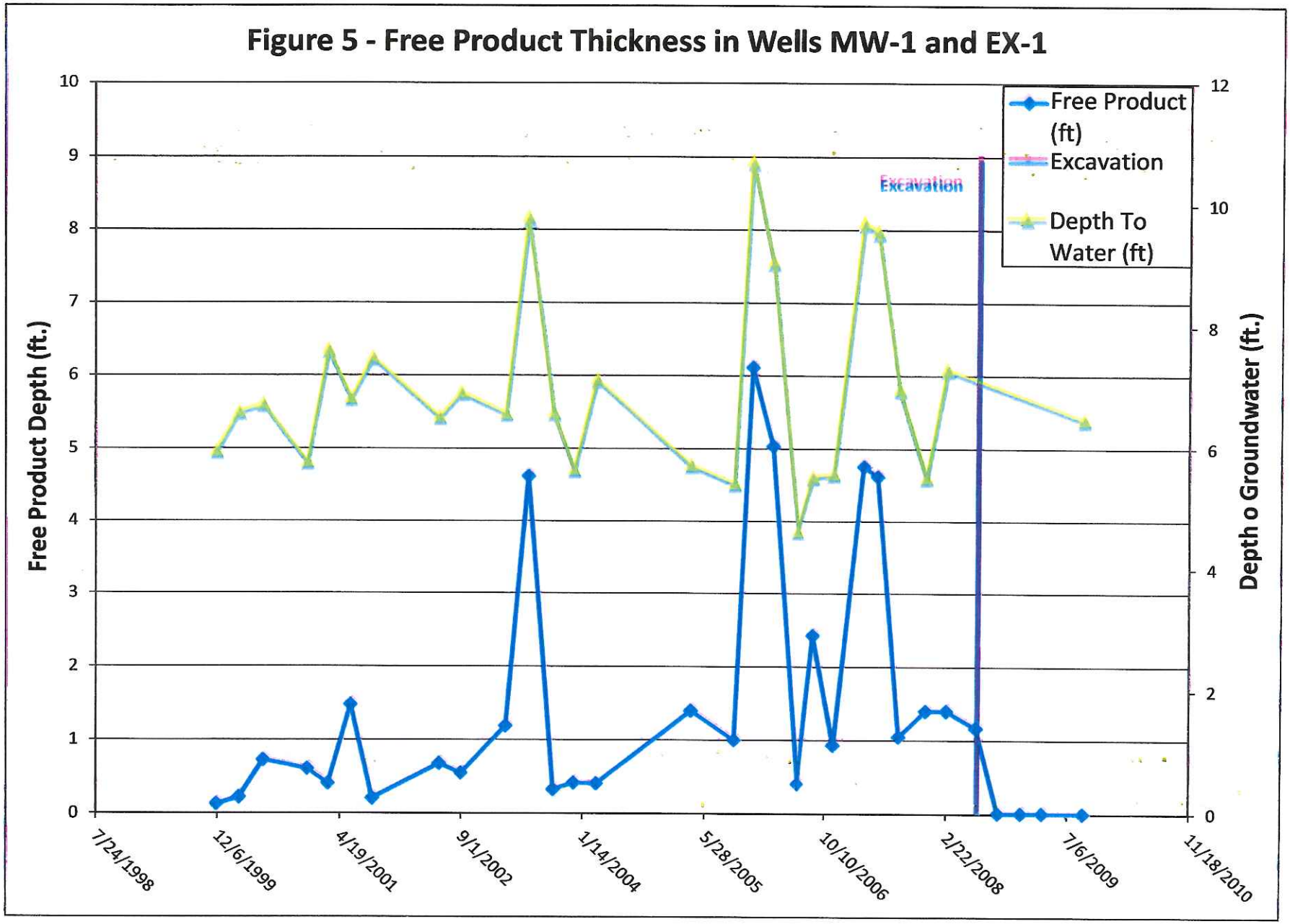
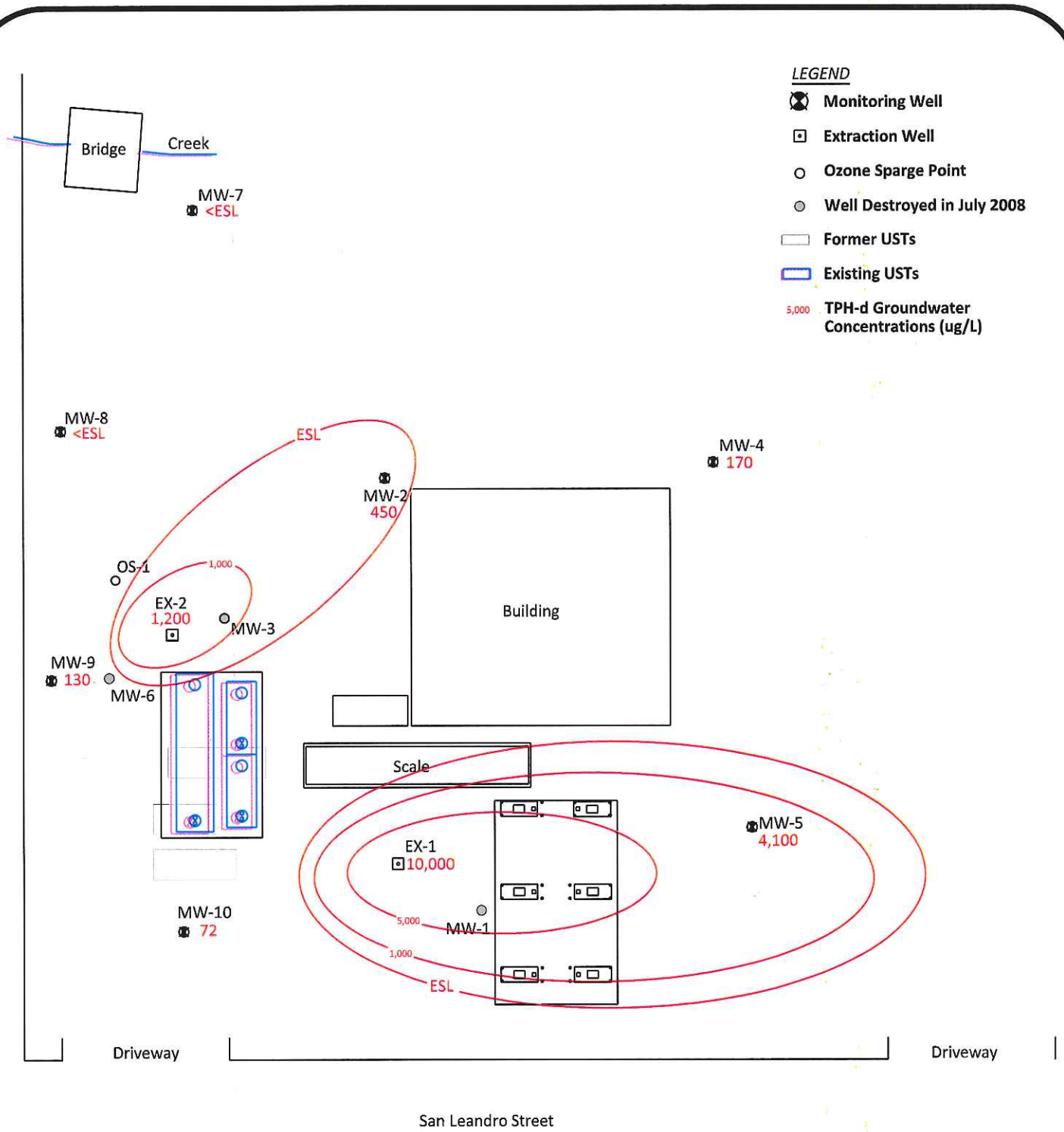
Oakland, California

Project #: 1034	Figure: 4
Date: 07/15/13	
Scale: as shown	

Figure 5 - Free Product Thickness in Wells MW-1 and EX-1





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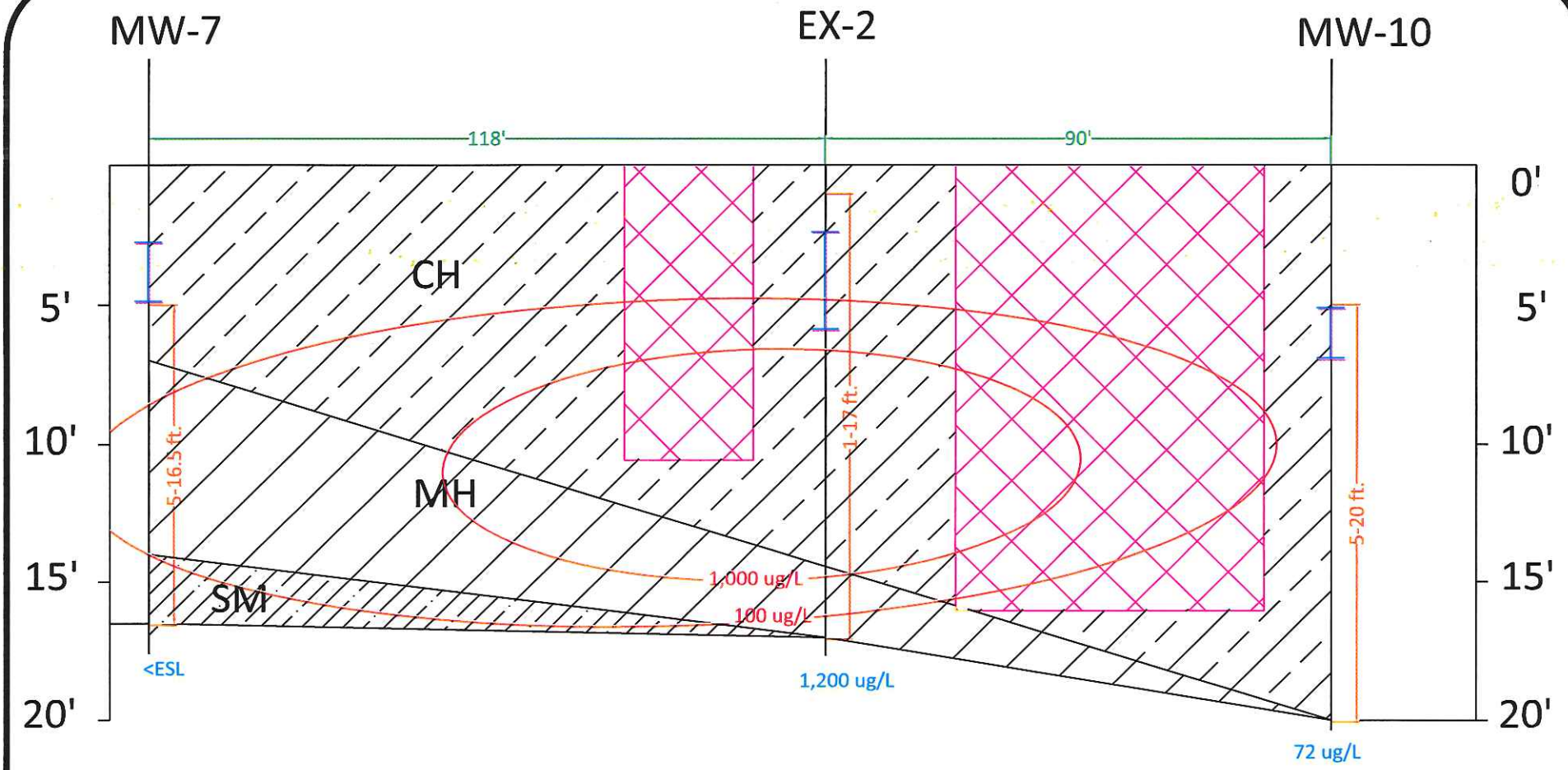
Lateral Extent of TPH-d in Groundwater

Oakland Truck Stop
8255 San Leandro Street
Oakland, California

Project #: 1034	Figure: 6
Date: 07/15/13	
Scale: as shown	

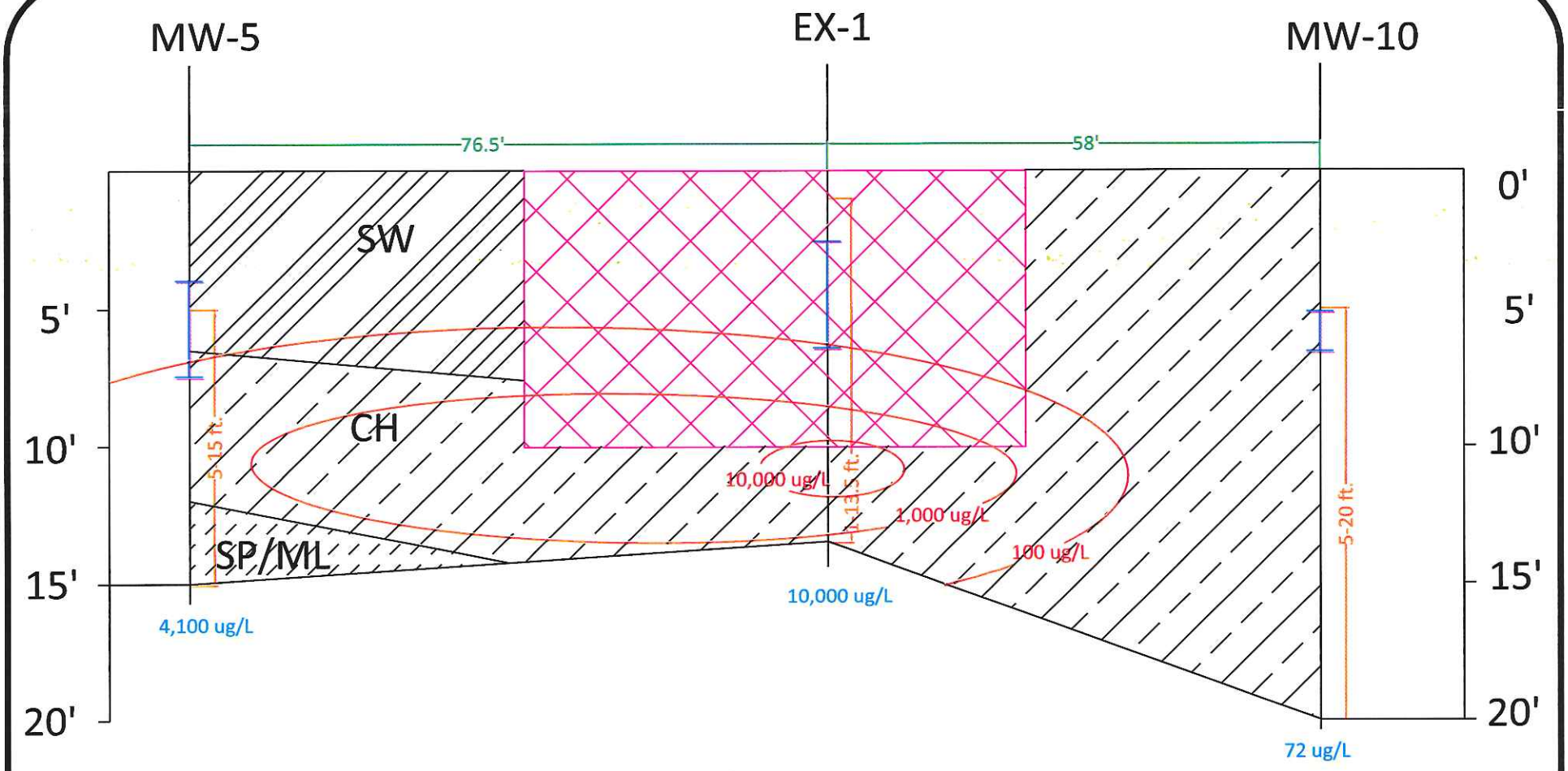


Cook Environmental Services, Inc.
1485 Treat Blvd. Ste 203A
Walnut Creek, CA 94597
(925) 478-8390
tcook@cookenvironmental.com

