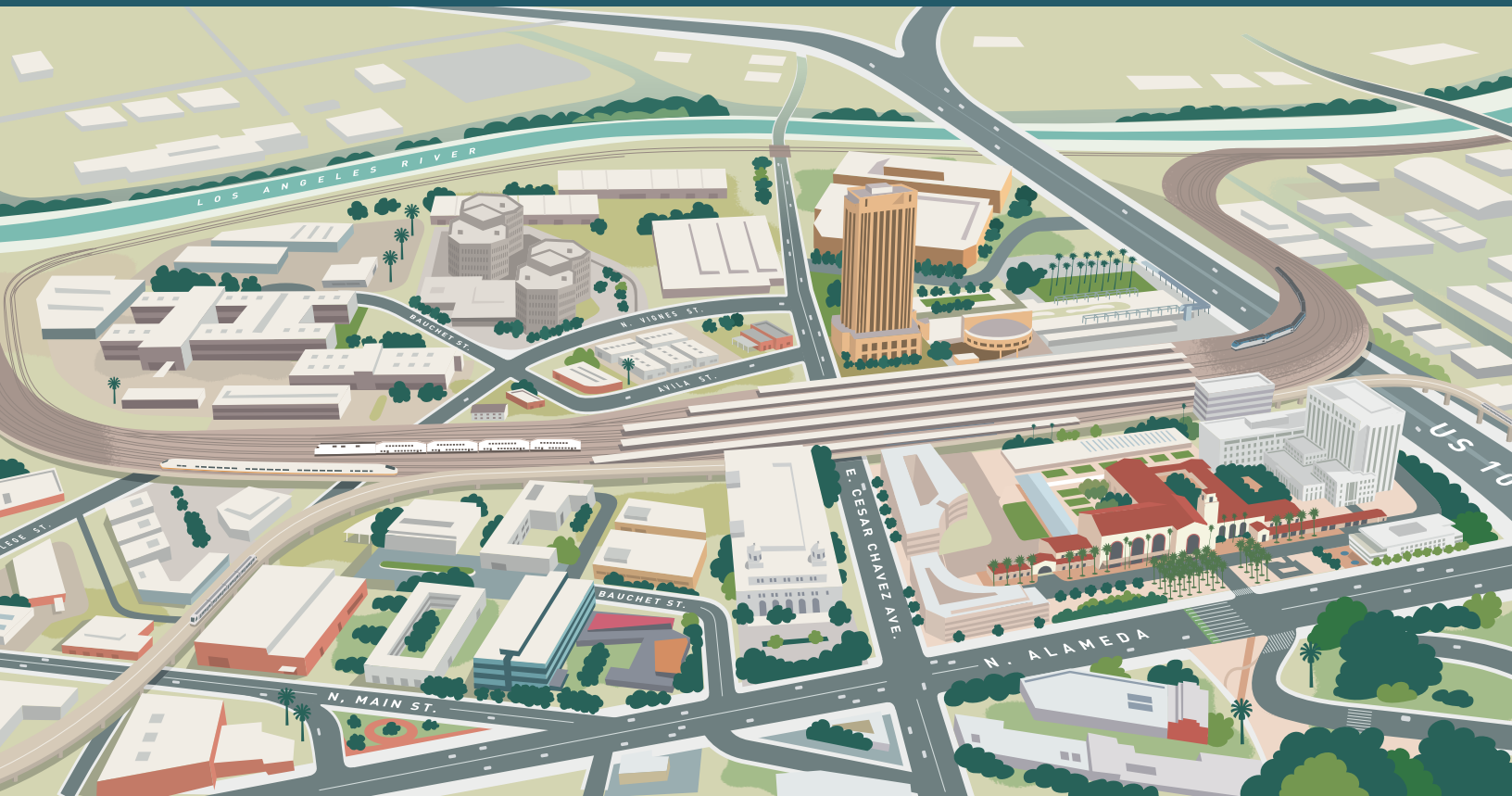


October 2016



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Section 1 Introduction

This monitoring report presents a summary of groundwater and soil-gas monitoring activities conducted at Installation Restoration Program (IRP) Site 1, Naval and Marine Corps Reserve Center, Los Angeles (NMCRCLA), Los Angeles, California. Accord MACTEC 8A JV (AM8AJV), comprised of Accord Engineering, Inc., and AMEC Foster Wheeler (formerly MACTEC Engineering and Consulting, Inc.), has prepared this report on behalf of the United States Department of the Navy (DON), Naval Facilities Engineering Command Southwest, in accordance with Contract Number N62473-10-D-0814, Contract Task Order Number 0037.

DON is the lead federal agency on this project. The lead regulatory agency is the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB), with support from the State of California Department of Toxic Substances Control (DTSC).

1.1 Purpose and Objective

The objectives of the groundwater and soil-gas monitoring are as follows:

1. Evaluate the trends and stability of contaminants, mainly the 1,2-dichloroethane (1,2-DCA) and benzene concentrations in groundwater.
2. Evaluate the trends and stability of contaminants, mainly the tetrachloroethene (PCE) concentrations in soil-gas to determine if human health risks exist at the site.
3. If PCE concentration continues to persist in the downgradient soil-gas monitoring wells, the source of the PCE will be evaluated at the conclusion of the second semi-annual monitoring event.

In accordance with the Final Work Plan Addendum (AM8AJV 2014), upon the completion of the monitoring activities, one of the following recommendations is to be made in this groundwater and soil-gas monitoring report.

- Prepare a Corrective Action Plan and continue groundwater monitoring.
- Request regulatory site closure and “No Further Action” (NFA) status from LARWQCB.

Soil-gas samples collected from seven locations during the investigation were analyzed for volatile organic compounds (VOCs) using United States Environmental Protection Agency (U.S. EPA) Method TO-15.

Parameters evaluated during groundwater monitoring included total petroleum hydrocarbons (TPH) as gasoline (TPH-g) and diesel (TPH-d), VOCs, dissolved metals, and natural attenuation parameters (chloride, sulfate, ammonia, orthophosphate, alkalinity, methane, ethane, ethene, carbon dioxide, total Kjeldahl nitrogen, pH, total dissolved solids [TDS], and specific conductivity). 1,2-Dibromomethane, a known additive to leaded gasoline, was analyzed separately using U.S. EPA Method 5030B/8260 SIM, which has a detection limit below 0.05 microgram per liter ($\mu\text{g/L}$) to meet the maximum contaminant level (MCL) threshold.

This annual report includes an assessment for potential impacts to human health for both on- and off-site tenants. An evaluation of natural attenuation processes on contaminant concentration trends and plume stability has also been performed.

1.2 Remedial Goals

In accordance with the California Regional Water Quality Control Board, San Francisco Bay Region (SFBRWQCB 1996) *Interim Guidance on Required Cleanup at Low-Risk Fuel Sites* referenced by the Site Cleanup Program (Appendix E), the following criteria must be met to achieve regulatory site closure with respect to a low-risk groundwater case.

1. The leak has been stopped and ongoing sources, including free product, have been removed or remediated.
2. The site has been adequately characterized.
3. The dissolved hydrocarbon plume is not migrating.
4. No water wells, deeper drinking-water aquifers, surface water, or other sensitive receptors are likely to be impacted.
5. The site presents no significant risk to human health.
6. The site presents no significant risk to the environment.

Since IRP Site 1 is located more than 1,000 feet from a surface water body, there are no established regulatory ecological screening criteria. This project does not prescribe project-specific screening criteria; however, the following project action limits are used for informational purposes and comparison to analytical laboratory reporting limits only:

- Groundwater samples – California Department of Public Health “Chemicals with Maximum Contaminant Levels (MCLs) in Title 22 of the *California Code of Regulations* §64444 – Organic Chemicals,” August 10, 2015.
- Groundwater samples (for Total Petroleum Hydrocarbons as gasoline [TPH-g] and diesel [TPH-d] only) – California Regional Water Quality Control Board, San Francisco Bay Region 2013 Tier 1 Environmental Screening Levels (ESLs), December 2013.
- Soil-gas samples – Office of Environmental Health Hazard Assessment “California Human Health Screening Levels (CHHSLs) for Soil-Gas-Screening Numbers for Volatile Chemicals below Buildings Constructed With Engineered Fill below Sub-Slab Gravel (Table 2, Commercial/Industrial Scenario),” September 23, 2010.

The MCLs for groundwater and CHHSLs for soil gas are listed in Worksheet #15 of the Final Sampling and Analysis Plan Addendum (AM8AJV 2014). The SFBRWQCB ESLs for TPH-g and TPH-d have been included as a reference per request from the LA RWQCB.

Section 2 Site Background

This section provides descriptions on the location, conditions, previous studies, and cleanup requirements for IRP Site 1.

2.1 Site Description

NMCRCLA is located at 1700 Stadium Way, Los Angeles, California, on approximately 6 acres of land. The site is situated approximately 1 mile northeast of downtown Los Angeles. Elysian Park bounds NMCRCLA to the north, Dodger Stadium is to the northeast, and residential housing extends from the west to southeast. IRP Site 1 consists of a former vehicle service station and a vehicle lube rack area of NMCRCLA. A regional map, site location map, and site map are presented as Figures 1, 2, and 3, respectively. The property history, service station/gasoline underground storage tank (UST) history, and vehicle lube rack history are discussed below.

2.1.1 Property History

NMCRCLA was constructed from 1938 to 1940 by the Works Progress Administration and was commissioned in 1940. The mission of NMCRCLA was to provide administrative, training, and logistics support to reserve units. A large portion of the Administrative Building was remodeled after a fire in 1980. The NMCRCLA property has been host to a number of tenants over the years including the Los Angeles Police Department, the Los Angeles Fire Department, the United States Internal Revenue Service, and the Med Fly Control Unit of the U.S. Department of Agriculture. Currently, no DON or Marine Corps activities are conducted at NMCRCLA. As of June 2015, the property was permanently transferred by the DON to the City of Los Angeles Fire Department.

2.1.2 Service Station/Gasoline UST History

A former service station was built in 1943 and was used for fueling vehicles on site. The aboveground portion of the service station has been removed. A gasoline UST was associated with the former service station. The capacity of the gasoline UST was 1,000 gallons, but the type of tank is unknown (Navy Public Works Center [PWC] 1996). It is assumed that this tank was used exclusively for storage of gasoline. There are no documents or drawings that describe the location of the gasoline UST or that verify the abandonment or removal of the gasoline UST and its associated piping.

It was surmised that the gasoline UST was located between the middle of the wall of the current vehicle maintenance building and the vehicle lube rack concrete slab, running north to just before the containment wall (PWC 1996). A geophysical survey conducted in 1996 to identify the UST was not conclusive because of interference possibly caused by metal from the vehicle lube rack and from the vehicle maintenance building. The survey did not identify any reflection typical of a UST in the suspected area. It did identify a possible excavation area, although the results were not conclusive (PWC 1996).

A secondary survey was conducted by CDM Federal Program Corporation (CDM) in 1999 as part of the site inspection (SI) activities. That survey yielded similar results to the first survey,

citing problems with electromagnetic interference from the metals on the lube rack and reinforced concrete (CDM 2002).

2.1.3 Vehicle Lube Rack Area

The vehicle lube rack was originally used for vehicle maintenance activities. The lube rack consisted of metal racks for vehicles to drive onto. A submerged pit approximately 3 feet deep, 35 feet long, and 4 feet wide contained a sump that drained directly to a waste-oil UST through subsurface piping. Between 1987 and 1989, the site was temporarily used as the hazardous waste storage area (BNI 1995). Hazardous substances were stored in 55-gallon drums on the vehicle lube rack and included used oil, solvents, hydraulic fluid, and other new and used vehicle maintenance products. The vehicle lube rack did not have secondary containment, and it was noted in the Environmental Compliance Evaluation performed by the DON in 1989 that a significant amount of fluids had leaked from these drums (BNI 1995). The vehicle lube rack sump drained directly to the waste-oil UST (PWC 1996).

The waste-oil UST was a 2,000-gallon, double-walled steel tank used for storage of used oil from preventative maintenance performed on vehicles (PWC 1996). This waste-oil UST was located approximately 10 feet southeast of the vehicle lube rack. The waste-oil UST was closed and removed on November 9, 1994, under the supervision of the Los Angeles Fire Department. Some of the excavated soil from the tank removal was contaminated with petroleum products and remediated off site (Amwest 1995).

2.1.4 Oil-Water Separator

The oil-water separator (OWS) is located southeast of the vehicle wash rack. The OWS receives an oily water mixture from the nearby vehicle wash rack. The vehicle wash rack area is bermed and is approximately 20 feet long by 20 feet wide. This area centrally drains into a subsurface pipe that connects to the OWS, which is a double-walled, steel, three-stage separator with a total capacity of 1,000 gallons. The OWS is connected to the Los Angeles City Bureau of Sanitation sanitary sewer line located on Bernard Street approximately 20 feet south of the southern gate. At the point where water leaves NMCRCLA property, the Los Angeles City Bureau of Sanitation diverts the flow to the Hyperion Water Reclamation Plant for treatment.

A Notice of Intent to operate the OWS was filed with DTSC on May 7, 1992, followed by a revised filing on March 3, 1993. A permit fee for Conditionally Exempt Small Quantity Treatment (Tier V) was submitted to DTSC along with the 1993 Notice of Intent.

A site survey was performed to facilitate hazardous waste tiered permitting for hazardous materials at NMCRCLA. During the survey, influent from the OWS was sampled and analyzed for hazardous characteristics. The analytical results indicated the influent was not hazardous. The OWS is currently not in operation and an on-site inspection on September 6, 2013, confirmed that the OWS is in good condition, but will require regular maintenance.

2.2 Geologic Setting

NMCRCLA is located in Chavez Ravine, in the hilly terrain of Elysian Hills. These hills are bounded by the Santa Monica Mountains to the north and west, the Los Angeles Narrows and

Repetto Hills to the east, and the eastern margin of the central block of the Los Angeles Basin to the south (BNI 1995).

The lube rack area is located at an elevation of approximately 400 feet above mean sea level. IRP Site 1 is located on the middle level of three graded terraces on the property (Figure 3). Because of these engineered terraces at NMCRCLA, elevation on site ranges from approximately 380 feet to 450 feet above mean sea level. A large hill is located immediately to the northeast of the lube rack area (Figure 3). The surrounding hills within a mile of the site are situated approximately 700 feet above mean sea level.

Continued movement of the Elysian Hills anticline, which is located on the southerly side of the Los Angeles Narrows, may have caused the “reverse gradient” on the base of the water-bearing series in the Los Angeles Narrows area (State Water Rights Board 1962). The NMCRCLA site is underlain by a thin layer of sand and clay of Quaternary alluvium, which is underlain by sandstone with minor amounts of shale from the Miocene Epoch Topanga and Puente formations. Both of these formations are steeply tilted and dip to the south. The Quaternary sediments resulted from erosion from the top of canyon. During the waste-oil UST excavation, the subsurface investigation, and the SI, site observations were consistent with these findings.

2.3 Hydrogeologic Setting

NMCRCLA is located adjacent to the mouth of the Los Angeles Narrows, where the Los Angeles River enters the Los Angeles Forebay area of the Central Groundwater Basin. Results of numerous groundwater investigations within a 1-mile radius of NMCRCLA on file with LARWQCB indicate that the groundwater flow is to the south. South of the site, the depth to groundwater is approximately 17 to 25 feet below ground surface (bgs) (BNI 1995), but at NMCRCLA, groundwater is deeper because of its location in the hills. Groundwater was identified at a depth of approximately 30 feet bgs during the SI. Because of the pressure head, the water level rose to approximately 24 feet bgs in the wells installed during the SI (CDM 2002).

There are no known potable or industrial water supply wells located within a 1-mile radius of NMCRCLA. The nearest known potable water well (2772E) is located 1.25 miles northeast of the site near the intersection of North Figueroa Street and North San Fernando Road (LA DPW 2015).

The groundwater flow direction, calculated based on water levels measured in the wells during the SI, is to the southeast (CDM 2002). The groundwater flow direction has been consistent through the years, and the same was documented during the August 2013 and February 2014 monitoring events.

Based on general water chemistry results from water samples collected during the SI and subsequent groundwater monitoring events, groundwater is generally not very suitable for drinking-water purposes. However, LARWQCB considers all groundwater in the Los Angeles Basin as potential drinking water.

2.4 Previous Investigations

Several environmental investigations were conducted at NMCRCCLA IRP Site 1 between 1994 and 2005: (1) an SI and removal of a waste-oil tank and associated sampling in 1994 (Amwest 1995), (2) an Environmental Baseline Study (EBS) in 1995 (BNI 1995), (3) a geophysical and subsurface soil investigation in 1996 (PWC 1996), (4) an SI from 1999 to 2000 (CDM 1999, 2000, 2002), and (5) an updated EBS in 2005 (DON 2005).

2.4.1 Waste-Oil UST Removal (1994)

A waste-oil UST, located 10 feet southeast of the lube rack, was reportedly removed in November 1994 (Amwest 1995). Soil samples were collected from two locations below the excavated tank and from two locations in the stockpiled soil. The excavated soil was characterized and properly disposed of off site due to the high concentrations of total recoverable petroleum hydrocarbons (TRPH) detected in the samples of the excavated soil. TRPH was not detected in the soil samples collected from the bottom of the excavation pit; therefore, this soil was left in place (Amwest 1995).

2.4.2 Environmental Baseline Study (1995)

The 1995 EBS was prepared as the start of the property transfer process under the DON's Community Environmental Response Facilitation Act, which calls for early identification of property suitable for transfer. The EBS concluded that there were two areas at NMCRCCLA categorized as Type 7 (areas that are unevaluated or require additional evaluation): (1) the vehicle lube rack area because "hazardous materials formerly stored in the Lube Rack Area could have potentially been released into the subsurface from past storage practices" and (2) former UST and service station because there was no confirmation that the UST had been removed (BNI 1995).

2.4.3 Geophysical and Subsurface Soil Investigation (1995–96)

PWC (1996) performed a geophysical survey and subsurface soil sampling in late 1995 and 1996. The geophysical survey was performed on December 27, 1995, to identify the location of the UST (or its former location if it had been removed). It consisted of a ground-penetrating radar survey near the lube rack. A typical reflection of a UST was not detected; however, an indication of a soil disturbance between the lube rack and vehicle maintenance building suggested that an excavation might have occurred in this area. Overall, the results were not conclusive to determine whether the UST had been removed (PWC 1996).

Following the geophysical survey, PWC (1996) collected soil samples by direct-push methods at five locations in and around the lube rack. Samples were collected at different depths at each boring location, ranging from 2 to 19 feet bgs. All soil samples were analyzed for TPH including TRPH; VOCs including benzene, toluene, ethylbenzene, xylenes, and halogenated hydrocarbons; and organic lead.

Soil samples collected between the lube rack and building indicated gasoline contamination. The deepest sample (19 feet bgs) showed the highest concentrations of TPH (2,462 milligrams per kilogram), TRPH (3,760 milligrams per kilogram), and benzene, toluene, ethylbenzene, and xylenes at various elevated concentrations (PWC 1996; CDM 2002). PWC (1996) recommended

that several more borings be advanced to further assess the extent of contamination and that a monitoring well be installed to allow assessment of potential impacts to groundwater (PWC 1996).

2.4.4 Site Inspection (1999–2000)

CDM (1999, 2000, 2002) conducted an SI from October 1999 to March 2000. The investigation was accomplished using a two-phased approach so that the extent of contamination could be efficiently delineated. This approach allowed for assessment of the first phase of analytical results, followed by strategic placement of the second phase samples (CDM 2002). Phase I was performed from October 27 to November 16, 1999, and Phase II was performed from January 25 to March 23, 2000.

Two groundwater sampling events were conducted during the SI. Phase I sampling was conducted from November 2 to 16, 1999, and included groundwater sampling at five groundwater monitoring wells and three temporary piezometers. Phase II sampling was conducted from January 25 to February 1, 2000, and included groundwater sampling from two new groundwater monitoring wells and four piezometers installed for Phase II and the resampling of three wells (at the request of DTSC) installed during Phase I (CDM 2002).

The results of groundwater analysis showed that concentrations of TDS, chloride, and sulfate for the majority of the wells exceeded their respective secondary MCLs, indicating that the groundwater beneath the site is unsuitable for drinking-water purposes. The elevated concentrations of TDS, chloride, and sulfate could be attributed to natural attenuation processes.

2.4.5 Updated Environmental Baseline Study (2005)

Following the SI, the 1995 EBS was updated with the 2005 EBS, prepared by the DON (2005). Based on the findings of the SI and quarterly groundwater sampling, the 2005 EBS recategorized the two Type 7 areas identified in the 1995 EBS as Type 2 areas where only release or disposal of petroleum products has occurred (DON 2005).

2.4.6 Groundwater Monitoring (2005–10)

Between 2005 and 2006, MARRS Services, Inc. (MARRS 2005a,b,c; 2006) conducted four quarterly groundwater monitoring events. Additional groundwater monitoring events were performed in October 2006, April 2007 (MARRS 2007), and July 2010 (MARRS 2010a,b). Results of these events indicated that VOCs, including 1,2-dichloroethane (1,2-DCA), benzene, and chloroform, remained in the groundwater at trace levels and that 1,2-DCA was not fully delineated in the downgradient direction (MARRS 2010b). These three contaminants were identified as the primary contaminants of potential concern (COPCs) and the driving force for site closure.

2.4.7 Soil-Gas Monitoring (2010)

Risk to human health was assessed by collecting one round of soil-gas samples in July 2010. Results indicated the presence of VOCs in all the samples, although they were below the established action levels and posed no human health risks based on the Upward Vapor Risk

Assessment Report presented as Appendix D of the *Final Groundwater and Soil-Gas Monitoring Report, July 2010 Sampling Event* (MARRS 2010b).

The Mann-Kendall (MK) statistical analysis of the three primary COPCs (1,2-DCA, benzene, and chloroform) indicated either stable or decreasing trends in all groundwater monitoring wells except MW-01. The results for groundwater monitoring well MW-01 for the July 2010 monitoring event showed a decrease in absolute concentrations of these analytes, but the MK statistical analysis indicated increasing trends for 1,2-DCA and benzene. The decrease in absolute concentrations of these analytes indicates that the natural attenuation is active at groundwater monitoring well MW-01 and the other groundwater monitoring wells. A summary of historical COPC data is presented in Table 6.

Following the 2010 groundwater and soil-gas monitoring event, the DON asked for site closure and NFA. However, LARWQCB requested additional groundwater and soil-gas monitoring to assess the site in the downgradient direction.

2.4.8 Additional Groundwater and Soil-Gas Monitoring (2012–13)

In August 2012, ABC Liovin Drilling installed groundwater monitoring well MW08 downgradient from groundwater monitoring wells MW05 and MW06. H&P Mobile Geochemistry, Inc. (H&P) installed soil-gas monitoring wells SG08 through SG14. Two semiannual sampling events were conducted in August 2012 and February 2013. Groundwater analytical data indicated that 1,2-DCA and benzene were the only contaminants detected above MCLs. The soil-gas data indicated that 1,2-DCA, benzene, ethylbenzene, and tetrachloroethene (PCE) were detected above CHHSLs (AM8AJV 2013b). At the conclusion of the two semiannual monitoring events, LARWQCB requested two additional semiannual events to evaluate the concentration trends of contaminants found in both groundwater and soil gas.

Section 3 Groundwater Monitoring

This section describes the groundwater monitoring results from the December 2014 and May 2015 semiannual groundwater monitoring events. Groundwater monitoring consisted of groundwater level measurements, measurement of water quality parameters, and collection of groundwater samples for chemical analysis.

3.1 Groundwater Level Measurement

Table 2 summarizes groundwater level measurements taken on December 11, 2014 and May 19, 2015, prior to sampling the groundwater monitoring wells. Measurements were collected in as short a timeframe as possible to capture a “snapshot” of the potentiometric surface. The presence of free product was not observed in any of the groundwater monitoring wells.