Hydrogeologic Cross Section
Wells MW-7, EX-2, and MW-10

Oakland Truck Stop
8255 San Leandro Street
Oakland, California

Project #: 1034	Figure: 7
Date: 07/15/13	
Scale: as shown	

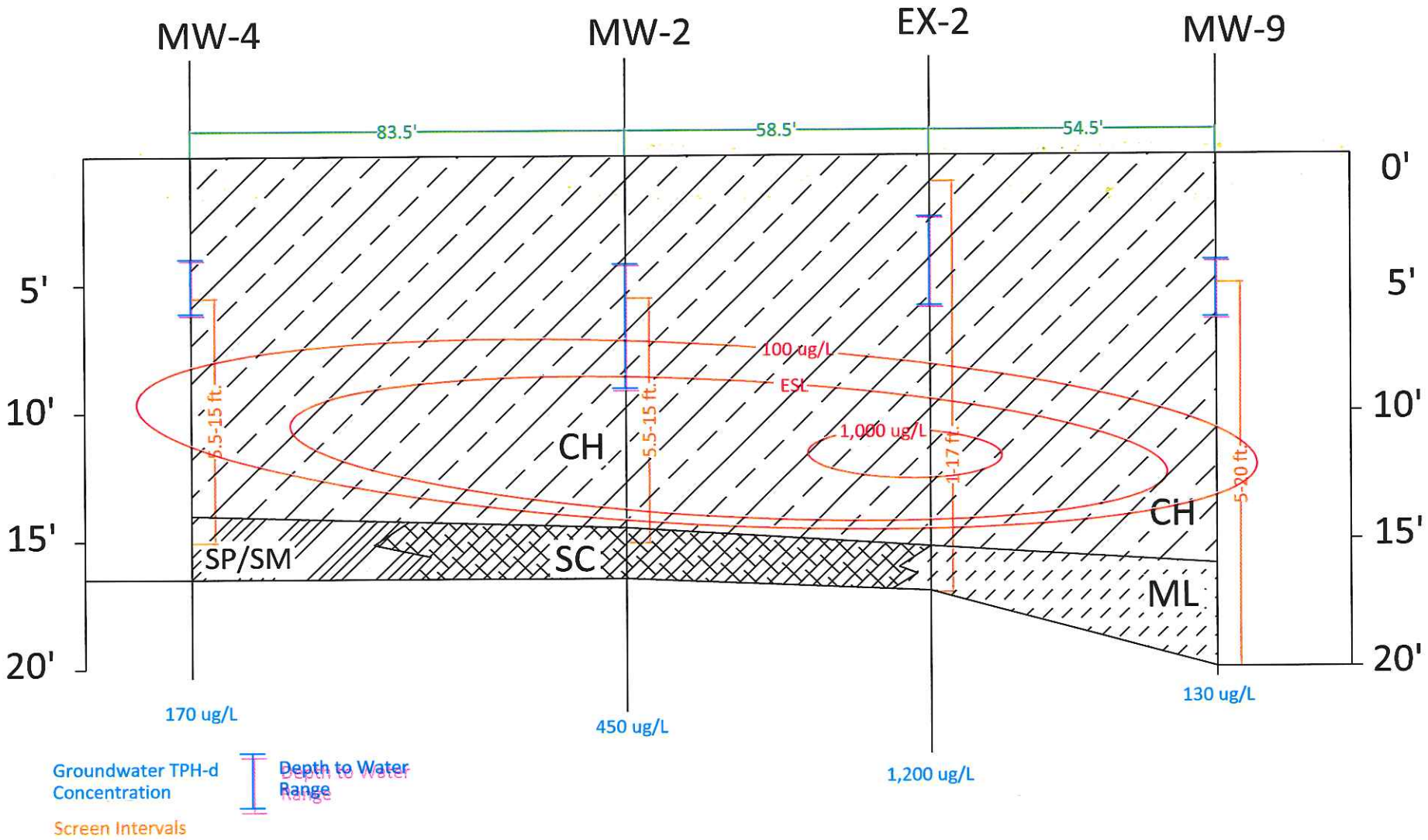


Cook Environmental Services, Inc.
1485 Treat Blvd. Ste 203A
Walnut Creek, CA 94597
(925) 478-8390
tcook@cookenvironmental.com

Hydrogeologic Cross Section
Wells MW-5, EX-1, and MW-10

Oakland Truck Stop
8255 San Leandro Street
Oakland, California

Project #: 1034	Figure: 8
Date: 07/15/13	
Scale: as shown	



Cook Environmental Services, Inc.
1485 Treat Blvd. Ste 203A
Walnut Creek, CA 94597
(925) 478-8390
tcook@cookenvironmental.com

Hydrogeologic Cross Section
Wells MW-4, MW-2, EX-2, and MW-9

Oakland Truck Stop
8255 San Leandro Street
Oakland, California

Project #: 1034	Figure: 9
Date: 07/15/13	
Scale: as shown	

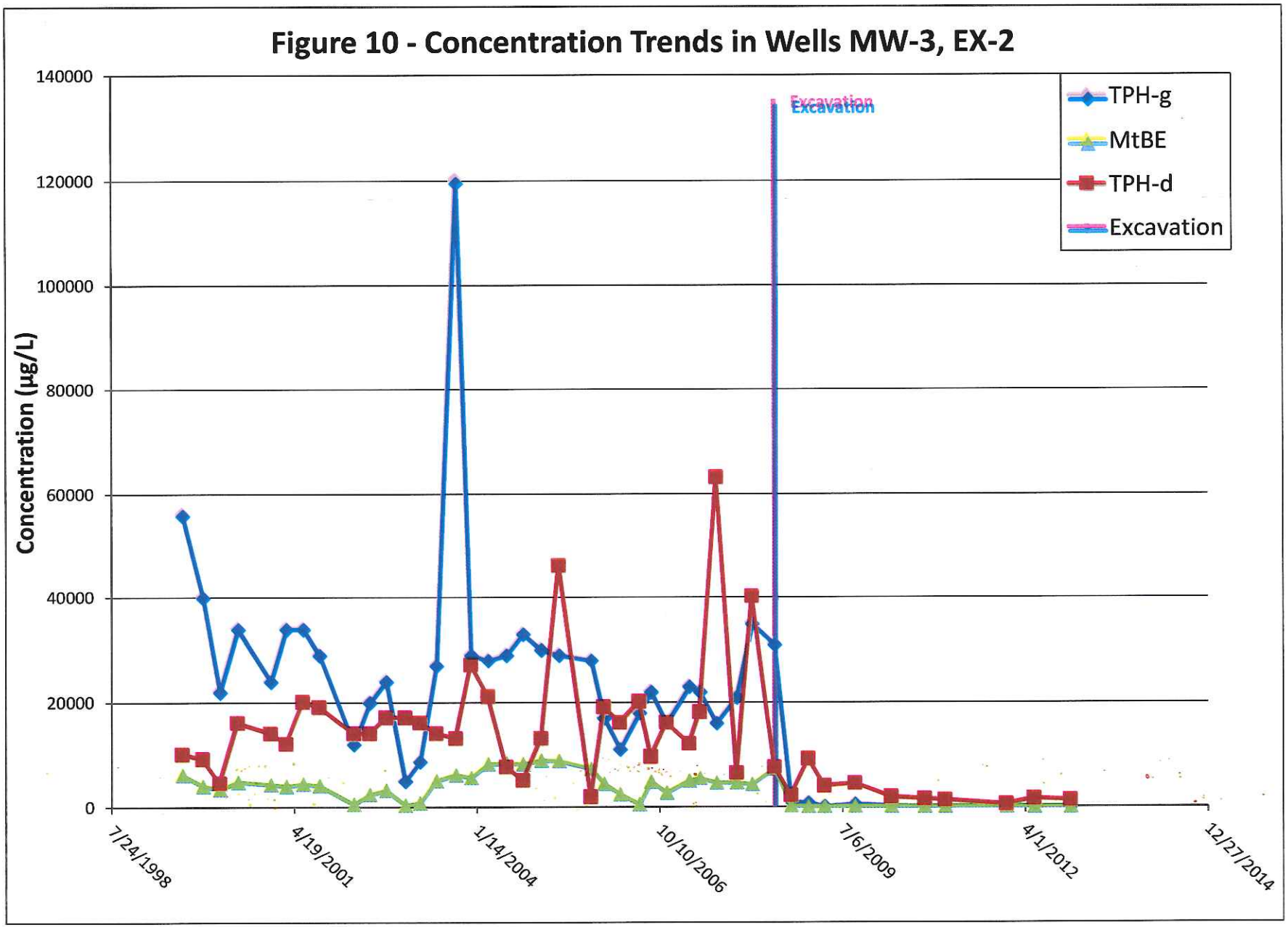


Figure 10 - Concentration Trends in Wells MW-3, EX-2
Concentration (µg/L)
140000
120000
100000
80000
60000
40000
20000
0
7/24/1998
4/19/2001
1/14/2004
10/10/2006
7/6/2009
4/1/2012
12/27/2014
Excavation
Excavation
TPH-g
MtBE
TPH-d
Excavation

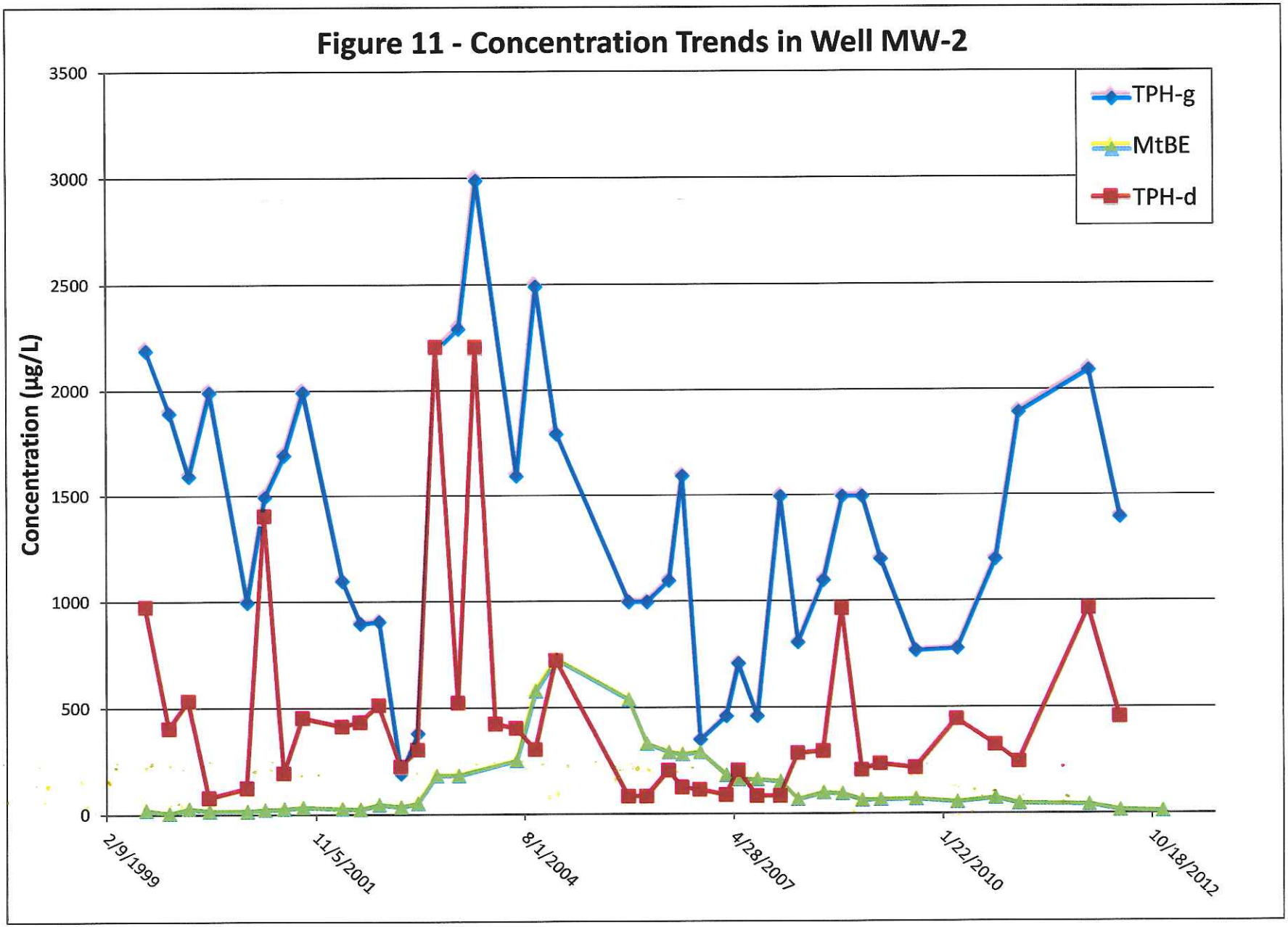
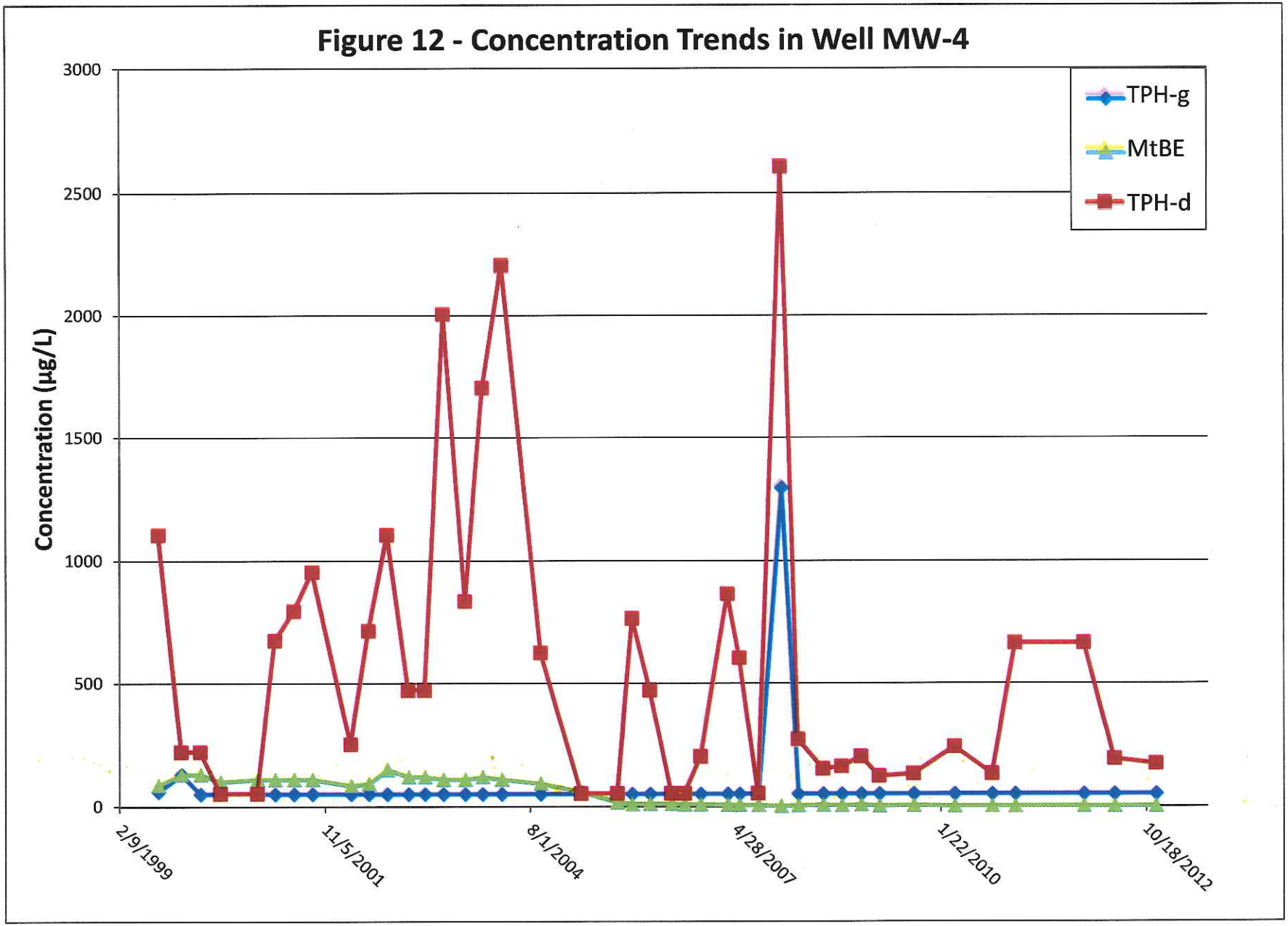


Figure 11 - Concentration Trends in Well MW-2
Concentration (µg/L)
3500
3000
2500
2000
1500
1000
500
0
2/9/1999
11/5/2001
8/1/2004
4/28/2007
1/22/2010
10/18/2012
TPH-g
MtBE
TPH-d

Figure 12 - Concentration Trends in Well MW-4



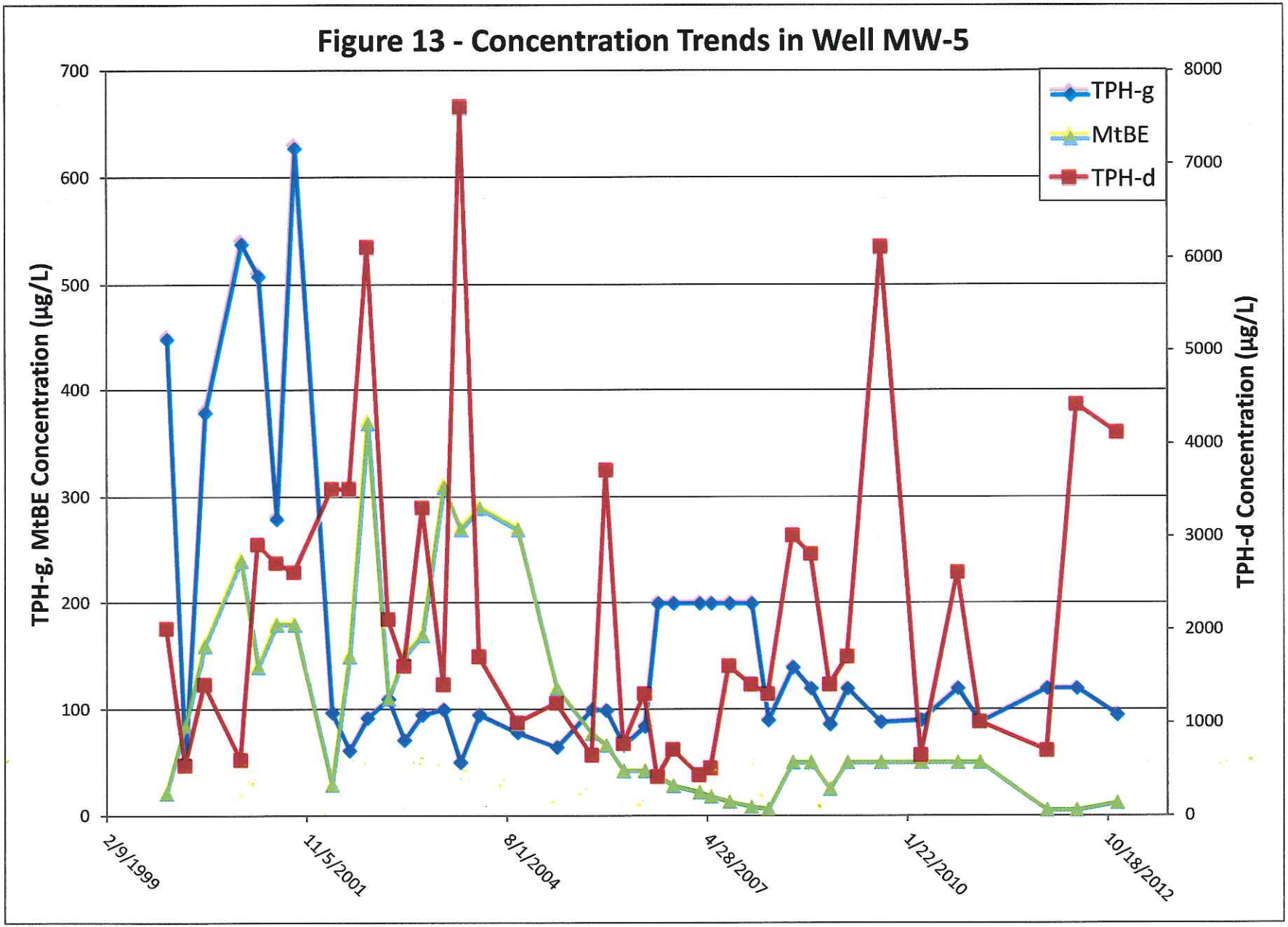


Figure 13 - Concentration Trends in Well MW-5
TPH-g
MtBE
TPH-d
TPH-g, MtBE Concentration (µg/L)
TPH-d Concentration (µg/L)
700
600
500
400
300
200
100
0
8000
7000
6000
5000
4000
3000
2000
1000
0
2/9/1999
11/5/2001
8/1/2004
4/28/2007
1/22/2010
10/18/2012

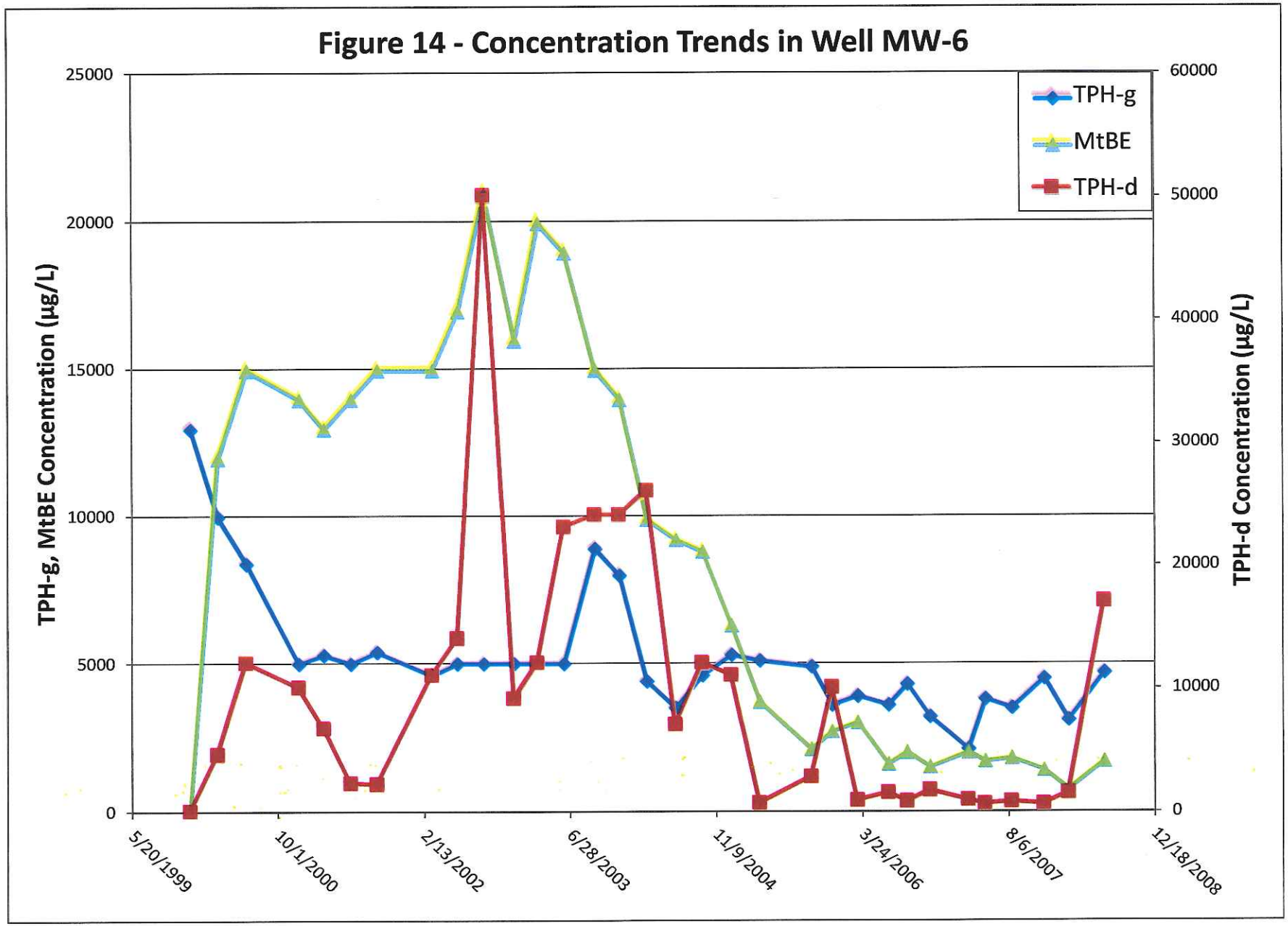


Figure 14 - Concentration Trends in Well MW-6
TPH-g
MtBE
TPH-d
TPH-g, MtBE Concentration (µg/L)
TPH-d Concentration (µg/L)
25000
20000
15000
10000
5000
0
60000
50000
40000
30000
20000
10000
0
5/20/1999
10/1/2000
2/13/2002
6/28/2003
11/9/2004
3/24/2006
8/6/2007
12/18/2008