Figure 4 shows the groundwater flow direction on May 19, 2015 which was determined by using the recorded measurements. The groundwater flow direction at the site is to the south under an average horizontal gradient of approximately 0.0192 feet per foot in December 2014 and 0.0186 feet per foot in May 2015 in the south-southeast direction, which is consistent with previous monitoring events.

3.2 Sampling and Analysis

Groundwater samples were collected from all the groundwater monitoring wells associated with the site. Each groundwater monitoring well was purged and monitored according to U.S. EPA low-flow methodology guidelines prior to collection of groundwater samples. A decontaminated bladder pump with dedicated tubing was used for the low-flow purging. Purging flow rates were measured with a plastic graduated cup and ranged from 100 to 500 milliliters per minute. Water level drawdown was measured using an electronic water level meter. Field monitoring parameters (water temperature, pH, oxidation-reduction potential [ORP], electrical conductivity, turbidity measured in Nephelometric turbidity units (NTU), and dissolved oxygen [DO]) were measured using a calibrated water quality meter. Measurements were collected at approximately 4-to-8-minute intervals based on calculated total system volume. Purge flow rate, water level drawdown, and field monitoring parameters were recorded on well sampling logs for both the December 2014 and May 2015 events (Appendix A).

Purging continued until three consecutive readings were within the following ranges:

- pH within ± 0.1 standard unit
- temperature within ± 0.2 degree Celsius
- specific conductance within $\pm 3\%$ micro-ohms per centimeter
- ORP within ± 10 millivolts
- DO within ± 0.3 milligram per liter (mg/L);
- turbidity within $\pm 10\%$ (as NTU) when above 10 NTU

Table 3 summarizes the field parameters for groundwater taken during the December 2014 and May 2015 sampling events.

Groundwater samples were collected from each groundwater monitoring well after indicator parameters stabilized as described above. All samples were collected from the discharge end of

the dedicated tubing and into appropriate laboratory-prepared sample containers. Dissolved metals and orthophosphate samples were field-filtered through a 0.45-micron filter attached to the discharge tubing, then stored in the appropriate laboratory-prepared sample containers. Field quality control (QC) samples (field duplicate, source blank, equipment blanks, and trip blanks), and a laboratory QC sample (matrix spike/matrix spike duplicate) were collected during both monitoring events.

Immediately following sample collection, each container was labeled and placed into resealable plastic bags. The samples were then placed into a sample cooler containing bagged ice. The chain-of-custody (CoC) form was completed during sample collection for each well. The samples were handled under standard CoC procedures (either in possession of the person who sampled or locked in the field support vehicle). The sample coolers were transferred to the EMAX Laboratories, Inc. (EMAX) courier at the site for delivery to the laboratory. The EMAX courier signed the CoC at the time of pickup. Groundwater samples were analyzed for the following:

- VOCs using U.S. EPA Method 8260B
- 1,2-dibromoethane by U.S. EPA Method 8260 SIM
- TPH-d and TPH-g using U.S. EPA Method 8015B
- Dissolved metals (field filtered) using U.S. EPA Methods 6020A/7470A
- Anions (chloride, nitrate, and sulfate) by ion chromatography using U.S. EPA Method 300.0
- Orthophosphate (field filtered) using U.S. EPA Method 365.2
- Alkalinity using U.S. EPA Method 310.1
- Ammonia using U.S. EPA Method 350.2
- Total Kjeldahl nitrogen using U.S. EPA Method 351.3
- Methane, ethane, and ethene according to Kampbell et al. (1989) using U.S. EPA Method RSK-175
- Carbon dioxide using U.S. EPA Method RSK-175M
- TDS using U.S. EPA Method 160.1
- Ferrous iron (Fe^{2+}) using HACH Field Kit No. IR-18C
- Hydrogen sulfide using HACH Field Kit No. HS-C

3.3 Analytical Results

This section summarizes the results of chemical analyses of groundwater samples collected from the seven groundwater monitoring wells at IRP Site 1 during the December 2014 and May 2015 monitoring events. The analytical results for the May 2015 event are summarized in Table 4 and historical analytical results are summarized in Table 6. Results above the MCLs are presented on Figure 5, and the 1,2-DCA plume maps for the December 2014 and May 2015 monitoring events are presented on Figures 7 and 8, respectively. Time-series concentration graphs for TPH-d, TPH-g, and selected VOCs are included as Appendix B. The laboratory and data validation reports are included as Appendix G.

3.3.1 Total Petroleum Hydrocarbons as Diesel and Gasoline

There are no established MCLs for TPH-d and TPH-g. Analytical results were compared to the SFBRWQCB ESLs.

December 2014 monitoring event:

- TPH-d (ESL = 0.1 milligram per liter [mg/L]) in two of the seven groundwater monitoring wells at concentrations ranging from 0.15J (J denotes an estimated value) mg/L (MW07) to 0.59 mg/L (MW08).
- TPH-g was not detected above the ESLs during the December 2014 monitoring event.

May 2015 monitoring event:

- TPH-d and TPH-g were not detected above the ESLs during the May 2015 monitoring event.

3.3.2 Volatile Organic Compounds

VOCs that were detected above MCLs included:

December 2014 monitoring event:

- 1,2-DCA (MCL = 0.5 µg/L) in four of the seven groundwater monitoring wells at concentrations ranging from 1.0 µg/L (MW05) to 3.1 µg/L (MW01).
- Benzene (MCL = 1 µg/L) in one groundwater monitoring well at a concentration of 1.3 µg/L (MW01).

May 2015 monitoring event:

- 1,2-DCA in four of the seven groundwater monitoring wells at concentrations ranging from 0.99J µg/L (MW05) to 2.6 µg/L (MW01).
- Benzene (MCL = 1 µg/L) in one groundwater monitoring well at a concentration of 2.1 µg/L (MW01).

1,2-DCA plume maps for the December 2014 and May 2015 events are respectively shown on Figures 7 and 8.

3.3.3 Dissolved Metals

None of the analytical results exceeded the MCLs during either event.

3.3.4 Dissolved Gases

Table 4 summarizes the analytical results from the May 2015 monitoring event, and Table 6 provides historical analytical results. Dissolved gases are discussed in detail in Section 5.

3.3.5 Anions and General Chemistry

Table 4 summarizes the analytical results from the May 2015 monitoring event, and Table 6 provides historical analytical results. General chemistry results are discussed in detail in Section 5.

3.4 Investigation-Derived Waste

Investigation-derived waste generated during the sampling activities was profiled as nonhazardous waste and was stored on site in U.S. Department of Transportation–approved 55-gallon drums. Belshire Environmental Services, Inc., was subcontracted to dispose of the nonhazardous waste. Copies of the manifests for the December 2014 and May 2015 field activities are included as Appendix D.

Section 4 Soil-Gas Monitoring

This section describes the soil-gas monitoring results from the December 2014 and May 2015 semiannual monitoring events. Soil-gas monitoring was performed in accordance with the DTSC et al. (2012) *Advisory – Active Soil Gas Investigations*. An evaluation of the soil-gas data as they relate to human health risks is presented in the human health risk assessment (HHRA) in Section 6.

4.1 Sampling and Analysis

H&P was subcontracted to perform the soil-gas sample collection. The leak check compound used was helium, which was analyzed both on site using a field helium meter as well as off site in the lab. Prior to sampling, a shut-in test was performed on the connections of the helium shroud to ensure that the fittings in the shroud would not leak helium into the samples. The leak check test for the soil-gas probes was performed after sample collection because the soil formation at the site is prone to vacuum conditions. The deviation in the field sampling procedure was communicated to and approved by both the DON and LARWQCB.

During sampling, helium concentrations within the shroud were maintained above 50%, so if the field readings and/or laboratory analysis for the helium exceeded the 2.5% threshold, it would mean that the sample's quality could be compromised due to a leak in the system. Soil-gas samples were collected in 400-milliliter-capacity Summa canisters with a vacuum pressure at 100 millimeters mercury. The canisters were made of stainless steel, certified clean, and fitted with calibrated flow controllers. The controllers were calibrated for a 200-milliliter-per-minute flow rate. The tubing inside the helium shroud was replaced after each sample was collected and the fittings and new tubing were purged with nitrogen for decontamination. Field QC samples (field duplicates) were collected during both monitoring events.

Immediately following sample collection, each container was labeled and placed into resealable plastic bags. The samples were then placed into a sample cooler. The CoC form was completed during sample collection for each probe. The samples were handled under standard CoC procedures. H&P transported the samples to its lab for analysis.

The soil-gas monitoring activities were performed on December 11, 2014 and May 19, 2015. The soil-gas samples were analyzed for VOCs using U.S. EPA Method TO-15 and helium using ASTM Method D1945M.

4.2 Analytical Results

This section summarizes the results of chemical analyses of soil-gas samples collected from the seven soil-gas probes during the December 2014 and May 2015 monitoring events. The analytical results for the May 2015 event are summarized in Table 5, and historical analytical results are presented in Table 7. Results above the CHHSLs are presented on Figure 6. The laboratory and data validation reports are included as Appendix H.

4.2.1 Helium

All the soil-gas samples were analyzed for helium to detect potential leaks. During the December 2014 monitoring event, one sample, SG13-15-Q4-2014 (10.4%) exceeded the 2.5% threshold.

During the May 2015 monitoring event, all the samples were below the 2.5% threshold. During the December 2014 sample collection at SG13-15, both the shut-in test and leak check passed and therefore no additional samples were collected. However, during the May 2015 sampling event, the H&P field personnel noted that a small crack was found behind the check valve, which could have caused helium to enter the summa canister under high vacuum conditions. The check valve was replaced and the helium results from the May 2015 event was below the 2.5% threshold. The results for sample SG13-15-Q4-2014 have been flagged with a J to indicate estimated values.

4.2.2 Volatile Organic Compounds

VOCs detected above CHHSLs included:

December 2014 monitoring event:

- 1,2-DCA was detected above the CHHSL (360 micrograms per cubic meter [$\mu\text{g}/\text{m}^3$]) in 2 of the 21 sample locations at concentrations ranging from 1,300 $\mu\text{g}/\text{m}^3$ (SG12-10) to 2,300 $\mu\text{g}/\text{m}^3$ (SG12-15).
- Benzene was detected above the CHHSL (280 $\mu\text{g}/\text{m}^3$) in 1 of the 21 sample locations at a concentration of 350 $\mu\text{g}/\text{m}^3$ (SG12-15).
- Ethylbenzene was detected above the CHHSL (3,600 $\mu\text{g}/\text{m}^3$) in 1 of the 21 sample locations at a concentration of 15,000 $\mu\text{g}/\text{m}^3$ (SG14-15).

May 2015 monitoring event:

- 1,2-DCA was detected above the CHHSL (360 $\mu\text{g}/\text{m}^3$) in 3 of the 21 sample locations at concentrations ranging from 850J $\mu\text{g}/\text{m}^3$ (SG13-15) to 2,000 $\mu\text{g}/\text{m}^3$ (SG12-15).
- Benzene was detected above the CHHSL (280 $\mu\text{g}/\text{m}^3$) in 1 of the 21 sample locations at a concentration of 1,400 $\mu\text{g}/\text{m}^3$ (SG14-15).

Section 5 Data Evaluation

This section presents an evaluation of the data collected during the May 2014 and previous nine groundwater monitoring events. Section 5.1 discusses natural attenuation and presents lines of evidence that site conditions are favorable for natural attenuation to occur or may be occurring at the site. Section 5.2 discusses the off-site migration of the COPCs.

The data evaluation was performed to address the decision rules developed in the Final Work Plan Addendum (AM8AJV 2014) in accordance with the U.S. EPA (2000) seven-step data quality objective (DQO) process. Evaluation of groundwater data includes sample results from the monitoring events below:

- January 2006
- August 2012
- December 2014
- October 2006
- February 2013
- May 2015
- April 2007
- August 2013
- July 2010
- February 2014

5.1 Natural Attenuation

This section provides an overview of natural attenuation and a discussion of direct and indirect indicators of natural attenuation with respect to petroleum hydrocarbon constituents at IRP Site 1.