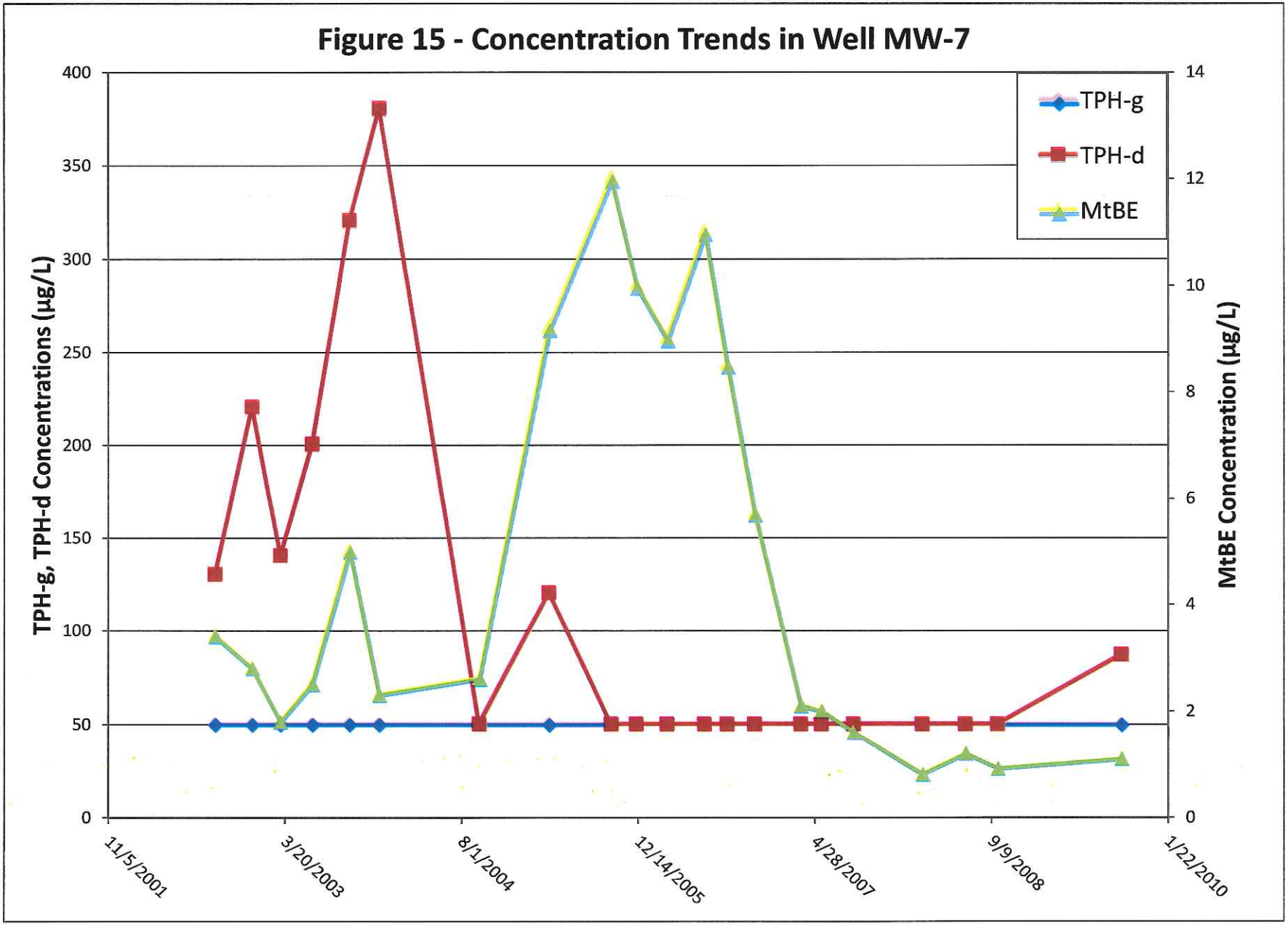


Figure 15 - Concentration Trends in Well MW-7
TPH-g
TPH-d
MtBE
TPH-g, TPH-d Concentrations (µg/L)
MtBE Concentration (µg/L)
400
350
300
250
200
150
100
50
0
14
12
10
8
6
4
2
0
11/5/2001
3/20/2003
8/1/2004
12/14/2005
4/28/2007
9/9/2008
1/22/2010

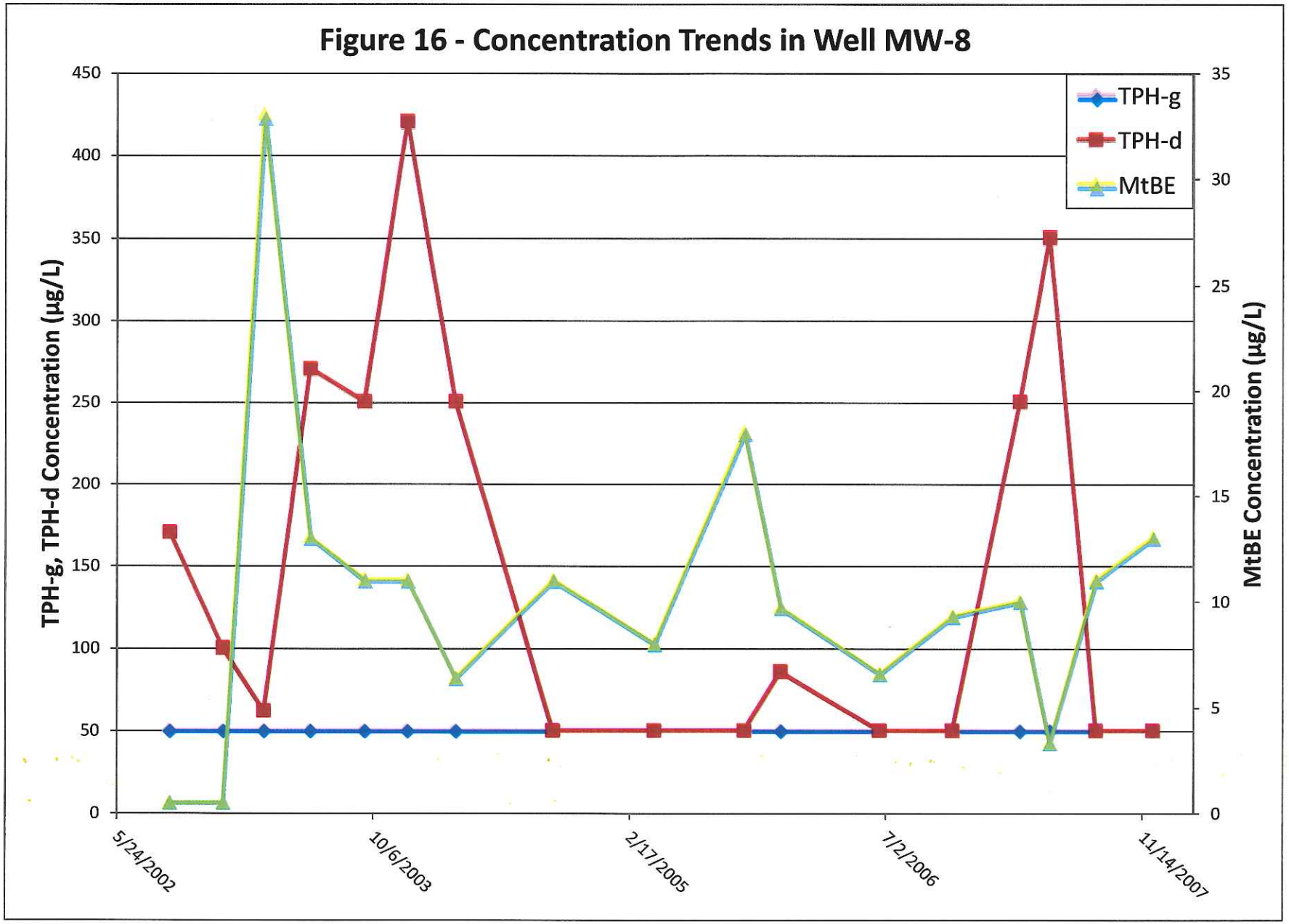


Figure 16 - Concentration Trends in Well MW-8
TPH-g, TPH-d Concentration (µg/L)
MtBE Concentration (µg/L)
TPH-g
TPH-d
MtBE
450
400
350
300
250
200
150
100
50
0
35
30
25
20
15
10
5
0
5/24/2002
10/6/2003
2/17/2005
7/2/2006
11/14/2007

Figure 17 - Concentration Trends in Well MW-9

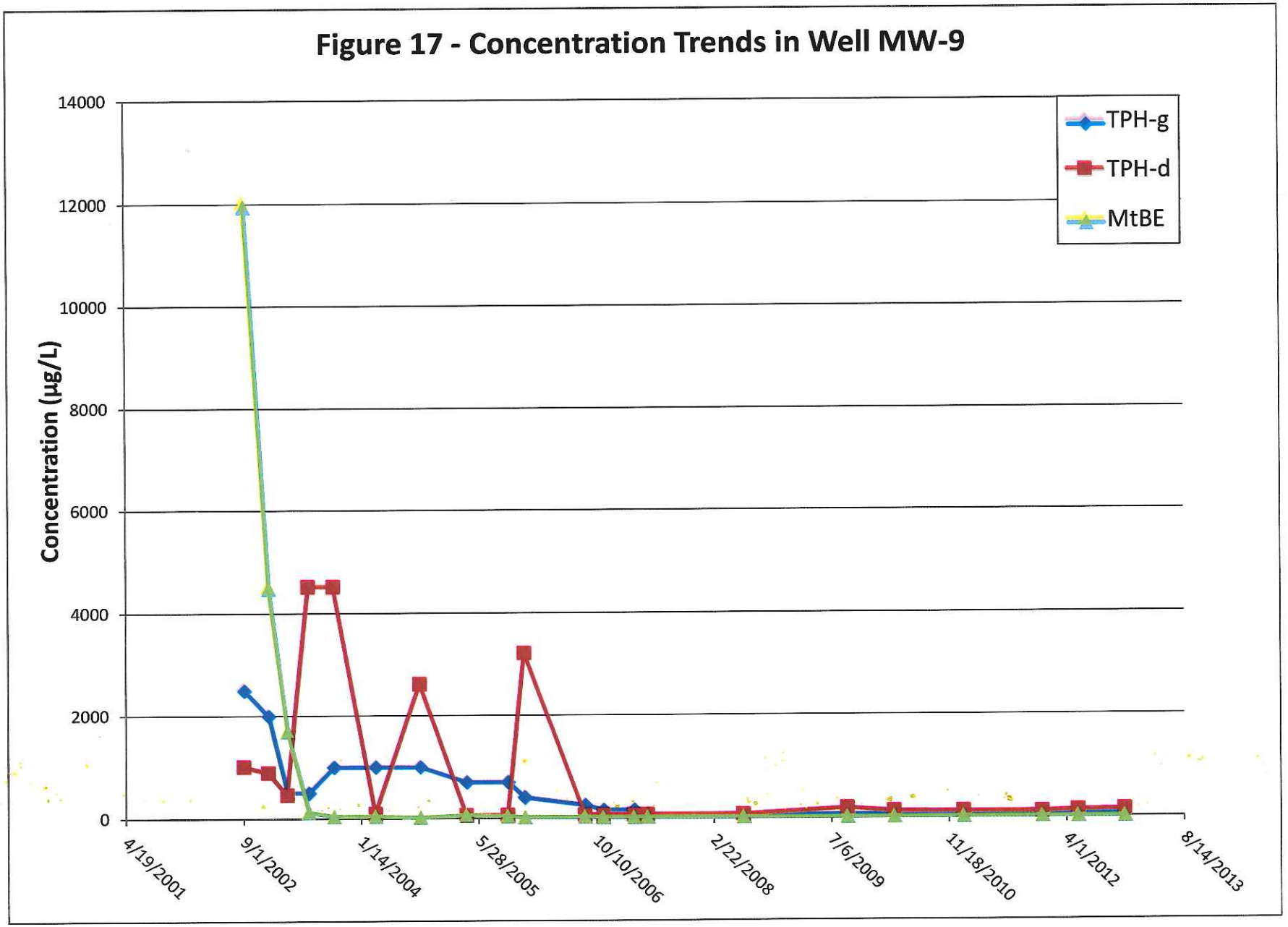
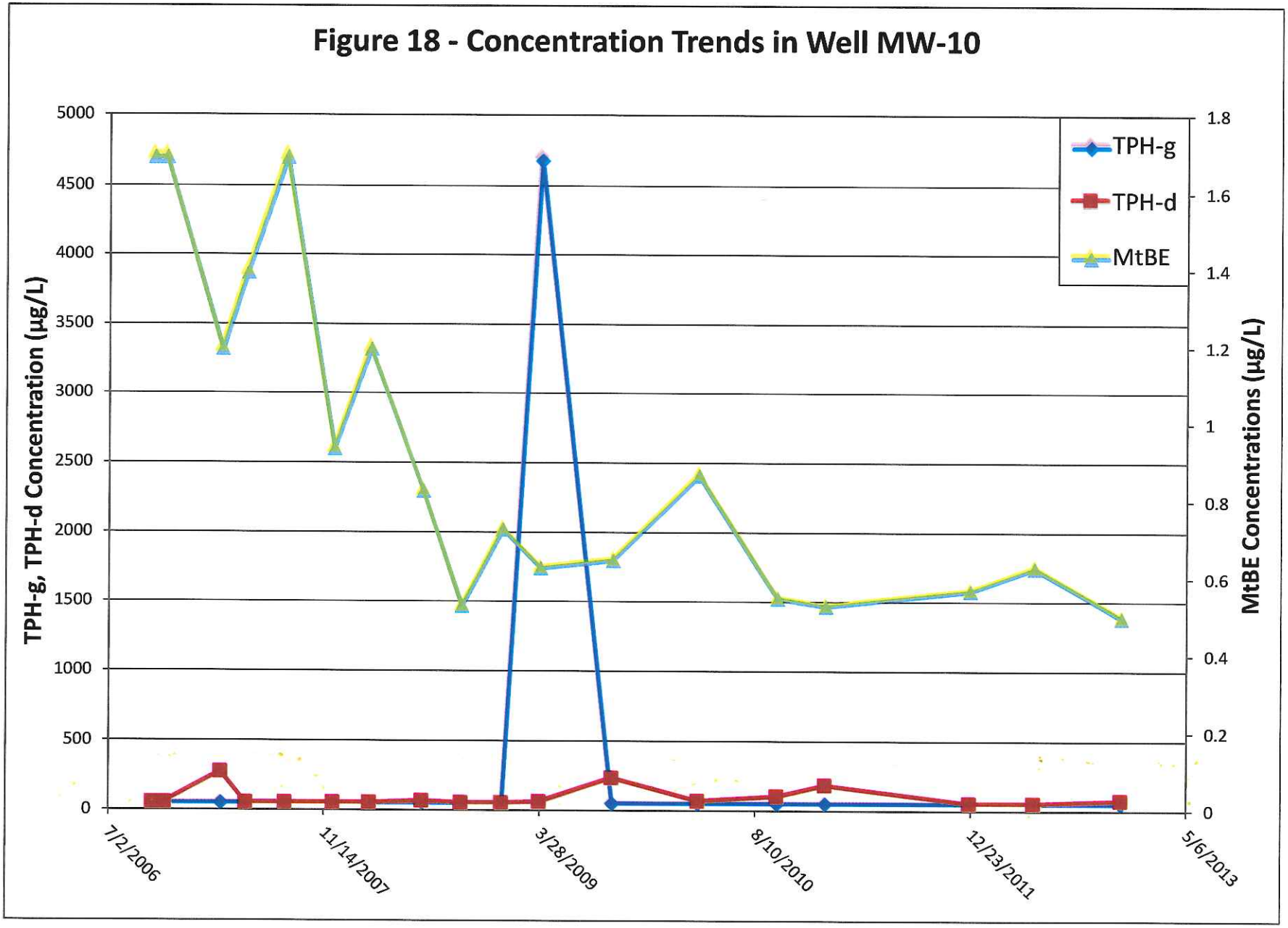


Figure 18 - Concentration Trends in Well MW-10



APPENDIX A

SWRCB Checklist for Low Threat UST Case Closure Sites

Site Name: Oakland Truck Stop
Site Address: 8255 San Leandro St., Oakland

Site meets the criteria of the Low-Threat Underground Storage Tank (UST) Case Closure Policy as described below.[1]

General Criteria General criteria that must be satisfied by all candidate sites:	
Is the unauthorized release located within the service area of a public water system?	☑ Yes ☐ No
Does the unauthorized release consist only of petroleum?	☑ Yes ☐ No
Has the unauthorized ("primary") release from the UST system been stopped?	☑ Yes ☐ No
Has free product been removed to the maximum extent practicable?	☑ Yes ☐ No ☐ NA
Has a conceptual site model that assesses the nature, extent, and mobility of the release been developed?	☑ Yes ☐ No
Has secondary source been removed to the extent practicable?	☑ Yes ☐ No
Has soil or groundwater been tested for MTBE and results reported in accordance with Health and Safety Code Section 25296.15?	☑ Yes ☐ No
Does nuisance as defined by Water Code section 13050 exist at the site?	☐ Yes ☑ No
Are there unique site attributes or site-specific conditions that demonstrably increase the risk associated with residual petroleum constituents?	☐ Yes ☑ No
Media-Specific Criteria Candidate sites must satisfy all three of these media-specific criteria:	
1. Groundwater: To satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites:	
Is the contaminant plume that exceeds water quality objectives stable or decreasing in areal extent?	☑ Yes ☐ No ☐ NA
Does the contaminant plume that exceeds water quality objectives meet all of the additional characteristics of one of the five classes of sites?	☑ Yes ☐ No ☐ NA
If YES, check applicable class: ☐ **1** ☐ **2** ☐ **3** ☐ **4** ☑ **5**	

[1] Refer to the Low-Threat Underground Storage Tank Case Closure Policy for closure criteria for low-threat petroleum UST sites.

Site Name:
Site Address:

For sites with releases that have not affected groundwater, do mobile constituents (leachate, vapors, or light non-aqueous phase liquids) contain sufficient mobile constituents to cause groundwater to exceed the groundwater criteria?	☐ Yes ☐ No ☑ NA
2. Petroleum Vapor Intrusion to Indoor Air: The site is considered low-threat for vapor intrusion to indoor air if site-specific conditions satisfy all of the characteristics of one of the three classes of sites (a through c) or if the exception for active commercial fueling facilities applies. **Is the site an active commercial petroleum fueling facility?** Exception: Satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk. **a. Do site-specific conditions at the release site satisfy all of the applicable characteristics and criteria of scenarios 1 through 3 or all of the applicable characteristics and criteria of scenario 4?** If YES, check applicable scenarios: ☐ **1** ☐ **2** ☐ **3** ☐ **4** **b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?** **c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?**	☑ Yes ☐ No ☐ Yes ☐ No ☑ NA ☐ Yes ☐ No ☑ NA ☐ Yes ☐ No ☑ NA
3. Direct Contact and Outdoor Air Exposure: The site is considered low-threat for direct contact and outdoor air exposure if site-specific conditions satisfy one of the three classes of sites (a through c). **a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs)?** **b. Are maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?** **c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?**	☑ Yes ☐ No ☐ NA ☐ Yes ☐ No ☑ NA ☐ Yes ☐ No ☑ NA

APPENDIX B

Alameda County Environmental Health Low Threat UST Case Closure Checklist

ALAMEDA COUNTY ENVIRONMENTAL HEALTH
LOW THREAT UST CASE CLOSURE POLICY COMPLIANCE AND
IDENTIFICATION OF IMPEDIMENTS TO CASE CLOSURE CHECKLIST

Agency Name : Alameda County Environmental Health	Date: July 31, 2013
ACEH Case Worker: Martin Musonge	Fuel Leak Case No: RO000 0085
Site Name: 1034 Oakland Truck Stop	GeoTracker Global ID: T0600101487
Site Address: 8255 San Leandro St, Oakland, CA 94621	USTCF Claim No: 12240

has reviewed the above listed site for consideration of case closure using the framewotk provided by the State Water Resources Control Board Low-Threat Underground Storage Tank Case Closure Policy (LTCP), adopted on May 1, 2012, and effective August 17, 2012. The results of our review indicate that the site ☐ PASSES ☐ FAILS the LTCP criteria.

Section 25296.10 of the California Health and Safety Code (H&SC) requires that sites be cleaned up to protect human health, safety, and the environment. The current conceptual site model ☐ is ☐ is not adequate to determine that residual petroleum constituents at the site do not pose a significant risk to human health, safety, or the environment.

Professional Seal and Signature Requirements

Pursuant to sections 6735, 7835, and 7835.1 of the California Business and Professions Code, all work and reports which require geologic or engineering evaluations or technical judgments must be performed under the direction of a California Professional Engineer, Certified Engineering Geologist, Professional Geologist, or Certified Hydrogeologist.

Licensee Name:

Licensee Number:

Licensee Signature:

Licensee Professional Seal:

Perjury Statement:

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

Responsible Party Name:

Responsible Party Signature:

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA A

General Criteria a: **Is the Unauthorized Release Located within the Service Area of a Public Water System?**	☒ YES	☐ NO	☐ NE

LTCP Statement: "This policy is protective of existing water supply wells. New water supply wells are unlikely to be installed in the shallow groundwater near former UST release sites. However, it is difficult to predict, on a statewide basis, where new wells will be installed, particularly in rural areas that are undergoing new development. This policy is limited to areas with available public water systems to reduce the likelihood that new wells in developing areas will be inadvertently impacted by residual petroleum in groundwater. Case closure outside of areas with a public water system should be evaluated based upon the fundamental principles in this policy and a site specific evaluation of developing water supplies in the area. For purposes of this policy, a public water system is a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year."

Does the public water system have 15 or more service connection or regularly serves at least 25 individuals daily at least 60 days of the year?	☒ **Yes**	☐ **No**	
Name of public water system agency?			
East Bay Municipal Utility District	☒ Yes		
Zone 7 Water Agency	☐ Yes		
City of Hayward Water	☐ Yes		
Alameda County Water District	☐ Yes		

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria a?	☒ **Yes**	☐ **No**	
Has confirmation that the property has a hook-up and uses the public water system been provided?	☒ Yes	☐ NE	☐ NA
Has a well search been conducted to identify wells located within 2,000 feet of the site?	☒ Yes	☐ NE	☐ NA
Are there existing water supply wells or other sources of water in the vicinity of the site?	☒ Yes	☐ NE	☐ NA
Domestic Water Supply Wells	☐ Yes	☒ No	☐ NA
Irrigation Wells	☒ Yes	☐ No	☐ NA
Other Capture Systems	☒ Yes	☐ No	☐ NA
Are existing supply wells or other sources of water used by property owners/tenants in the vicinity of the site?	☐ Yes	☐ NE	☒ NA
Have existing supply wells or other sources of water been sampled for chemicals of concern associated with the release site?	☐ Yes	☐ NE	☒ NA
Have existing supply wells or other sources of water been properly abandoned and well destruction records been provided?	☐ Yes	☐ NE	☒ NA

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA A

Case Notes

The wells were drilled long ago, and their usage status is known. The contaminant plume is approximately 1,200 feet away from the nearest well, so the wells have been considered safe.

*****End of General Criteria a Evaluation*****

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA B

General Criteria b: Does the Unauthorized Release Consist only of Petroleum?	☒ YES	☐ NO	☐ NE

LTCP Statement: "For purposes of this policy, petroleum is defined as crude oil, or any fraction thereof, which is liquid at standard conditions and temperature and pressure, which means 60 degrees Fahrenheit and 14.7 pounds per square inch absolute including the following substances: motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents and used oils, including any additives and blending agents such as oxygenates contained in the formulation of the substances."

Site Contaminants Dectected in Soil, Soil Gas, Groundwater, and Surface Water

				☒ Yes	☐ No	☐ NE
Petroleum						
Motor fuels	☒ Yes	☐ No	☐ NE			
TPH middle distillates	☒ Yes	☐ No	☐ NE			
Residual fuels	☐ Yes	☒ No	☐ NE			
Fuel oxygenates	☐ Yes	☒ No	☐ NE			
Lead scavengers	☒ Yes	☐ No	☐ NE			
Aromatic compounds	☐ Yes	☒ No	☐ NE			
TPH middle distillates	☒ Yes	☐ No	☐ NE			
Non Petroleum Contaminants				☐ Yes	☒ No	☐ NE
VOCs	☐ Yes	☒ No	☐ NE			
SVOCs	☐ Yes	☒ No	☐ NE			
Dioxans & Furans	☐ Yes	☒ No	☐ NE			
Other PAHs	☐ Yes	☒ No	☐ NE			
PCBs	☐ Yes	☒ No	☐ NE			
Phenols	☐ Yes	☒ No	☐ NE			
Metals	☐ Yes	☒ No	☐ NE			

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria b?	☒ Yes	☐ No	
Description of the site history?	☒ Yes	☐ No	☐ NA
Types of products or chemicals used at the site?	☒ Yes	☐ No	☐ NA
History of types of releases other than petroleum?	☐ Yes	☐ No	☒ NA
Presentation of sampling results for all chemicals other than petroleum such as volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), metals, polychlorinated biphenyls (PCBs), phenol, 1,4-dioxane, dibenzofurans, or dioxins?	☐ Yes	☐ No	☒ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA B

Case Notes

End of General Criteria b Evaluation

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA C

General Criteria c: **Has the Unauthorized ("Primary") Release from the UST System been Stopped?**	☒ YES	☐ NO	☐ NE

LTCP Statement: "The tank, pipe, or other appurtenant structure that released petroleum into the environment (i.e. the primary source) has been removed, repaired or replaced. It is not the intent of this policy to allow sites with ongoing leaks from the UST system to qualify for low-threat closure."

Have the tank(s), piping, dispenser islands, or other appurtenant structures that released petroleum into the environment been removed, repaired or replaced?	☒ Yes	☐ No	☐ NE
Tanks?	☒ Yes	☐ No	☐ NE
Product piping?	☒ Yes	☐ No	☐ NE
Dispenser islands?	☒ Yes	☐ No	☐ NE
Other structures?	☒ Yes	☐ No	☐ NE
Have the tanks, piping, and/or dispenser islands been moved to a different location at the site?	☐ Yes	☒ No	☐ NE
Were/are the tanks permitted by a local regulatory agency having jurisdiction over USTs?	☒ Yes	☐ No	☐ NE
Have the operating records been reviewed (i.e., operating permit, types of products dispensed, tanks construction, tank capacity, tank tightness tests, etc)?	☐ Yes	☒ No	☐ NE
Was a tank removal permit issued by the local regulatory agency?	☒ Yes	☐ No	☐ NE
Was a tank removal report submitted?	☒ Yes	☐ No	☐ NE
Is there indication that new release(s) have occurred subsequent to the initial release?	☐ Yes	☒ No	☐ NE
Are there spikes or increasing concentration trends in historic data subsequent to the initial release?	☐ Yes	☒ No	☐ NE
Are there new detections of free product subsequent to the initial release in historic data?	☐ Yes	☒ No	☐ NE
Have new contaminants been detected in historic data subsequent to the initial release?	☐ Yes	☒ No	☐ NE
Have new petroleum hydrocarbons or other hazardous products been dispensed of at the site since the initial release occurred?	☒ Yes	☐ No	☐ NE
Is there indication of new impacts from offsite sources?	☐ Yes	☒ No	☐ NE

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA C

CSM Minimum Requirements

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria c?	**☒ Yes**	**☐ No**	
Description of the history of releases and the actions taken to stop each release?	☒ Yes	☐ No	☐ NA
Evaluation and accounting for changing contaminant concentrations over the full time period of site investigations?	☒ Yes	☐ No	☐ NA
Data from other sites in the vicinity with unauthorized releases of petroleum hydrocarbons or other hazardous materials	☐ Yes	☒ No	☐ NA
Hazardous Materials Business Plans (historic and current)	☒ Yes	☐ No	☐ NA
CUPA UST permits and inspection reports	☒ Yes	☐ No	☐ NA

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

Case Notes:

MW-2 shows a recent increase in TPH concentrations. This is expected, since the contaminant plume seems to be slowly migrating towards this well. It is not likely that the increase is due to new or undiscovered contaminants.

*****End of General Criteria c Evaluation*****

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA D

General Criteria d: **Has Free Product been Removed to the Maximum Extent Practicable?**	☒ YES	☐ NO	☐ NE	☐ NA

LTCP Statement: "At petroleum unauthorized release sites where investigations indicate the presence of free product, free product shall be removed to the maximum extent practicable. In meeting the requirements of this section:

(a) Free product shall be removed in a manner that minimizes the spread of the unauthorized release into previously uncontaminated zones by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges or disposes of recovery byproducts in compliance with applicable laws;

(b) Abatement of free product migration shall be used as a minimum objective for the design of any free product removal system; and

(c) Flammable products shall be stored for disposal in a safe and competent manner to prevent fires or explosions."

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria d?	☒ **Yes**	☐ **No**	
Has the presence of free product been evaluated?	☒ Yes	☐ No	☐ NA
Has a description of investigation and monitoring activities that have been undertaken to assess whether free product is present been provided?	☒ Yes	☐ No	☐ NA
Has a preferential pathway study been conducted to determine the probability of free product encountering geologic and anthropogenic preferential pathways and conduits that can act as contaminant migration pathways to or from the site?	☒ Yes	☐ No	☐ NA
Has tabulation and an evaluation of historic groundwater levels and flow direction and identification of a smear zone been provided?	☒ Yes	☐ No	☐ NA
Has data including tables and figures showing any observation and measurements of free product been provided?	☒ Yes	☐ No	☐ NA
Has an evaluation of the adequacy of the monitoring well network and appropriateness of screen interval to detect free product been conducted?	☒ Yes	☐ No	☐ NA
Has an evaluation of whether free product removal is practicable, or if not practicable, a description of the conditions that prevent free product removal been conducted?	☐	☐	☒
Has free product removal been implemented?	☒ Yes	☐ No	☐ NA

Absorbent Materials	☐ Yes	☒ No
Bailing	☒ Yes	☐ No
Skimmer	☐ Yes	☒ No
HVDPE	☐ Yes	☒ No
Other Methods: Excavation	☒ Yes	☐ No

Has a description of corrective action(s) that were taken to remove product, dates of removal actions, and volumes removed been provided?	☒ Yes	☐ No	☐ NA
Is free product removal still being conducted?	☐ Yes	☒ No	☐ NA
Does data indicate rebound of free product subsequent to product removal?	☐ Yes	☒ No	☐ NA

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA D

Case Notes

Several feet of free product was initially observed in well MW-1. After the excavation in 2008, the free product dissipated.