Natural attenuation refers to a process that relies on naturally occurring, in situ processes (such as biodegradation, chemical transformation, volatilization, dilution, dispersion, and adsorption) to achieve remedial goals. Under favorable conditions, these natural processes will act without human intervention to reduce the mass, toxicity, mobility, or volume of contaminated soil and groundwater. Natural attenuation through biodegradation is considered a destructive mechanism since a net reduction of contaminant mass is achieved. Volatilization, mixing, diffusion, and adsorption are considered nondestructive since no net loss of contaminant mass occurs.

Petroleum hydrocarbons and their constituents are generally biodegradable as long as indigenous microorganisms have an adequate supply of nutrients and electron acceptors and biological activity is not inhibited by substances toxic to the organisms. A comprehensive guidance compiled by the U.S. Air Force Center for Environmental Excellence indicates that “hydrocarbon-degrading microorganisms are ubiquitous in the subsurface environments and that these microorganisms can degrade a variety of organic compounds, including components of gasoline, kerosene, diesel, jet fuel, and many other petroleum hydrocarbons” (Wiedemeier et al. 1999).

In general, aerobic biodegradation tends to occur at the fringe of the dissolved plume and consumes oxygen, which, if not replaced, can limit the effectiveness of further aerobic biodegradation. Anaerobic biodegradation is predominant at the core of the plume and occurs much slower than aerobic biodegradation. The rate of oxygen depletion due to microbial metabolism usually exceeds the rate that oxygen is replenished to the system. This will typically occur within the core of the plume, forcing anaerobic biodegradation to dominate. Once oxygen

is depleted, an alternative electron acceptor and a microorganism capable of using the alternative electron acceptor must be available for biodegradation to proceed.

5.1.1 Indicators of Natural Attenuation

Indications that natural attenuation is occurring at a site are provided by direct evidence (primary lines of evidence) and indirect evidence (secondary lines of evidence).

Direct evidence that natural attenuation is occurring at a site is provided by monitoring contaminant concentrations over time and statistically evaluating data to assess contaminant concentration trends. These contaminant concentration trends will indicate whether the dissolved phase plume is expanding, stable, or shrinking.

Indirect evidence that natural attenuation is occurring or that site conditions are favorable for natural attenuation to occur is provided by assessing geochemical parameters. Geochemical parameters typically include:

- electron acceptors
- metabolic byproducts
- alkalinity
- ORP

5.1.1.1 Electron Acceptors

An electron acceptor is a compound that receives or accepts an electron from an electron donor during cellular respiration. The electron acceptor is reduced and the electron donor is oxidized. Examples of acceptors include oxygen, nitrate, iron (III), manganese (IV), sulfate, and carbon dioxide. These reactions are of interest not only because they allow organisms to obtain energy, but also because they are involved in the natural biodegradation of organic contaminants. Measuring the loss of electron acceptors can provide indirect evidence that natural attenuation is occurring.

5.1.1.2 Metabolic Byproducts

Metabolic byproducts such as iron (II), or ferrous iron, and methane are indicators of natural attenuation. Ferrous iron is an indication of reducing (anaerobic) conditions and microbial activity.

The presence of dissolved gases, such as methane, ethane, ethene, and carbon dioxide may indicate biodegradation under anaerobic conditions. Methane and carbon dioxide in an aquifer suggests that biodegradation of organic matter is occurring via methanogenesis. Methanogenesis represents the last in a series of reactions where anaerobic microbes sequentially use DO, nitrate, manganese, iron, sulfate, and carbon dioxide to oxidize organic matter, producing methane as a byproduct. Therefore, a presence of methane in groundwater is strongly indicative of reducing conditions.

5.1.1.3 Alkalinity

Changes in alkalinity concentrations are an indication of microbial activity as well and can be expected to increase across a site where biological activity is occurring. Alkalinity reflects the buffering capacity of groundwater and is most influenced by carbon dioxide content. Carbon

dioxide in the subsurface originates from the dissolution of carbonates in the aquifer, infiltration of atmospheric carbon dioxide, and microbial respiration.

5.1.1.4 ORP

ORP is a measurement of the oxidizing and reducing nature of water. ORP changes in groundwater are usually mediated by biological activity. Biodegradation rates influence and depend on ORP (Eh). The lower the Eh, the more reducing and anaerobic the environment. Knowing the Eh within the plume can also assist in estimating the extent of the plume. Eh values taken from within the plume with biological activity will be lower than values upgradient and outside the plume.

5.1.2 Direct Evidence for Natural Attenuation

The following discusses the direct evidence (primary lines of evidence) that natural attenuation is occurring at IRP Site 1.

The MK statistical test was used to assess if contaminant concentration trends at the site are decreasing, remaining stable, or increasing. The MK statistical test can be used with a minimum of four rounds of sampling results. However, the test is not able to determine the rate at which the concentrations are changing over time. The MK test was used to statistically calculate the contaminant concentration trends at the 80% and 90% confidence levels. If no trends were indicated at the 80% and 90% confidence levels, the stability test was performed.

Selected analytical results from seven existing on-site groundwater monitoring wells and abandoned groundwater monitoring well MW04B were used in the statistical evaluation of contaminant concentration trends. The selected contaminants were TPH-d, TPH-g, 1,2-DCA, 1,2-dichloropropane (1,2-DCPA), benzene, and chloroform, all of which have exhibited elevated concentrations throughout the history of the site. The data from the 10 most recent sampling events were used to performed the MK statistical test, and the MK statistical worksheets are presented in Appendix C.

Results of the MK statistical tests on data from the groundwater monitoring wells indicate the following:

MW01

- TPH-d, TPH-g, 1,2-DCA, 1,2-DCPA, and chloroform concentrations showed decreasing trends at the 80% and 90% confidence levels.
- Benzene concentrations showed no trends (non-stable) at the 80% and 90% confidence levels.

MW02

- TPH-d, TPH-g, 1,2-DCA, 1,2-DCPA, benzene, and chloroform concentrations showed decreasing trends at the 80% and 90% confidence levels.

MW03

- TPH-d, TPH-g, 1,2-DCA, 1,2-DCPA, benzene, and chloroform concentrations showed decreasing trends at the 80% and 90% confidence levels.

MW04B

- TPH-d, TPH-g, 1,2-DCA, 1,2-DCPA, and benzene concentrations showed no trends (stable) at the 80% and 90% confidence levels.
- Chloroform concentrations showed decreasing trends at the 80% and 90% confidence levels.

MW05

- TPH-d, TPH-g, 1,2-DCA, 1,2-DCPA, benzene, and chloroform concentrations showed decreasing trends at the 80% and 90% confidence levels.

MW06

- TPH-d showed decreasing trend and no trend at the 80% and 90% confidence levels, respectively.
- TPH-g, 1,2-DCPA, benzene, and chloroform concentrations showed decreasing trends at the 80% and 90% confidence levels.
- 1,2-DCA concentrations showed no trends (stable) at the 80% and 90% confidence levels.

MW07

- TPH-d, TPH-g, 1,2-DCA, 1,2-DCPA, benzene, and chloroform concentrations showed decreasing trends at the 80% and 90% confidence levels.

MW08

- TPH-d concentrations showed no trends (non-stable) at the 80% and 90% confidence levels.
- TPH-g and 1,2-DCA concentrations showed decreasing trends at the 80% and 90% confidence levels.
- 1,2-DCPA and Benzene concentrations showed no trends (stable) at the 80% and 90% confidence levels.
- Chloroform showed decreasing trend and no trend at the 80% and 90% confidence levels, respectively.

Time-series concentration graphs are presented in Appendix B.

5.1.3 Indirect Evidence for Natural Attenuation

The following discusses the indirect evidence (secondary lines of evidence) that natural attenuation may be occurring at the site.

Geochemical data from groundwater monitoring wells considered to be outside the petroleum hydrocarbon plume were compared against geochemical data from groundwater monitoring wells within the petroleum hydrocarbon plume. Groundwater monitoring wells outside the plume used for evaluation of geochemical parameters are:

- MW03 – upgradient of the plume
- MW04B – upgradient of the plume
- MW05 – downgradient of the plume
- MW06 – downgradient of the plume
- MW07 – downgradient of the plume
- MW08 – downgradient of the plume

Groundwater monitoring wells within the plume used for evaluation of geochemical parameters are MW01 and MW02.

An evaluation of geochemical data from the site indicates that natural attenuation is occurring at the site, or at least site conditions are favorable for natural attenuation to occur. It appears that the primary mechanism in which natural attenuation may be occurring is oxidation and methanogenesis. Data also indicate that natural attenuation is occurring under anaerobic conditions at the site. The evidence for natural attenuation is summarized in the following discussions.

5.1.3.1 Dissolved Oxygen

In general, DO concentrations less than 1 mg/L generally indicate anaerobic conditions in an aquifer, while DO concentrations greater than 1 mg/L generally indicate aerobic conditions in an aquifer. Historically, DO concentrations outside of the plume, as measured in groundwater monitoring wells MW03 and MW04B, have been slightly greater than DO concentrations measured within or downgradient of the plume, as measured in groundwater monitoring wells MW01, MW02, MW05, MW06, MW07, and MW08.

Over the previous seven sampling events, DO concentrations ranged from approximately 1.08 to 2.35 mg/L and 2.09 to 3.23 mg/L in groundwater monitoring wells MW03 and MW04B respectively, which correlates to aerobic conditions. For groundwater monitoring wells that are within or downgradient of the plume, DO concentrations have mostly remained under 0.5 mg/L, indicating anaerobic conditions.

These data suggest that oxygen levels in the groundwater within the core of the plume (MW01 and MW02) have been slightly depleted. Anaerobic conditions appear to exist within the core of the plume; however, based on DO concentrations in the groundwater outside of the plume, an aerobic aquifer condition is present.

5.1.3.2 Dissolved Gases

The presence of dissolved gases such as carbon dioxide and methane is another indication that biodegradation is occurring under anaerobic conditions. The historical carbon dioxide and methane concentrations in Table 6 show elevated levels in the presence of contaminants within the core of the plume. This indicates that biodegradation is occurring through methanogenesis. There are also indications that natural attenuation is occurring in the downgradient groundwater monitoring wells with the presence of methane in MW05, MW06, MW07, and MW08 over the last six sampling events. Prior to the August 2012 sampling event, methane was only detected twice in these downgradient wells (MW05 and MW07 in 2005).

5.1.3.3 ORP

Historically, ORP values have been lower within and downgradient of the plume. The lower ORP values within the plume are an indication that natural attenuation may be occurring at the site. However, during the December 2014 and May 2015 sampling events, ORP readings appeared to be in similar ranges across the site. This is consistent with the migration of the plume observed over the last six events.

5.1.3.4 Alkalinity

Changes in alkalinity are an indication of microbial activity and can be expected to increase across a site where biological activity is occurring. Table 6 shows alkalinity concentrations have remained relatively stable over the last 13 sampling events, which indicates that natural attenuation is occurring at a very slow pace.

5.2 Off-Site Migration of COPCs

Based on December 2014 and May 2015 groundwater analytical data, 1,2-DCA and benzene were the only contaminants that were detected above the MCLs. The 1,2-DCA plume appears to be stable in both the source area and downgradient wells (Figures 7 and 8). The concentrations of 1,2-DCA across the site over the last six sampling events have remained stable. The benzene plume is concentrated in the source area of the 1,2-DCA plume and has not been detected in any of the downgradient groundwater monitoring wells over the last 13 sampling events.

Section 6 Human Health Risk Assessment

As part of the site investigation at IRP Site 1, an HHRA focusing on just soil-gas was performed to evaluate potential noncancer and cancer risks for current on-site commercial/industrial workers and current off-site residents. An evaluation for future on-site residents was not performed for the December 2014 and May 2015 events, because of the deed restrictions for land use control that was put into place as part of the property transfer. Indoor air concentrations were derived using measured soil-gas data, the Johnson & Ettinger vapor transport model, and conservative default soil and building input parameters.