*****End of General Criteria d Evaluation*****

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA E

General Criteria e: **Has a Conceptual Site Model that Adequately Assesses the Nature, Extent, and Mobility of the Release been Developed?**	☒ YES	☐ NO	☐ NE

LTCP Statement: "The Conceptual Site Model (CSM) is a fundamental element of a comprehensive site investigation. The CSM establishes the source and attributes of the unauthorized release, describes all affected media (including soil, groundwater, and soil vapor as appropriate), describes local geology, hydrogeology and other physical site characteristics that affect contaminant environmental transport and fate, and identifies all confirmed and potential contaminant receptors (including water supply wells, surface water bodies, structures and their inhabitants). The CSM is relied upon by practitioners as a guide for investigative design and data collection. Petroleum release sites in California occur in a wide variety of hydrogeologic settings. As a result, contaminant fate and transport and mechanisms by which receptors may be impacted by contaminants vary greatly from location to location. Therefore, the CSM is unique to each individual release site. All relevant site characteristics identified by the CSM shall be assessed and supported by data so that the nature, extent and mobility of the release have been established to determine conformance with applicable criteria in this policy. The supporting data and analysis used to develop the CSM are not required to be contained in a single report and may be contained in multiple reports submitted to the regulatory agency over a period of time."

Has a CSM that adequately assesses the nature, extent, and mobility of the release in affected media in the vicinity of the site been developed?	☒ Yes	☐ No	
Groundwater assessment?	☒ Yes	☐ No	☐ NA
Surface water assessment?	☒ Yes	☐ No	☐ NA
Soil assessment?	☒ Yes	☐ No	☐ NA
Soil vapor assessment?	☒ Yes	☐ No	☐ NA
Indoor Air assessment?	☒ Yes	☐ No	☐ NA
Has the CSM been developed in accordance with industry standards?	☒ Yes	☐ No	☐ NA
SWRCB CA LUFT Manual, September 2012	☒ Yes	☐ No	☐ NA
ITRC Vapor Intrusion Pathway: A Practical Guideline (ITRC 2007)	☐ Yes	☐ No	☒ NA
ASTM Method 1689-95 - Standard Guide for Developing Conceptual Site Models for Contaminated Sites	☐ Yes	☐ No	☒ NA
ASTM Method 2531-6 - Standard Guide for Development of Conceptual Models for Light Nonaqueous-Phase Liquids Released to the Subsurface	☐ Yes	☐ No	☒ NA
DTSC Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (October 2011)	☐ Yes	☐ No	☒ NA
Is the CSM presented in one comprehensive document or has a summary document been submitted that identifies the documents where the requisite CSM elements are located?	☒ Yes	☐ No	☐ NA
Is the CSM representative of current site conditions?	☒ Yes	☐ No	☐ NA
Does the final closure review validate the CSM?	☒ Yes	☐ No	☐ NA

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA E

Case Notes

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria e?	☒ Yes	☐ No	
Site history?	☒ Yes	☐ No	☐ NA
Receptor survey?	☒ Yes	☐ No	☐ NA
Description of releases?	☒ Yes	☐ No	☐ NA
Geologic and hydrogeologic assessment?	☒ Yes	☐ No	☐ NA
Identified stratigraphic and manmade migration pathways?	☒ Yes	☐ No	☐ NA
Identified controls on contaminant migration?	☒ Yes	☐ No	☐ NA
Delineation of the lateral and vertical extent of contamination in all affected media?	☒ Yes	☐ No	☐ NA
Assessment of vapor intrusion pathways?	☒ Yes	☐ No	☐ NA
Groundwater monitoring and evaluation of plume stability?	☒ Yes	☐ No	☐ NA
Description of the type and effectiveness of corrective actions?	☒ Yes	☐ No	☐ NA
Identification of data gaps?	☒ Yes	☐ No	☐ NA

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

Case Notes:

*****End of General Criteria e Evaluation*****

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA F

General Criteria f: **Has Secondary Source been Removed to the Extent Practicable?**	☑ YES	☐ NO	☐ NE

LTCP Statement: "Secondary source" is defined as petroleum-impacted soil or groundwater located at or immediately beneath the point of release from the primary source. Unless site attributes prevent secondary source removal (e.g. physical or infrastructural constraints exist whose removal or relocation would be technically or economically infeasible), petroleum-release sites are required to undergo secondary source removal to the extent practicable as described herein. "To the extent practicable" means implementing a cost-effective corrective action which removes or destroys-in-place the most readily recoverable fraction of source-area mass. It is expected that most secondary mass removal efforts will be completed in one year or less. Following removal or destruction of the secondary source, additional removal or active remedial actions shall not be required by regulatory agencies unless (1) necessary to abate a demonstrated threat to human health or (2) the groundwater plume does not meet the definition of low threat as described in this policy."

				☑ Yes	☐ No	☐ NE
Has secondary source been removed to the extent practicable?						
Petroleum-impacted soil?	☑ Yes	☐ No	☐ NE			
Petroleum-impacted groundwater?	☑ Yes	☐ No	☐ NE			
Is corrective action currently in progress to remove or destroy-in-place the most readily recoverable fraction of source-area mass?				☐ Yes	☑ No	☐ NE
Petroleum-impacted soil remediation?	☐ Yes	☐ No	☐			
Petroleum-impacted groundwater remediation?	☐ Yes	☐ No	☐			
Have the current site remediation efforts been in progress for more than one year?	☐ Yes	☐ No	☐			
Petroleum-impacted soil?	☐ Yes	☐ No				
Petroleum-impacted groundwater?	☐ Yes	☐ No				
Is site remediation cost effective?	☐ Yes	☐ No	☐ NE			
Is site remediation progressing adequately?	☐ Yes	☐ No	☐ NE			
Are additional removal or active remedial actions necessary to remove or abate a demonstrated threat to human health?				☐ Yes	☑ No	☐ NE
Petroleum-impacted soil?	☐ Yes	☐ No	☐ NE			
Petroleum-impacted groundwater?	☐ Yes	☐ No	☐ NE			

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria f?	☑ **Yes**	☐ **No**	
History of corrective actions for the site including the types of cleanup actions taken, dates of the actions, and mass removed?	☑ Yes	☐ No	☐ NA
Figures depicting the location(s) of the removal action?	☑ Yes	☐ No	☐ NA
Confirmation sampling results which demonstrate the effectiveness of secondary source removal?	☑ Yes	☐ No	☐ NA
Narrative description of the actions and areas of success or infeasibility of actions?	☑ Yes	☐ No	☐ NA
For in-situ corrective actions, presentation of long-term monitoring data that demonstrate that concentration have not rebounded following the cessation of corrective action?	☐ Yes	☐ No	☑ NA

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA F

Case Notes

End of General Criteria f Evaluation

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA G

General Criteria g: Has Soil or Groundwater been Tested for MTBE and Results Reported in Accordance with Health and Safety Code Section 25296.15?	☒ YES	☐ NO	☐ NE

LTCP Statement: "Health and Safety Code section 25296.15 prohibits closing a UST case unless the soil, groundwater, or both, as applicable have been tested for MTBE and the results of that testing are known to the Regional Water Board. The exception to this requirement is where a regulatory agency determines that the UST that leaked has only contained diesel or jet fuel. Before closing a UST case pursuant to this policy, the requirements of section 25296.15, if applicable, shall be satisfied."

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria g?	☒ Yes	☐ No	
Presentation of sufficient data to assess whether MTBE is or was present in soil at or in the vicinity of the site?	☒ Yes	☐ No	☐ NE
Presentation of sufficient data to assess whether MTBE is or was present in groundwater at or in the vicinity of the site?	☒ Yes	☐ No	☐ NE

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

Case Notes:

Soil and groundwater samples were tested for MtBE and current groundwater concentrations are below ESLs, or will reach ESLs within a reasonable period of time. The only wells with MtBE concentrations higher that the ESLs (5 ug/L) during the most recent monitoring event (Dec. 5, 2012) were MW-2 (7 ug/L) and EX-2 (15 ug/L). Well MW-2 has shown a steady decrease in MtBE concentrations since 2004, when it was 730 ug/L. EX-2 has shown a steady decrease since its construction in Spetember 2008, when it was 210 ug/L. Based on the trends, we fully expect MtBE concentrations in all wells to reach the ESLs in a reasonable period of time. At the last soils sampling event, the July 2008 excavation, 10 out of 30 soil samples were above the MtBE ESLs (.023 mg/kg). It is likely that MtBE soil samples have fallen below ESLs at this time.

*****End of General Criteria g Evaluation*****

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA H

General Criteria h: **Does a Nuisance as Defined by Water Code Section 13050 Exist at the Site?**	☐ YES	☒ NO	☐ NE

LTCP Statement: "Water Code section 13050 defines "nuisance" as anything which meets all of the following requirements:

(1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.

(2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.

(3) Occurs during, or as a result of, the treatment or disposal of wastes.

For the purpose of this policy, waste means a petroleum release."

Does a nuisance condition currently exist (or potentially could exist) as defined by the LTCP above?	☐ **Yes**	☒ **No**	☐ **NE**
Is injurious to health?	☐ Yes	☒ No	☐ NE
Is indecent or offensive to the senses?	☐ Yes	☒ No	☐ NE
Is an obstruction to the free use of property so as to interfere with the comfortable enjoyment of life or property?	☐ Yes	☒ No	☐ NE
Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal?	☐ Yes	☒ No	☐ NE
Is a result of the treatment or disposal of waste?	☐ Yes	☒ No	☐ NE

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with General Criteria h?	☒ **Yes**	☐ **No**	
Description of whether site contamination is present in locations that have the potential to pose nuisance conditions during common or reasonably expected site activities?	☐ Yes	☐ No	☐ NA
Surface soils?	☒ Yes	☐ No	☐ NE
Near surface soils?	☒ Yes	☐ No	☐ NE
Utility corridors?	☒ Yes	☐ No	☐ NE
Groundwater?	☒ Yes	☐ No	☐ NE
Surface water?	☒ Yes	☐ No	☐ NE
Soil gas?	☒ Yes	☐ No	☐ NE
Basements or other subsurface structures?	☒ Yes	☐ No	☐ NE
Descriptions of the type and vertical and lateral extent of shallow soil?	☒ Yes	☐ No	☐ NE
Descriptions of the lateral extent of surface soil contamination, and depths to contamination?	☒ Yes	☐ No	☐ NE
Presentation of analytical results for surface soil, shallow soil, soil gas, groundwater, and surface water samples?	☒ Yes	☐ No	☐ NE
Discussion of odors or visual evidence of contamination?	☒ Yes	☐ No	☐ NE
Presentation of preferential pathway and utility conduit surveys?	☒ Yes	☐ No	☐ NE
Evaluation of potential points for exposure such as groundwater or free product seeps into basements or surface water bodies or conveyances?	☒ Yes	☐ No	☐ NE
Description of surface water runoff from the property to storm drains, other sites, or other surface water body receptors?	☒ Yes	☐ No	☐ NE
Description of the current and expected future use of the site and impacted or potentially impacted property in the site vicinity?	☒ Yes	☐ No	☐ NE

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY - GENERAL CRITERIA H

Case Notes

End of General Criteria h Evaluation

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - GROUNDWATER

Does the site meet the LTCP criteria for groundwater, or does the site qualify for the Soil Only Case exemption?	☒ YES	☐ NO

LTCP Statement: "This policy describes criteria on which to base a determination that threats to existing and anticipated beneficial uses of groundwater have been mitigated or are de minimis, including cases that have not affected groundwater.

State Water Board Resolution 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code Section 13304* is a state policy for water quality control and applies to petroleum UST cases. Resolution 92-49 directs that water affected by an unauthorized release attain either background water quality or the best water quality that is reasonable if background water quality cannot be restored. Any alternative level of water quality less stringent than background must be consistent with the maximum benefit to the people of the state, not unreasonably affect current and anticipated beneficial use of affected water, and not result in water quality less than that prescribed in the water quality control plan for the basin within which the site is located. Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of case closure; it specifies compliance with cleanup goals and objectives within a reasonable time frame.

Water quality control plans (Basin Plans) generally establish "background" water quality as a restorative endpoint. This policy recognizes the regulatory authority of the Basin Plans but underscores the flexibility contained in Resolution 92-49.

It is a fundamental tenet of this low-threat closure policy that if the closure criteria described in this policy are satisfied at a petroleum unauthorized release site, attaining background water quality is not feasible, establishing an alternate level of water quality not to exceed that prescribed in the applicable Basin Plan is appropriate, and that water quality objectives will be attained through natural attenuation within a reasonable time, prior to the expected need for use of any affected groundwater.

If groundwater with a designated beneficial use is affected by an unauthorized release, to satisfy the media-specific criteria for groundwater, the contaminant plume that exceeds water quality objectives must be stable or decreasing in areal extent, and meet all of the additional characteristics of one of the five classes of sites listed below. A plume that is "stable or decreasing" is a contaminant mass that has expanded to its maximum extent: the distance from the release where attenuation exceeds migration."

"Sites with Releases that Have Not Affected Groundwater - Sites with soil that does not contain sufficient mobile constituents [leachate, vapors, or light non-aqueous-phase liquids (LNAPL)] to cause groundwater to exceed the groundwater criteria in this policy shall be considered low-threat sites for the groundwater medium. Provided the general criteria and criteria for other media are also met, those sites are eligible for case closure. For older releases, the absence of current groundwater impact is often a good indication that residual concentrations present in the soil are not a source for groundwater pollution."

Does the site qualify for the Soil Only Case EXEMPTION?	☐ Yes	☒ No
If the site does not qualify for the soil only exemption, then, is the contaminant plume stable or decreasing in areal extent?	☒ Yes	☐ No
If the contaminant plume is stable or decreasing, then does it meet all of the additional characteristics of one of the five (5) LTCP classes?	☐ Yes	☐ No

Class 1	☐ Yes	☐ No
Class 2	☐ Yes	☒ No
Class 3	☐ Yes	☐ No
Class 4	☐ Yes	☐ No
Class 5	☒ Yes	☐ No

(Refer to Next Page for Contaminant Plume Classification Characteristics)

(Media Specific Criteria for Groundwater Evaluation Continued on Next Page)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - GROUNDWATER

Groundwater Contaminant Plume Classification Characteristics

If the Contaminant Plume is Stable or Decreasing, then Does the contaminant plume meet <u>all of the additional characteristics</u> of one of the five (5) LTCP classes listed below?	☒ Yes	☐ No	☐ NE
Class 1	☐ **Yes**	☒ **No**	☐ **NE**
Is < 100 feet in length	☒ Yes	☐ No	☐ NE
There is no free product	☒ Yes	☐ No	☐ NE
The nearest existing water supply well is > 250 feet from the defined plume boundary	☒ Yes	☐ No	☐ NE
The nearest existing surface water body is > 250 feet from the defined plume boundary	☐ Yes	☒ No	☐ NE
Class 2	☐ **Yes**	☒ **No**	☐ **NE**
Is < 250 feet in length	☒ Yes	☐ No	☐ NE
There is no free product	☒ Yes	☐ No	☐ NE
The nearest existing water supply well is > 1,000 feet from the defined plume boundary	☒ Yes	☐ No	☐ NE
The nearest existing surface water body is > 1,000 feet from the defined plume boundary	☐ Yes	☒ No	☐ NE
The dissolved concentration of benzene is <3,000 µg/L	☒ Yes	☐ No	☐ NE
The dissolved concentration of MTBE is <1,000 µg/L	☒ Yes	☐ No	☐ NE
Class 3	☐ **Yes**	☒ **No**	☐ **NE**
Is < 250 feet in length	☐ Yes	☒ No	☐ NE
Free product has been removed to the maximum extent practicable, may still be present below the site where the release originated, but does not extend off-site	☒ Yes	☐ No	☐ NE
The plume has been stable or decreasing for a minimum of 5 years	☒ Yes	☐ No	☐ NE
The nearest existing water supply well is > 1,000 feet from the defined plume boundary	☒ Yes	☐ No	☐ NE
The nearest existing surface water body is > 1,000 feet from the defined plume boundary	☐ Yes	☒ No	☐ NE
The property owner is willing to accept a land use restriction if the regulatory agency requires a land use restriction as a condition for closure	☐ Yes	☐ No	☐ NE
Class 4	☐ **Yes**	☐ **No**	☐ **NE**
Is < 1,000 feet in length	☒ Yes	☐ No	☐ NE
There is no free product	☒ Yes	☐ No	☐ NE
The nearest existing water supply well or surface water body is > 1,000 feet from the defined plume boundary	☐ Yes	☒ No	☐ NE
The nearest existing surface water body is > 1,000 feet from the defined plume boundary	☐ Yes	☒ No	☐ NE
The dissolved concentration of benzene is <1,000 µg/L	☒ Yes	☐ No	☐ NE
The dissolved concentration of MTBE is <1,000 µg/L	☒ Yes	☐ No	☐ NE
Class 5	☒ **Yes**	☐ **No**	☐ **NE**
Based on an analysis of site specific conditions at the site under current and reasonable anticipated near-term future scenarios, the contaminant plume poses a low threat to human health and safety and to the environment and water quality objectives will be achieved within a reasonable time frame	☒ Yes	☐ No	☐ NE

(Media Specific Criteria for Groundwater Evaluation Continued on Next Page)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

Sites Not Meeting the Characteristics of the Five Groundwater Plume Classes

Indicate those conditions that do not meet the characteristics of one of the five classes of sites listed in the LTCP.

Plume Length (That Exceeds Water Quality Objectives)			
≥ 100 feet and < 250 feet	☐ Yes		
≥ 250 feet and < 1,000 feet	☐ Yes		
≥ 1,000 feet	☐ Yes		
Unknown	☐ Yes		
For Sites with Free Product			
Free product in groundwater	☐ Yes	☐ No	☐ UNK
Free product has been removed to the maximum extent practicable	☐	☐ No	☐ UNK
The plume has been stable or decreasing for 5-Years	☐	☐ No	☐ UNK
The owner is willing to accept a Land Use Restriction (if required)	☐	☐ No	☐ UNK
Free product extends offsite	☐ Yes	☐	☐ UNK
Benzene Concentration			
≥ 1,000 µg/L and < 3,000 µg/L	☐ Yes		
≥ 3,000 µg/L	☐ Yes		
Unknown	☐ Yes		
MTBE Concentration			
≥ 1,000 µg/L	☐ Yes		
Unknown	☐ Yes		
Nearest Supply Well (From Plume Boundary)			
≤ 250 Feet	☒ Yes		
> 250 Feet and ≤ 1,000 Feet	☐ Yes		
Unknown	☐ Yes		
Nearest Surface Water Body (From Plume Boundary)			
≤ 250 Feet	☒ Yes		
> 250 Feet and ≤ 1,000 Feet	☐ Yes		
Unknown	☐ Yes		

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - GROUNDWATER

CSM Minimum Required Information

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with Media Specific Criteria for Groundwater?	☒ Yes	☐ No	
Sufficient data been presented to demonstrate that site characterization activities have defined the horizontal and vertical extent of the plume?	☒ Yes	☐ No	☐ NA
Demonstration of plume stability using a valid technical analysis that considers the accuracy of data from the wells, well placement within the plum, and changes in horizontal and vertical extent of the plume?	☐ Yes	☒ No	☐ NA
Evaluation of factors such as seasonal variability, water level changes, sampling methods, well construction, and other factors that can affect data quality?	☒ Yes	☐ No	☐ NA
A recent well survey that uses all available well information from both the Department of Water Resources and local agencies (Zone 7 Water Agency of Alameda County Public Works as appropriate)?	☒ Yes	☐ No	☐ NA
The location of surface water bodies and water supply wells located within 2,000 feet of the site presented on a site figure with benzene and MTBE isoconcentration contours?	☐ Yes	☒ No	☐ NA
A table identifying each water supply well along with the well construction details?	☒ Yes	☐ No	☐ NA
A discussion of surface water bodies within 2,000 feet of the site and details on hydraulic connection with the groundwater plume?	☒ Yes	☐ No	☐ NA
A discussion of current and reasonable anticipated near-term future scenarios at the site and in the vicinity of the site and possible Land Use Restrictions?	☒ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

Case Notes

A figure with MtBE/benzene isoconcentration contours has not been included, as the contours would not be visible with the wells within 2,000 feet.

*****End of Groundwater Criteria Evaluation*****

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - VAPOR INTRUSION TO INDOOR AIR

Does the site meet one of the three petroleum vapor intrusion to indoor air specific criteria (a, b, or c), or qualify for the active commercial fueling facility exemption?	☒ YES	☐ NO

LTCP Statement: "Exposure to petroleum vapors migrating from soil or groundwater to indoor air may pose unacceptable human health risks. This policy describes conditions, including bioattenuation zones, which if met will assure that exposure to petroleum vapors in indoor air will not pose unacceptable health risks. In many petroleum release cases, potential human exposures to vapors are mitigated by bioattenuation processes as vapors migrate toward the ground surface. For the purposes of this section, the term "bioattenuation zone" means an area of soil with conditions that support biodegradation of petroleum hydrocarbon vapors.

The low-threat vapor-intrusion criteria described below apply to sites where the release originated and impacted or potentially impacted adjacent parcels when:

(1) existing buildings are occupied or may be reasonably expected to be occupied in the future, or

(2) buildings for human occupancy are reasonably expected to be constructed in the future.

Appendices 1 through 4 (attached) illustrate four potential exposure scenarios and describe characteristics and criteria associated with each scenario. Petroleum release sites shall satisfy the media-specific criteria for petroleum vapor intrusion to indoor air and be considered low-threat for the vapor-intrusion-to-indoor-air pathway if:

a. Site-specific conditions at the release site satisfy all of the characteristics and criteria of scenarios 1 through 3 as applicable, or all of the characteristics and criteria of scenario 4 as applicable; or

b. A site-specific risk assessment for the vapor intrusion pathway is conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency; or

c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health.

Exception: Exposures to petroleum vapors associated with historical fuel system releases are comparatively insignificant relative to exposures from small surface spills and fugitive vapor releases that typically occur at active fueling facilities. Therefore, satisfaction of the media-specific criteria for petroleum vapor intrusion to indoor air is not required at active commercial petroleum fueling facilities, except in cases where release characteristics can be reasonably believed to pose an unacceptable health risk."

Does the site qualify for an EXEMPTION from the Petroleum Vapor Intrusion to Indoor Air criteria (i.e., the site is an active commercial petroleum fueling facility?				☒ **Yes**	☐ **No**
Are release characteristics reasonably believed to pose an unacceptable health risk to facility users or nearby facilities?	☒ Yes	☐ No	☐ NE		
a. Do site-specific conditions at the release site satisfy all of the characteristics and criteria of scenarios 1 through 3 as applicable, or all of the characteristics and criteria of scenario 4?				☐ **Yes**	☐ **No**
Scenario 1: Unweathered LNAPL in groundwater	☐ Yes	☐ No			
Scenario 2: Unweathered LNAPL in soil	☐ Yes	☐ No			
Scenario 3: Dissolved benzene concentrations in groundwater (oxygen ≥ 4%)	☐ Yes	☐ No			
Scenario 4: Dissolved phase benzene concentrations in groundwater (oxygen < 4%)	☐ Yes	☐ No			
(Refer to Next Page for Scenario 1 through 4 Characteristics)					
b. Has a site-specific risk assessment for the vapor intrusion pathway been conducted and demonstrates that human health is protected to the satisfaction of the regulatory agency?				☐ **Yes**	☐ **No**
c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?				☐ **Yes**	☐ **No**

(Media Specific Criteria for Vapor Intrusion to Indoor Air Evaluation Continued on Next Page)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

Scenarios 1 through 3: Bioattenuation Zone Characteristics

Scenario 1: Unweathered LNAPL in Groundwater				
The bioattenuation zone is a continuous zone provides a separation of at least 30 feet vertically between the LNAPL in groundwater and the foundation of existing or potential buildings; and	☐ Yes	☐ No	☐ NE	☐ NA
Total TPH (TPH-g and TPH-d combined) are less than 100 mg/kg throughout the entire depth of the bioattenuation zone	☐ Yes	☐ No	☐ NE	☐ NA

Scenario 2: Unweathered LNAPL in Soil				
The bioattenuation zone is a continuous zone that provides a separation of at least 30 feet vertically between the LNAPL in soil and the foundation of existing or potential buildings; and	☐ Yes	☐ No	☐ NE	☐ NA
Total TPH (TPH-g and TPH-d combined) are <100 mg/kg throughout the entire lateral and vertical extent of the bioattenuation zone	☐ Yes	☐ No	☐ NE	☐ NA

Scenario 3: Dissolved Phase Benzene Concentrations in Groundwater				
Sites without oxygen data or where oxygen is <4% and benzene concentrations < 100 µg/l (Figure A)	**☐ Yes**	**☐ No**	**☐ NE**	**☐ NA**
The bioattenuation zone is a continuous zone that provides a separation of at least 5 feet vertically between the dissolved phase benzene and the foundation of existing or potential buildings; and	☐ Yes	☐ No	☐ NE	☐ NA
Contains total TPH (TPH-g and TPH-d combined) < 100 mg/kg throughout the entire depth of the bioattenuation zone	☐ Yes	☐ No	☐ NE	☐ NA
Sites without oxygen data or where oxygen is <4% and benzene concentrations ≥ 100 µg/L but < 1,000 µg/L (Figure B)	**☐ Yes**	**☐ No**	**☐ NE**	**☐ NA**
The bioattenuation zone is a continuous zone that provides a separation of at least 10 feet vertically between the dissolved phase benzene and the foundation of existing or potential buildings	☐ Yes	☐ No	☐ NE	☐ NA
Sites with oxygen ≥ 4% and benzene concentrations < 1,000 µg/L (Figure C)	**☐ Yes**	**☐ No**	**☐ NE**	**☐ NA**
A continuous zone that provides a separation of at least 10 feet vertically between the dissolved phase benzene and the foundation of existing or potential buildings	☐ Yes	☐ No	☐ NE	☐ NA
Contains total TPH (TPH-g and TPH-d combined) < 100 mg/kg throughout the entire depth of the bioattenuation zone	☐ Yes	☐ No	☐ NE	☐ NA

(LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air Evaluation Continued on Next Page)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

Scenario 4 Characteristics: Direct Measurement of Soil Gas Concentrations (No Bioattenuation Zone)

Were soil gas samples obtained from the required locations?	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**
Beneath or adjacent to an existing building: Soil gas samples collected at least 5 feet below the bottom of the building foundation	☐ Yes	☐ No	☐ NE	☐ NA
Future construction: Soil gas samples from at least five feet below ground surface	☐ Yes	☐ No	☐ NE	☐ NA
Were soil gas samples collected in accordance with DTSC Advisory with DTSC Advisory – Active Soil Gas Investigations (April 2012)?	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**

Are all of the following criteria for a bioattenuation zone satisfied?	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**
There is a minimum of five vertical feet of soil between the soil vapor measurements and the foundation of an existing building or ground surface of future construction; and	☐ Yes	☐ No	☐ NE	☐ NA
TPH (TPHg + TPHd) is less than 100 mg/kg (measured in at least two depths within the five-foot zone; and	☐ Yes	☐ No	☐ NE	☐ NA
Oxygen is ≥ 4% measured at the bottom of the five-foot zone	☐ Yes	☐ No	☐ NE	☐ NA

If the bioattenuation zone criteria are all satisfied, then do soil gas concentrations meet the following criteria?	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**
Residential	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**
Benzene <85,000 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Ethylbenzene <1,100,000 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Napthalene <93,000 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Commercial	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**
Benzene <280,000 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Ethylbenzene <3,600,000 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Napthalene <310,000 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA

If the bioattenuation zone criteria are not satisfied, then do soil gas concentrations meet the following criteria?	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**
Residential	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**
Benzene <85 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Ethylbenzene <1,100 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Napthalene <93 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Commercial	☐ **Yes**	☐ **No**	☐ **NE**	☐ **NA**
Benzene <280 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Ethylbenzene <3,600 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA
Napthalene <310 µg/m^3	☐ Yes	☐ No	☐ NE	☐ NA