A HHRA for groundwater and soil was conducted as part of the Site Inspection Report (CDM 2002). The excess lifetime cancer risk (ELCR) for maintenance and industrial worker risk assessment scenarios were below 1×10^{-6} , and the non-cancer Hazard Index (HI) was less than 1.0. Unlikely scenarios, including residential use, groundwater use, and dermal contact to soil, were also included in the HHRA. The ELCR for residential soil exposure scenario for adult and children was 4.6×10^{-6} , and the non-cancer Hazard Index was below 1.0. These risks fell within the National Contingency Plan acceptable risk range of 1×10^{-6} to 1×10^{-4} and Hazard Index less than 1.0. However, the ELCR for residential groundwater exposure for children, which is more conservative than adult, was 5×10^{-5} , and the non-cancer Hazard Index was 6 (NAVFAC SW 2005).

The current HHRA was based on measured soil-gas concentrations collected during the recent monitoring events (December 2014 and May 2015). The HHRA results for these monitoring events are similar to results from the previous four monitoring events (August 2012, February 2013, August 2013, and February 2014), although a continuous downward trend in maximum risks and hazards for each receptor is shown in Table F-5 in Appendix F.

Relative to current site conditions, cumulative potential health risks from vapors migrating from soil-gas to indoor air were evaluated for an onsite commercial/industrial worker and an offsite resident (residences are located adjacent to the site on the southeast boundary). Soil-gas analytical results collected from 5, 10, and 15 feet bgs during the December 2014 and May 2015 field investigations were used to evaluate potential exposure in the HHRA. The corresponding potential health risks are summarized in Table F-5 and as follows:

- **Current Onsite Commercial/Industrial Worker:** The total noncancer HIs for current commercial/industrial indoor air exposure are below the California LUFT risk management threshold of 1 for all soil-gas samples collected on site. The range of total cancer risk predicted for commercial/industrial indoor air exposure is below the California LUFT cancer risk management range of 1×10^{-6} to 1×10^{-4} except for the maximum estimated cancer risk from the 15 feet bgs sample collected in December 2014 nearest the suspected gasoline UST location (SG14). The single detection of 1,2-dichloropropane and 1,4-dioxane in soil-gas probe SG14 contributes to approximately 90 percent of the estimated cancer risk. 1,2-Dichloropropane has not been previously detected and 1,4-dioxane has not been detected since August 2012. The more shallow soil-gas samples collected (5 and 10 feet bgs) from this location are significantly (two to three orders of magnitude) below 1×10^{-6} for both seasonal sampling events. The results indicate that exposure to chemicals in soil-gas should not result in unacceptable cancer risks or noncancer hazards under the conditions evaluated for commercial/industrial exposure. Although the current onsite vehicle maintenance building is approximately 100 by 45 feet in size, the cancer risk estimates represent conservative building conditions (default 30-by-30-foot building) and full-time exposure for 25 years. Therefore, the onsite worker evaluation should be protective of future commercial/industrial workers.
- **Current Offsite Resident:** The total noncancer HIs for current offsite residential indoor air exposure are below the California LUFT risk management threshold of 1 for all soil-gas samples collected on site. The range of total cancer risks predicted for offsite residential indoor air is below the California LUFT cancer risk management range of 1×10^{-6} to 1×10^{-4} . The results indicate that exposure to chemicals in soil-gas should not result in unacceptable cancer risks or noncancer hazards under the conditions evaluated for the offsite residents.

Detailed calculations and discussion of the HHRA findings are presented in Appendix F. Figure 9 shows the locations and values where the ELCR exceeded the 1×10^{-6} threshold.

Section 7 Conclusions and Recommendations

This section presents the conclusions, regulatory closure policy, and recommendations for IRP Site 1 based on the data evaluation presented in Section 5, the HHRA presented in Section 6, and the DQOs for this investigation.

7.1 Conclusions

Statistical analysis of groundwater data for COPCs over that last 10 rounds of groundwater monitoring dating back to January 2006 indicates that there are either decreasing or no concentration trends across the site at the 80% and 90% confidence level.

Natural attenuation appears to be occurring at IRP Site 1 and is supported by both direct and indirect evidence. Direct evidence is provided by the results of statistical trend analysis using the MK statistical test, as discussed in Section 5.1.2. Indirect evidence also indicates that natural attenuation is occurring by comparing of geochemical parameters to concentrations of petroleum hydrocarbons across the site. Data suggest that natural attenuation is occurring through oxidation and methanogenesis, as discussed in Section 5.1.3.

The downgradient extent of the dissolved-phase petroleum hydrocarbon plume has been fully delineated with the exception of 1,2-DCA. 1,2-DCA continued to be detected in downgradient groundwater monitoring well MW08 during both the December 2014 (1.8 µg/L) and May 2015 (1.9 µg/L) events. In comparing recent to historical 1,2-DCA concentrations throughout the site, the concentrations appear to be stable. 1,2-DCA concentration contour maps are presented on Figures 7 and 8 for the December 2014 and May 2015 monitoring events, respectively.

During the December 2014 event, all current and historical soil-gas results were reevaluated against the CHHSLs for Shallow Soil-Gas with Commercial/ Industrial Land Use. As a result, many of the contaminants that previously exceeded the screening criteria are now within acceptable range. Soil-gas analytical results indicate the presence of 1,2-DCA, benzene, and ethylbenzene above the CHHSLs primarily in the source area (SG12 and SG14) at various sample depths. PCE concentrations, which were a concern at SG10-05 during previous monitoring events, have remained stable over the last six events. PCE is also below the CHHSLs based on current evaluation criteria.

Through an evaluation performed in the HHRA, human health risks for current on-site commercial/industrial workers, current off-site residents, and hypothetical future on-site residents are within acceptable ranges. Detailed discussion of the HHRA is presented in Appendix F.

7.2 Interim Guidance on Required Cleanup at Low-Risk Fuel Sites

In accordance with the SFBRWQCB (1996) *Interim Guidance on Required Cleanup at Low-Risk Fuel Sites* referenced by the Site Cleanup Program (Appendix E), the following criteria must be met to achieve regulatory site closure with respect to a low-risk groundwater case.

1. The leak has been stopped and ongoing sources, including free product, have been removed or remediated.

The primary release originated from a presumed 1,000-gallon gasoline UST, but the type of tank is unknown (PWC 1996). It is assumed that this tank was used exclusively for storage of gasoline. There are no documents or drawings that describe the location of the gasoline UST or that verify the abandonment or removal of the gasoline UST and its associated piping. The waste-oil UST, located 10 feet southeast of the lube rack, was reportedly removed in November 1994 (Amwest 1995).

The subsurface geophysical survey performed in August 2012 confirmed the presence of a potential excavation measuring 3 by 5 feet along the eastern wall of the vehicle maintenance building. This finding was consistent with previous subsurface investigations and NFA was recommended to LARWQCB regarding the unidentified UST in the Final Letter Summary Report (AM8AJV 2013a).

Dating back to April 2005, no free product has been observed in any of the groundwater monitoring wells at IRP Site 1.

2. The site has been adequately characterized.

The contents of this report and the Final Letter Summary Report (AM8AJV 2015) provide an updated conceptual site model that assesses the nature, extent, and mobility of the release. Results from the groundwater and soil-gas monitoring indicate contaminant concentrations at the site are stable and/or decreasing.

3. The dissolved hydrocarbon plume is not migrating.

The downgradient extent of the dissolved-phase petroleum hydrocarbon plume has been fully delineated with the exception of 1,2-DCA. 1,2-DCA continued to be detected in downgradient groundwater monitoring well MW08 during both the December 2014 (1.8 µg/L) and May 2015 (1.9 µg/L) events. In comparing recent to historical 1,2-DCA concentrations throughout the site, the concentrations appear to be stable. Although above the MCL, 1,2-DCA concentrations are stable and/or decreasing. Based on current site conditions and future land-use control, impacts from 1,2-DCA will be negligible.

4. No water wells, deeper drinking-water aquifers, surface water, or other sensitive receptors are likely to be impacted.

Although LARWQCB considers all groundwater in the Los Angeles Basin as potential drinking water, during the SI, groundwater at NMCRCCLA was deemed unfit for drinking-water purposes because of the high levels of TDS, sulfate, and chloride (CDM 2002). There are currently no other known municipal or domestic uses for the groundwater at the site. There are no drinking-water wells, surface water bodies, or sensitive receptors within 1,000 feet of the site (CDM 2002).

5. The site presents no significant risk to human health.

Based on the information presented in the HHRA, human health risks for current on-site commercial/industrial workers, current off-site residents, and hypothetical future on-site residents are within acceptable ranges. PCE concentrations, which were a concern at SG10-05 during previous monitoring events, was reevaluated using the CHHSLs for Shallow Soil-Gas with Commercial/ Industrial Land Use, indicated that PCE concentrations are below the screening criteria over last six sampling events.

6. The site presents no significant risk to the environment.

There are no drinking-water wells, surface water bodies, or sensitive receptors within 1,000 feet of the site (CDM 2002). Based on future land-use control to be included as part of the deed restrictions for the property transfer, risk to the environment is expected to be minimal.

Through an evaluation of the SFBRWQCB (1996) *Interim Guidance on Required Cleanup at Low-Risk Fuel Sites* (Appendix E), IRP Site 1 should be considered for regulatory site closure and NFA.

7.3 Recommendations

Based on the conclusions presented above and the DQO Decision Rule (Step Five; U.S. EPA 2000), the following recommendations are made:

- An evaluation of groundwater data indicates that 1,2-DCA is the only contaminant present at concentrations above the MCL and whose plume is not fully delineated at the site. Based on the time-series graphs, 1,2-DCA concentrations have steadily decreased across the site. This is confirmed by the MK statistical test where 1,2-DCA concentrations are either stable or decreasing at the 90% confidence level in all the groundwater monitoring wells. 1,2-DCA was an anti-knock additive used in leaded gasoline and will typically persist in groundwater long after all the other contaminants have degraded. Please note that MCLs are used as a reference and not as regulatory requirements. Regulatory site closure and NFA should be considered for IRP Site 1.
- An evaluation of soil-gas data in the HHRA has demonstrated that human health risks to the current on-site commercial/industrial workers, current off-site residents, and hypothetical future on-site residents are within acceptable ranges.
- PCE concentrations, which were a concern at SG10-05 during previous monitoring events, was reevaluated using the updated CHHSLs values, indicated that PCE concentrations are below the screening criteria over last six sampling events.
- IRP Site 1 is considered a low-risk groundwater site located more than 1,000 feet from a surface water body. An evaluation of the SFBRWQCB (1996) *Interim Guidance on Required Cleanup at Low-Risk Fuel Sites* indicates that IRP Site 1 should be considered for regulatory site closure and NFA.
- Future land-use controls have been included as part of the deed restrictions as part of the property transfer from the DON to the City of Los Angeles Fire Department. Land-use controls will be implemented as part of regulatory site closure and NFA.

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Figures

Figure 1. Regional Map

Figure 2. Site Location Map

Figure 3. Site Map

Figure 4. Groundwater Gradient Map (May 2015)

Figure 5. Groundwater Results above the MCLs (December 2014 and May 2015)

Figure 6. Soil-Gas Results above the CHHSLs (December 2014 and May 2015)

Figure 7. 1,2-Dichloroethane Plume Map (December 2014)

Figure 8. 1,2-Dichloroethane Plume Map (May 2015)

Figure 9. Excess Lifetime Cancer Risk Map

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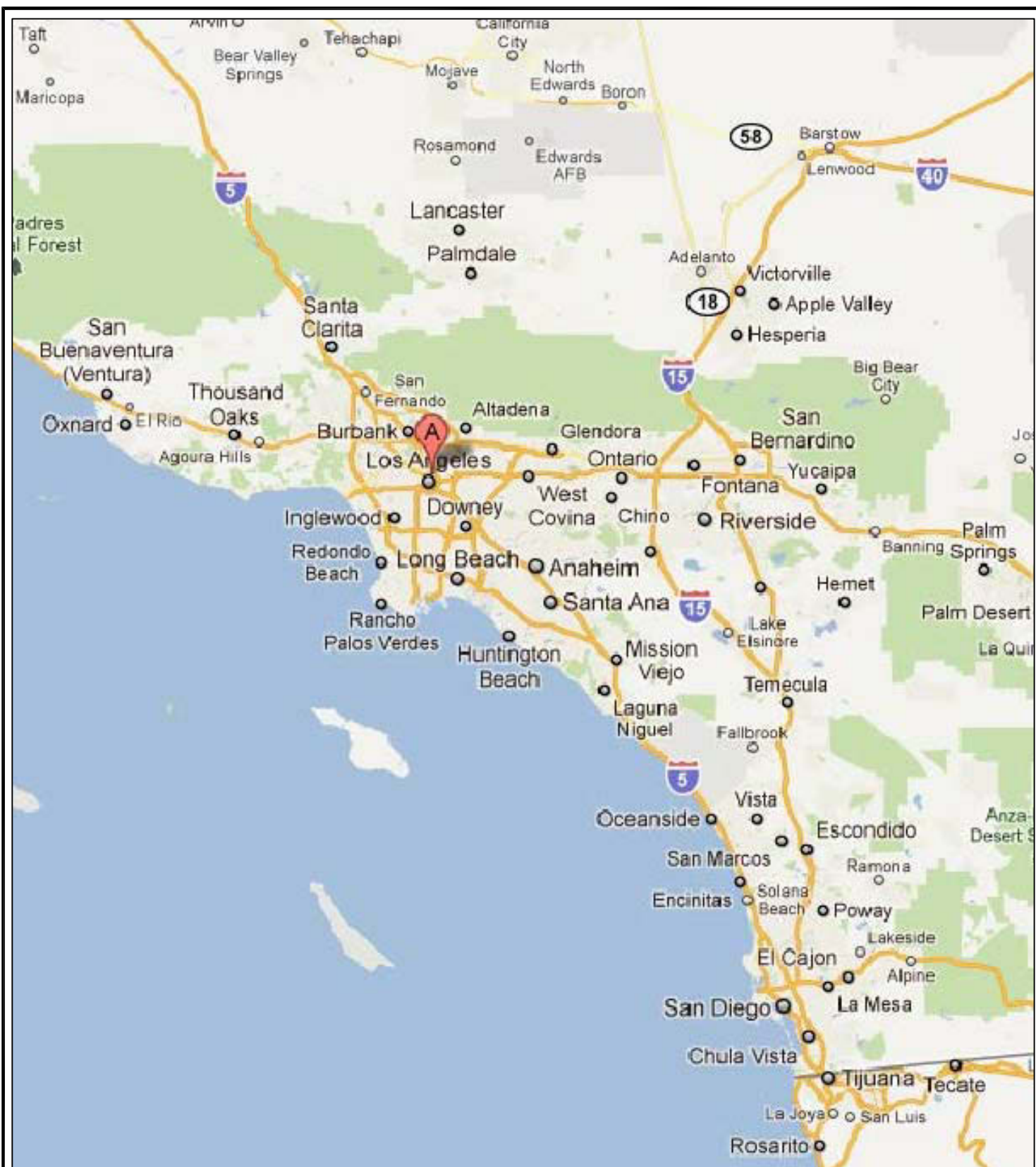


**FIGURE 1
REGIONAL MAP**

NAVAL AND MARINE CORPS RESERVE CENTER, LOS ANGELES
LOS ANGELES, CALIFORNIA

Accord MACTEC 8A JV

6050 Santo Road, Suite 175
San Diego, CA 92124
PH (858) 771-3588 FAX (858) 565-4591

DATE: AUGUST 2015
N62473-10-D-0814
CTO: 037

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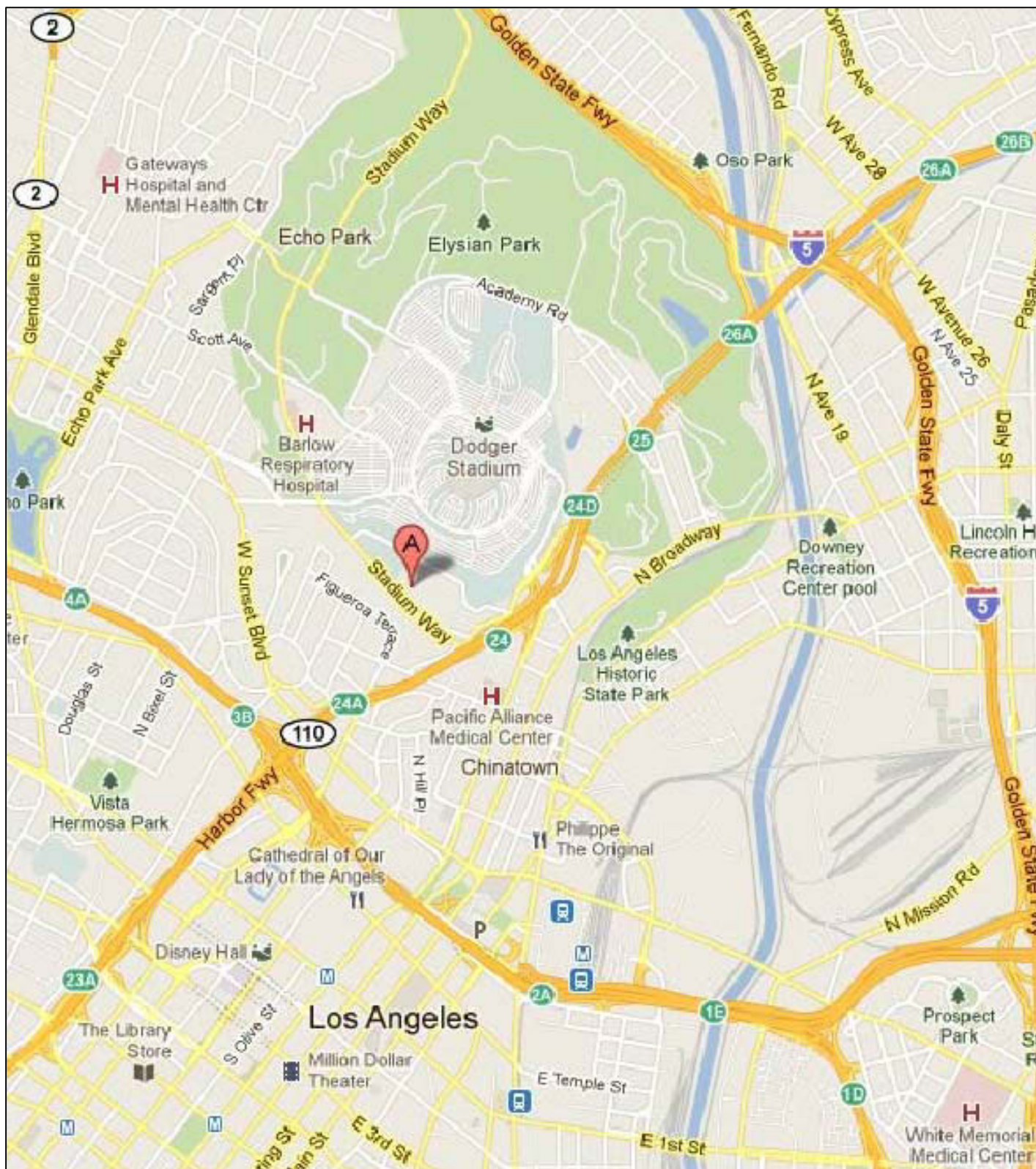


FIGURE 2
SITE LOCATION MAP

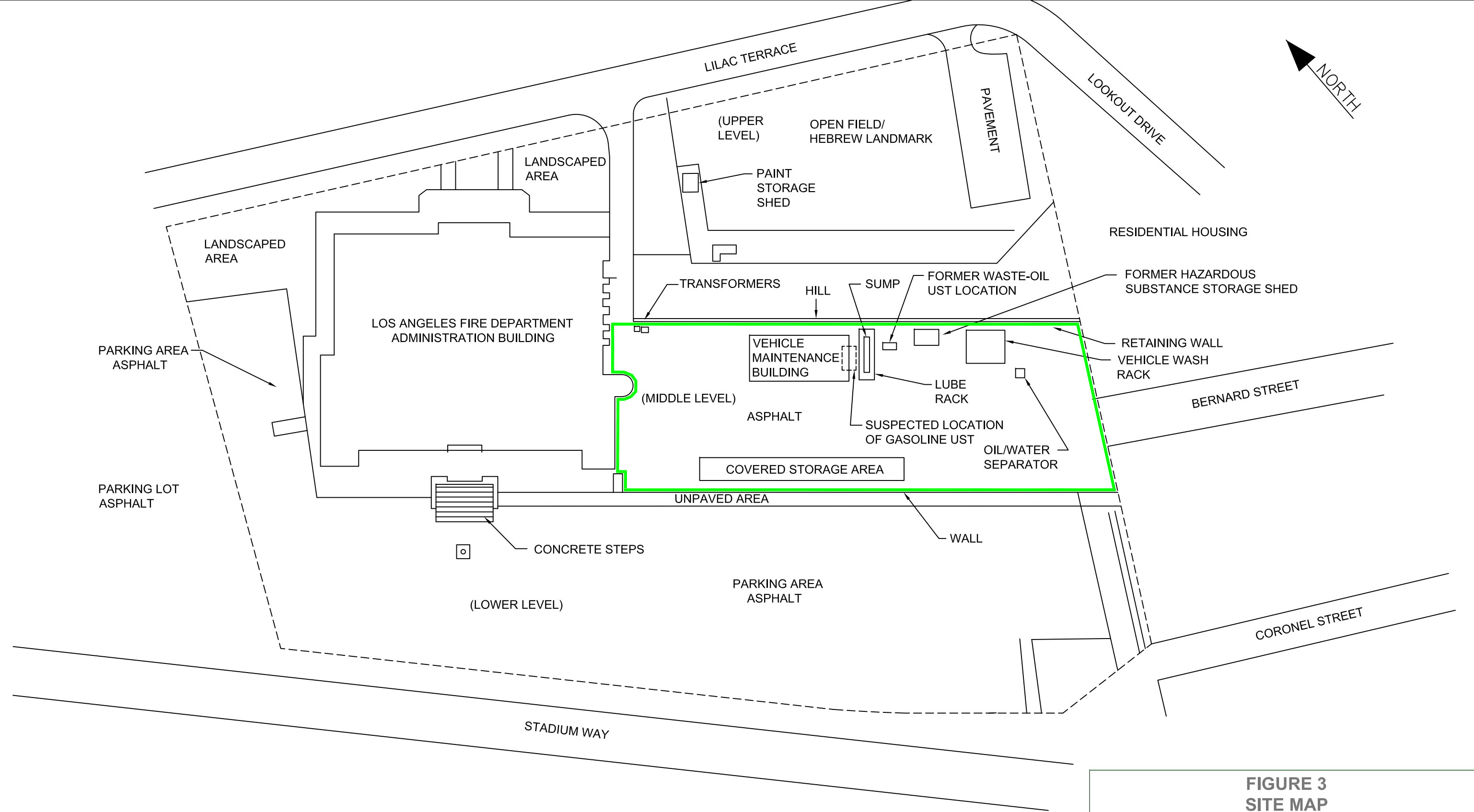
NAVAL AND MARINE CORPS RESERVE CENTER, LOS ANGELES
LOS ANGELES, CALIFORNIA

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DATE: AUGUST 2015
N62473-10-D-0814
CTO: 037

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NOTE:
UST = UNDERGROUND STORAGE TANK
----- = PROPERTY BOUNDARY, FENCE
———— = IRP SITE 1 AREA OF INVESTIGATION