(LTCP Media Specific Criteria for Vapor Intrusion to Indoor Air Evaluation Continued on Next Page)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - VAPOR INTRUSION TO INDOOR AIR

Additional questions for sites that do not meet the LTCP Criteria (a, b, or c):

Soil Gas Samples	
Insufficient number to be representative	☐ Yes
Temporal variability not evaluated	☐ Yes
No soil gas samples	☐ Yes
Taken incorrectly	☐ Yes
Not taken at two depths within 5 foot zone	☐ Yes
High spatial or temporal variability	☐ Yes
Insufficient analytes	☐ Yes
Exposure Type	
Residential	☐ Yes
Commercial	☐ Yes
Free Product	
In groundwater	☐ Yes
In soil	☐ Yes
Unknown	☐ Yes
TPH in the Bioattenuation Zone	
< 5 feet (No Biozone)	☐ Yes
≥ 5 feet and < 10 feet	☐ Yes
≥ 10 feet and < 30 feet	☐ Yes
≥ 30 Feet	☐ Yes
30 Feet BioZone compromised (TPH>100 µg/L)	☐ Yes
Unknown	☐ Yes
Oxygen Data in Bioattenuation Zone	
No oxygen data	☐ Yes
Oxygen < 4%	☐ Yes
Oxygen ≥ 4%	☐ Yes
Benzene in Groundwater	
≥ 100 µg/L and < 1,000 µg/L	☐ Yes
≥ 1,000 µg/L	☐ Yes
Unknown	☐ Yes
Soil Gas Benzene	
≥ 85 $\mu g/m^3$ and < 280 $\mu g/m^3$	☐ Yes
≥ 280 $\mu g/m^3$ and < 85,000 $\mu g/m^3$	☐ Yes
≥ 85,000 $\mu g/m^3$ and < 280,000 $\mu g/m^3$	☐ Yes
≥ 280,000 $\mu g/m^3$	☐
Unknown	☐ Yes
Soil Gas Ethylbenzene	
≥ 1,100 $\mu g/m^3$ and < 3,600 $\mu g/m^3$	☐ Yes
≥ 3,600 $\mu g/m^3$ and < 1,100,000 $\mu g/m^3$	☐ Yes
≥ 1,100,000 $\mu g/m^3$ and < 3,600,000	☐ Yes
≥ 3,600,000 $\mu g/m^3$	☐ Yes
Unknown	☐ Yes
Soil Gas Napthalene	
≥ 93 $\mu g/m^3$ and < 310 $\mu g/m^3$	☐ Yes
≥ 310 $\mu g/m^3$ and < 93,000 $\mu g/m^3$	☐ Yes
≥ 93,000 $\mu g/m^3$ and < 310,000 $\mu g/m^3$	☐ Yes
≥ 310,000 $\mu g/m^3$	☐ Yes
Unknown	☐

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - VAPOR INTRUSION TO INDOOR AIR

CSM Minimum Required Information

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with the Media Specific Criteria for Vapor Intrusion to Indoor Air?	**☒ Yes**	**☐ No**	
Sufficient data to demonstrate that site characterization is complete and that the data demonstrate that the site-specific conditions satisfy all the assumptions, characteristics, and screening criteria of scenarios 1 through 3, or all the assumptions, characteristics, and screening criteria of scenario 4?	☐ Yes	☐ No	☐ NA
Evidence of unweathered LNAPL in soil or groundwater?	☐ Yes	☐ No	☐ NA
Soil data to demonstrate that total TPH concentrations (TPH-g and TPH-d combined) in soil are < 100 mg/kg throughout the specified bioattenuation zone depth?	☐ Yes	☐ No	☐ NA
Depth of foundation of existing or potential buildings?	☐ Yes	☐ No	☐ NA
Soil gas data to demonstrate that a continuous bioattenuation zone is or is not present?	☐ Yes	☐ No	☐ NA
Concentrations of benzene in groundwater?	☐ Yes	☐ No	☐ NA
Oxygen data in the bioattenuation zone?	☐ Yes	☐ No	☐ NA
Results and evaluation of preferential pathway and utility conduit surveys to determine whether a continuous bioattenuation zone is present?	☐ Yes	☐ No	☐ NA
Evaluation of data representativeness, quality, spatial distribution, and temporal variability relative to current or potential receptors and sources?	☐ Yes	☐ No	☐ NA
Evaluation to assess whether nearby facilities potentially may be impacted by petroleum vapor intrusion?	☐ Yes	☐ No	☐ NA
Sufficient data to demonstrate that through the use of mitigation measures or institutional controls, exposure to petroleum vapors migrating from soil or groundwater will have no significant risk of adversely affecting human health?	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA

(Refer to Att. 1 - CSM Checklist for Identification of Data Gaps)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

Case Notes

The Site is an active fueling station and qualifies for a soil vapor exemption.

*****End of Vapor Intrusion to Indoor Air Evaluation*****

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - DIRECT CONTACT AND OUTDOOR AIR EXPOSURE

Does the site satisfy the Media-Specific Criteria for Direct Contact and Outdoor Air Exposure, or does the site qualify for the exemption?	☒ YES	☐ NO

LTCP Statement: "This policy describes conditions where direct contact with contaminated soil or inhalation of contaminants volatized to outdoor air poses a low threat to human health. Release sites where human exposure may occur satisfy the media-specific criteria for direct contact and outdoor air exposure and shall be considered low-threat if they meet any of the following:

a. Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in Table 1 for the specified depth below ground surface (bgs). The concentration limits for 0 to 5 feet bgs protect from ingestion of soil, dermal contact with soil, and inhalation of volatile soil emissions and inhalation of particulate emissions. The 5 to 10 feet bgs concentration limits protect from inhalation of volatile soil emissions. Both the 0 to 5 feet bgs concentration limits and the 5 to 10 feet bgs concentration limits for the appropriate site classification (Residential or Commercial/Industrial) shall be satisfied. In addition, if exposure to construction workers or utility trench workers is reasonably anticipated, the concentration limits for Utility Worker shall also be satisfied; or

b. Maximum concentration of petroleum constituents in soil are less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health; or

c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, the regulatory agency determines that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health."

Does the site qualify for an EXEMPTION from Direct Contact and Outdoor Air Exposure Criteria (i.e., is the upper 10 feet of soil free of petroleum contamination)?	☐ Yes	☒ No
If the site does not qualify for the exemption, then does the site satisfy the media-specific criteria (a, b, or c) for direct contact and outdoor air exposure?	☒ Yes	☐ No

a. Are maximum concentrations of petroleum constituents in soil less than or equal to those listed in Table 1 for the specified depth bgs? **(Refer to Next Page for Concentrations Limits Evaluation)**	☒ Yes	☐ No
b. Are the maximum concentrations of petroleum constituents in soil less than levels that a site specific risk assessment demonstrates will have no significant risk of adversely affecting human health?	☐ Yes	☐ No
c. As a result of controlling exposure through the use of mitigation measures or through the use of institutional or engineering controls, has the regulatory agency determined that the concentrations of petroleum constituents in soil will have no significant risk of adversely affecting human health?	☐ Yes	☐ No

(Media Specific Criteria for Direct Contact and Outdoor Air Exposure Evaluation Continued on Next Page)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - DIRECT CONTACT AND OUTDOOR AIR EXPOSURE

Maximum Concentrations of Petroleum Constituents in Soil (Scenario a)

Table 1 – Concentrations of Petroleum Constituents in Soil That will Have No Significant Risk of Adversely Affecting Human Health

Chemical	Residential		Commercial/Industrial		Utility Worker
	0 to 5 ft bgs (mg/kg)	5 to 10 ft bgs (mg/kg)	0 to 5 ft bgs (mg/kg)	5 to 10 ft bgs (mg/kg)	0 to 10 ft bgs (mg/kg)
Benzene	**1.9**	**2.8**	**8.2**	**12**	**14**
Max Soil Conc[1]	*Insert*	*Insert*	2.5 *Insert*	5.5 *Insert*	*Insert*
Ethylbenzene	**21**	**32**	**89**	**134**	**314**
Max Soil Conc[1]	*Insert*	*Insert*	3.5 *Insert*	5.5 *Insert*	*Insert*
Napthalene	**9.7**	**9.7**	**45**	**45**	**219**
Max Soil Conc[1]	*Insert*	*Insert*	N/A *Insert*	N/A *Insert*	*Insert*
PAH	**0.063**	**NA**	**0.68**	**NA**	**4.5**
Max Soil Conc[1]	*Insert*	*Insert*	N/A *Insert*	N/A *Insert*	*Insert*

Notes:

1. The maximum concentrations of petroleum constituents in soil should be compared to those listed in Table 1 (Technical Justification for Soil Screening Levels for Direct Contact and Outdoor Air Exposure Pathways, SWRCB)
2. Based on the seven carcinogenic poly-aromatic hydrocarbons (PAHs) as benzo(a)pyrene toxicity equivalent [BaPe]. Sampling and analysis for PAHs is only necessary where soil is affected by either waste oil or Bunker C oil.

Are both the 0 to 5 feet bgs concentration limits 5 to 10 feet bgs concentration limits for the appropriate site classification satisfied?				☒ **Yes**	☐ **No**	☐ **NE**
Residential: 0 to 5 feet bgs	☐ Yes	☐ No	☐ NE			
Residential: 5 to 10 feet bgs	☐ Yes	☐ No	☐ NE			
Commercial/Industrial: 0 to 5 feet bgs	☒ Yes	☐ No	☐ NE			
Commercial/Industrial: 5 to 10 feet bgs	☒ Yes	☐ No	☐ NE			
If exposure to construction or utility trench workers is reasonably anticipated, are the concentration limits for the Utility Worker satisfied?				☒ **Yes**	☐ **No**	☐ **NE**
Have the requirements for using the screening levels in Table 1 been satisfied (i.e., have the model assumptions presented in the SWRCB document entitled *"Technical Justification for Soil Screening Levels for Direct Contact and Outdoor Air Exposure Pathways"* been met?				☒ **Yes**	☐ **No**	☐ **NE**
Is the area of impacted soil where a particular exposure occurs ≤ 82 feet by 82 feet?	☐ Yes	☒ No	☐ NE			
Is the receptor located at the downgradient edge for inhalation exposure?	☐ Yes	☒ No	☐ NE			
Is the wind speed < 2.25 meters per second (7.38 feet per second) on average?	☐ Yes	☒ No	☐ NE			
Are there different exposure scenarios than residential, commercial/industrial, utility worker) at the site?	☐ Yes	☒ No	☐ NE			

(LTCP Media Specific Criteria for Direct Contact and Outdoor Air Exposure Evaluation Continued on Next Page)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

Additional Questions FOR Sites That Do Not Meet the LTCP Criteria

Indicate only those conditions that do not meet the Direct Contact and Outdoor Air Exposure scenarios:

Exposure Type:	
Residential	☐ Yes
Commercial	☐ Yes
Utility Worker	☐ Yes
Petroleum Constituents in Soil:	
≤ 5 feet bgs	☐ Yes
> 5 feet bgs and ≤ 10 feet bgs	☐ Yes
Unknown	☐ Yes
Soil Concentrations of Benzene:	
> 1.9 mg/kg and ≤ 2.8 mg/kg	☐ Yes
> 2.8 mg/kg and ≤ 8.2 mg/kg	☐ Yes
> 8.2 mg/kg and ≤ 12 mg/kg	☐ Yes
> 12 mg/kg and ≤ 14 mg/kg	☐
> 14 mg/kg	☐ Yes
Unknown	☐ Yes
Soil Concentrations of Ethylbenzene:	
> 21 mg/kg and ≤ 32 mg/kg	☐ Yes
> 32 mg/kg and ≤ 89 mg/kg	☐ Yes
> 89 mg/kg and ≤ 134 mg/kg	☐ Yes
> 134 mg/kg and ≤ 314 mg/kg	☐ Yes
> 314 mg/kg	☐ Yes
Unknown	☐ Yes
Soil Concentrations of Naphthalene:	
> 9.7 mg/kg and ≤ 45 mg/kg	☐ Yes
> 45 mg/kg and ≤ 219 mg/kg	☐ Yes
> 219 mg/kg	☐ Yes
Unknown	☐ Yes
Soil Concentrations of PAH:	
> 0.063 mg/kg and ≤ 0,68 mg/kg	☐ Yes
> 0.68 mg/kg and ≤ 4.5 mg/kg	☐ Yes
> 4.5 mg/kg	☐ Yes
Unknown	☐
Area of Impacted Soil:	
Area of Impacted Soil > 82 by 82 Feet	☒ Yes
Unknown	☐ Yes

This case should be closed in spite of <u>not</u> meeting policy criteria: List Reasons: The impacted area of soil is larger than 82x82ft, but the plume is well contained within the site. The local wind speed is greater than 2.25 m/s, but this is typical of the entire San Francisco Bay area.	☒ Yes

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

LOW THREAT CLOSURE POLICY
MEDIA SPECIFIC CRITERIA - DIRECT CONTACT AND OUTDOOR AIR EXPOSURE

CSM Minimum Required Information

Has the minimum required information listed below been provided in the CSM for evaluation of case compliance with following Media Specific Criteria for Direct Contact and Outdoor Air Exposure?	**☒ Yes**	**☐ No**	
Sufficient data to demonstrate that site characterization is complete for the prescribed depth ranges of 0 to 5 feet and 5 to 10 feet bgs in order to assess potential direct contact and outdoor air exposure?	☒ Yes	☐ No	☐ NA
Figures and tables showing the soil data for each of the prescribed depth ranges with a comparison to the screening levels for each exposure scenario?	☒ Yes	☐ No	☐ NA
Analytical data for all chemicals of concern including total petroleum hydrocarbons in order and an assessment of whether unique conditions not considered in the Policy may exist at the site?	☒ Yes	☐ No	☐ NA
Evaluation of data for data representativeness, quality, spatial distribution relative to current or potential receptors and sources, and temporal variability?	☐ Yes	☒ No	☐ NA
Description of the current and expected future land use, redevelopment, or construction for the site?	☒ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA
	☐ Yes	☐ No	☐ NA

(Refer to Att. 1 - CSM Detailed Evaluation Checklist for Identification of Data Gaps)

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable

Direct Contact and Outdoor Air Exposure: Case Notes

End of Direct Contact and Outdoor Air Exposure Criteria Evaluation

KEY: NE = Identified Data Gap - Needs Further Evaluation NA = Not Applicable