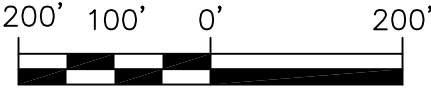


**FIGURE 3
SITE MAP**

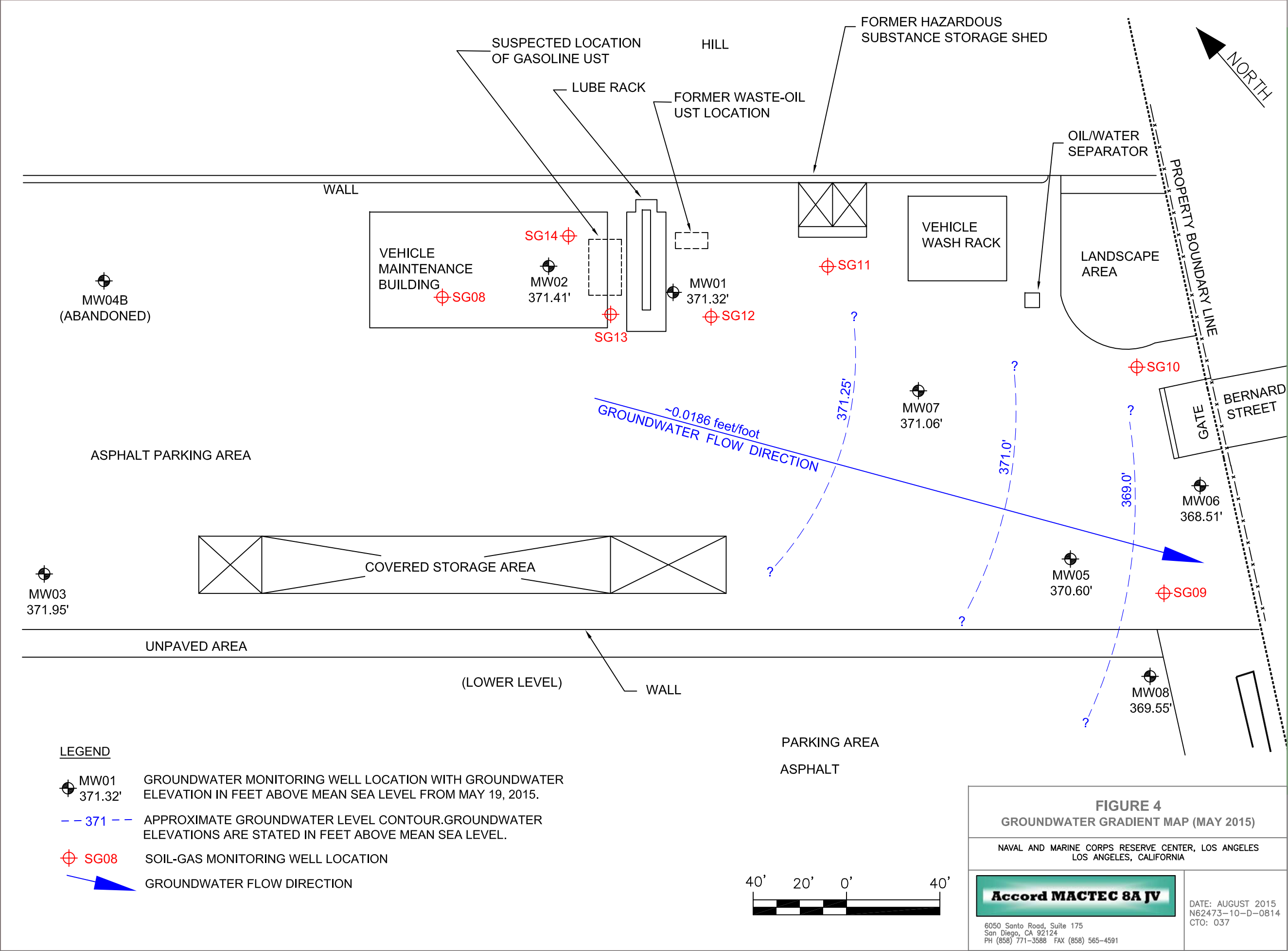
NAVAL AND MARINE CORPS RESERVE CENTER, LOS ANGELES
LOS ANGELES, CALIFORNIA



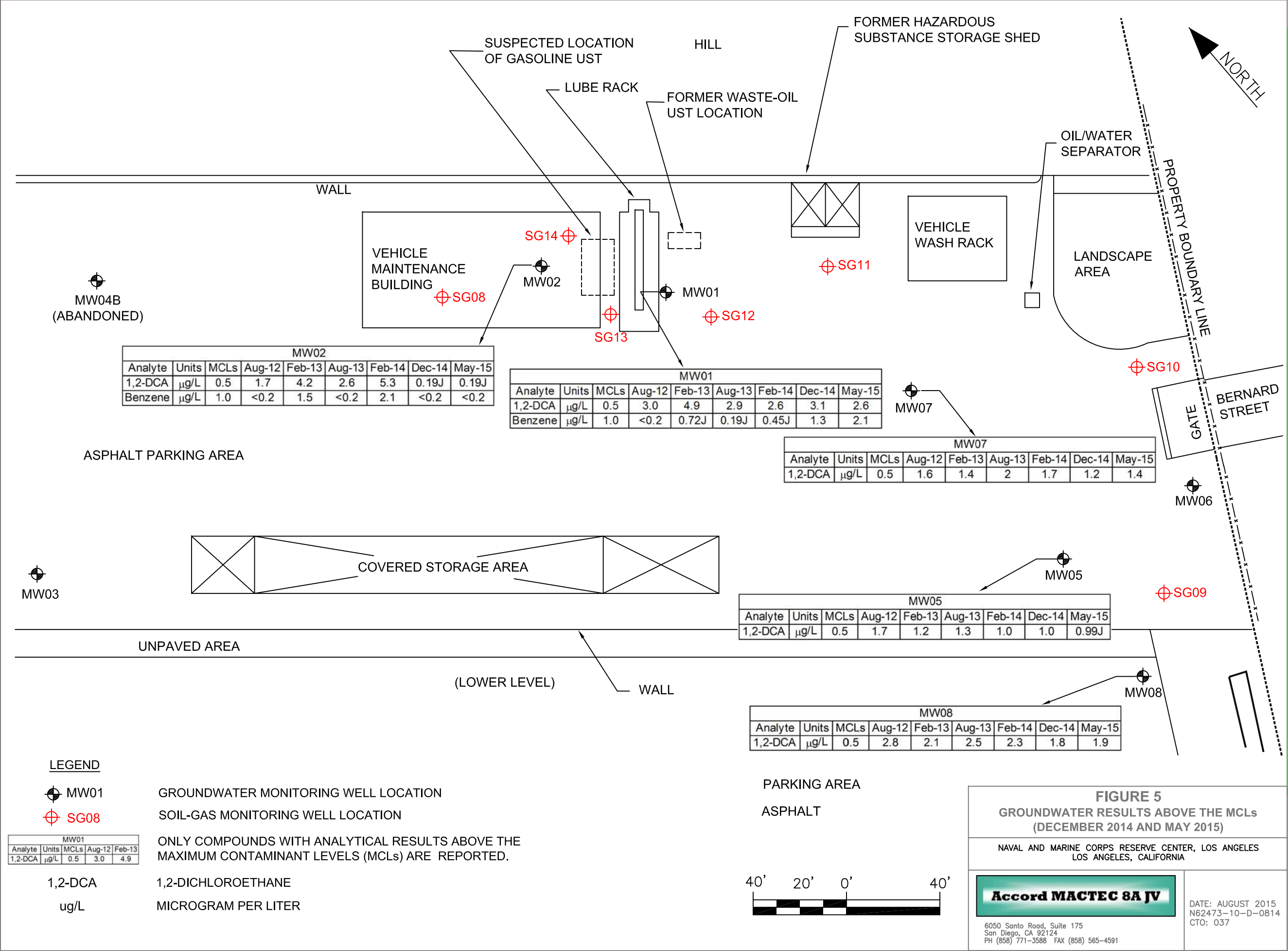
6050 Santo Road, Suite 175
San Diego, CA 92124
PH (858) 771-3588 FAX (858) 565-4591

DATE: AUGUST 2015
N62473-10-D-0814
CTO: 037

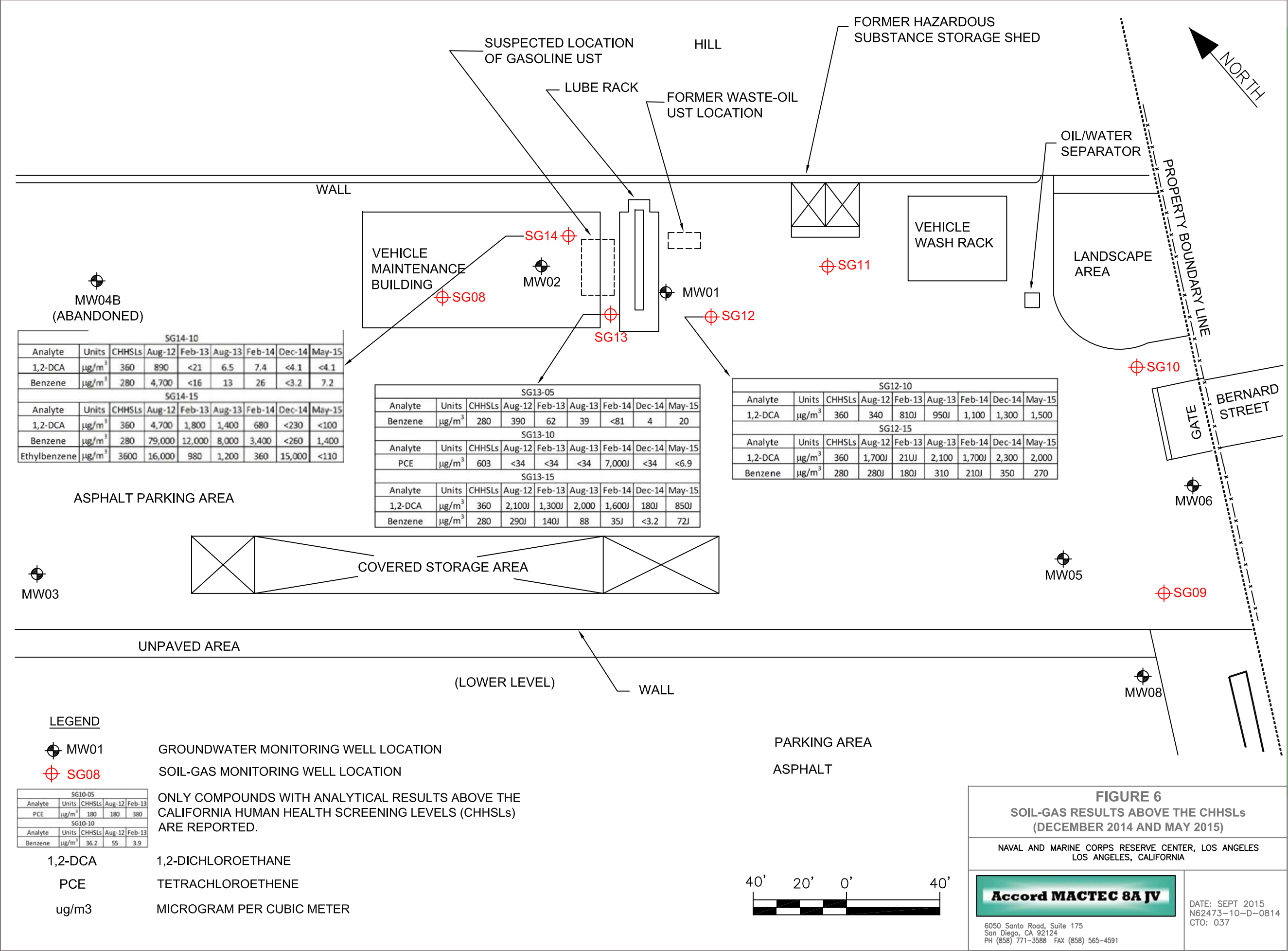
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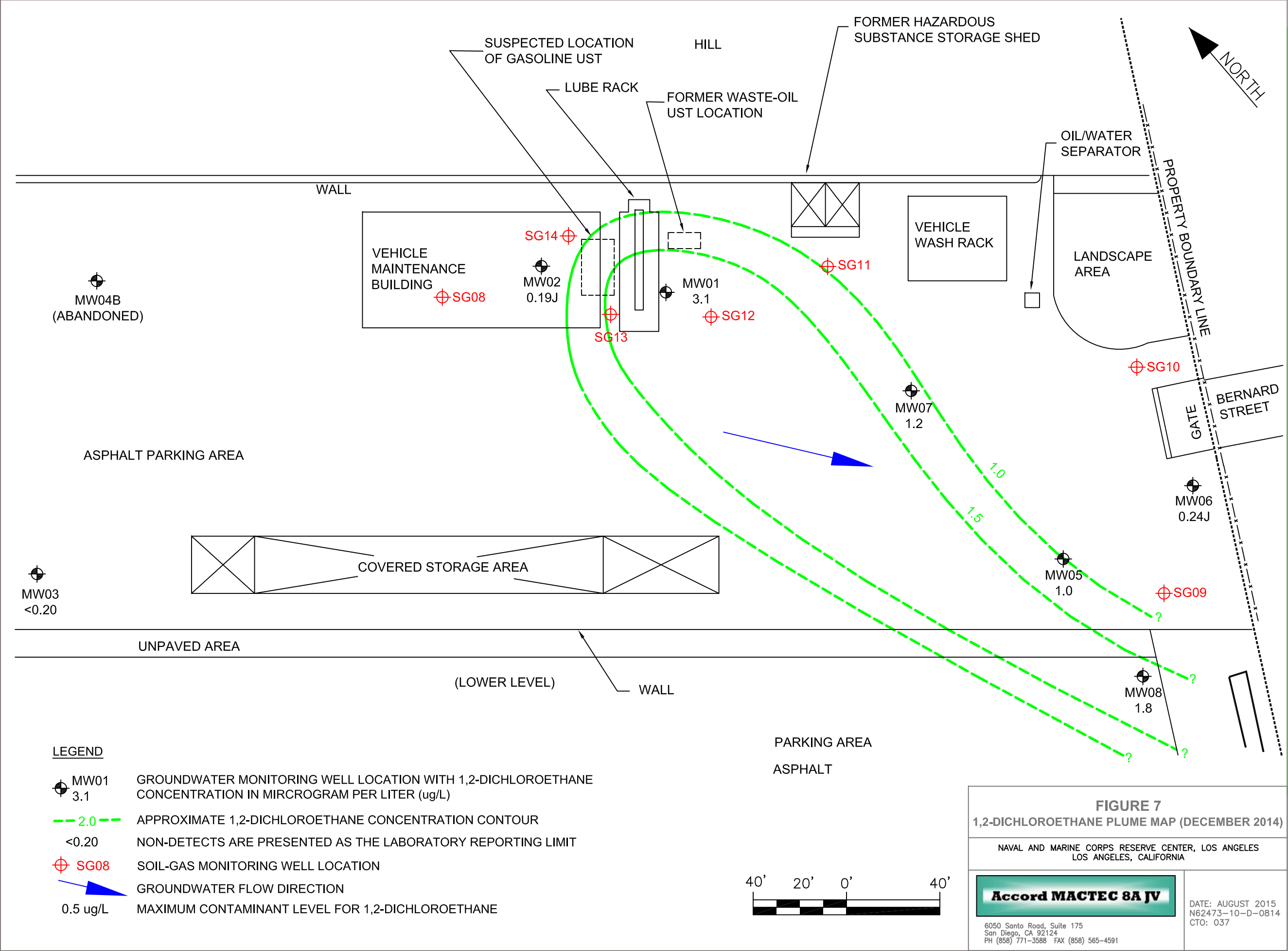
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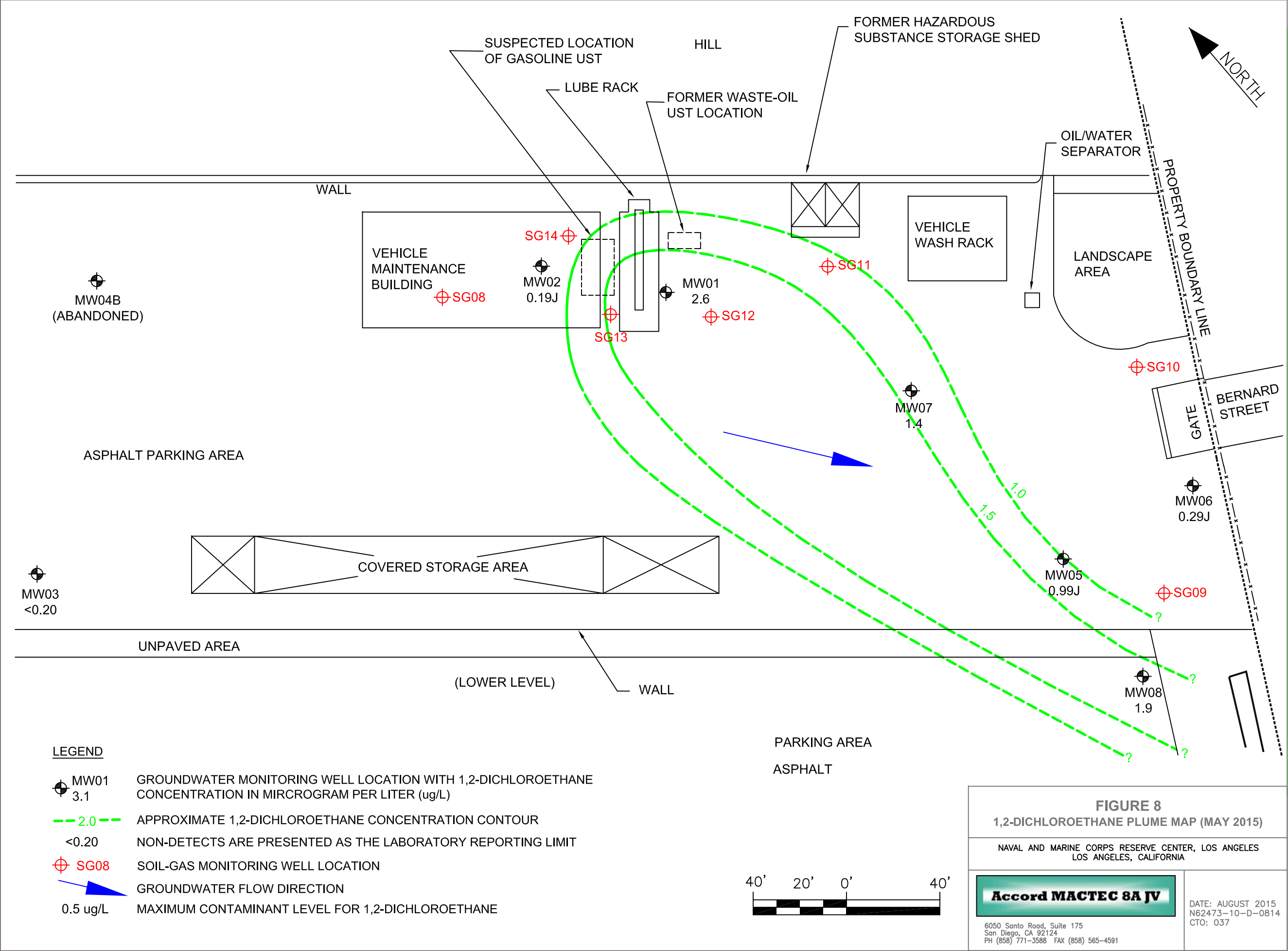
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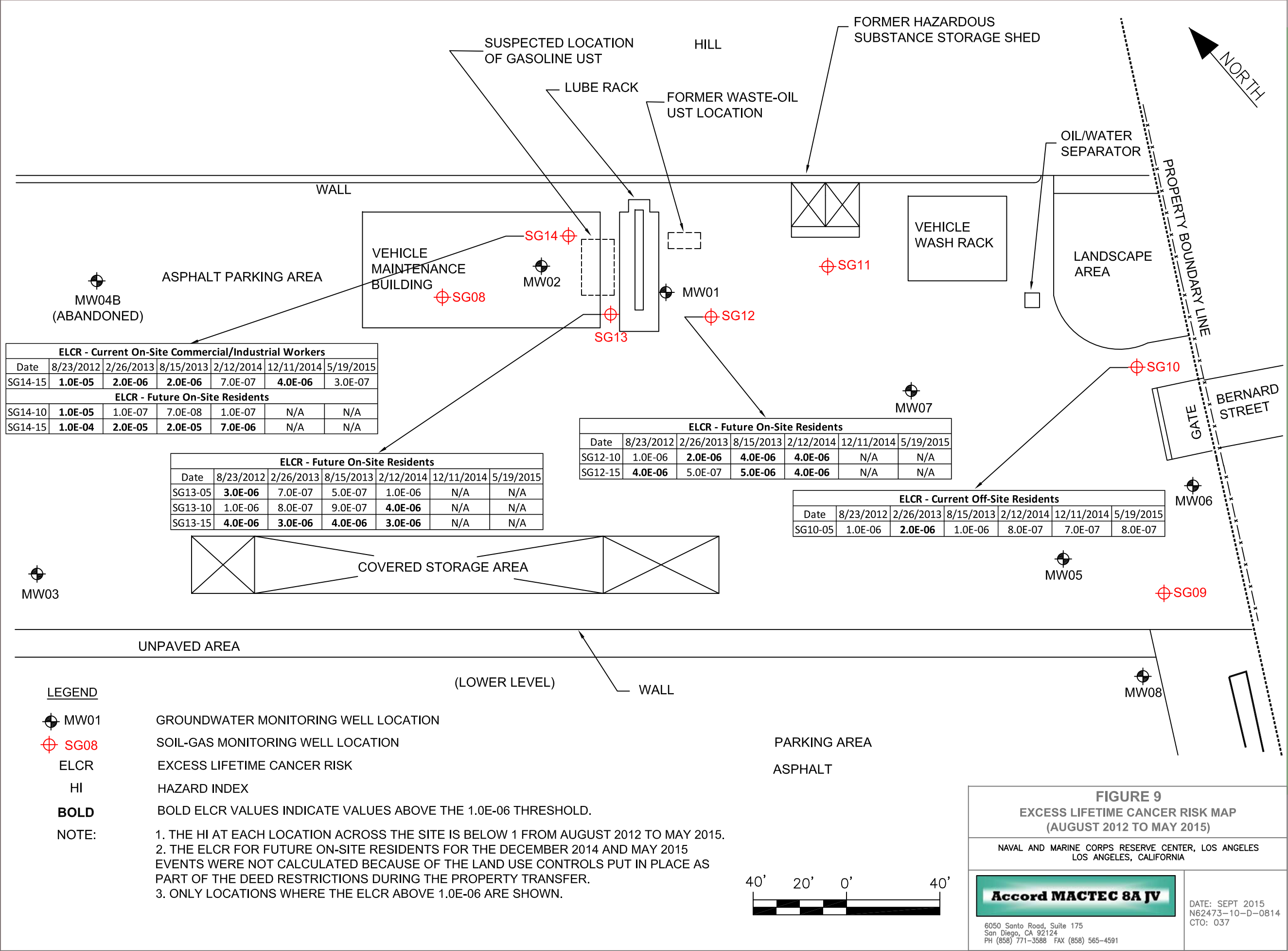
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Table 1
Monitoring Well and Soil-Gas Probe Construction Information
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Location ID	Construction Date	Well Depth (ft bgs)	Screened Interval (ft bgs)	Boring Diameter (inches)	Ground Surface (ft above MSL)	TOC Elevation (ft above MSL)	Northing	Easting	Installed By	Slot Size (inches)
Groundwater Monitoring Wells										
MW01	11/4/1999	40.0	22.5-37.5	10	400.64	400.33	1847487.65	6488511.16	CDM	0.010
MW02	11/9/1999	41.0	23.5-38.5	10	402.19	401.89	1847526.28	6488484.51	CDM	0.010
MW03	11/4/1999	42.5	25.0-40.0	10	404.17	403.43	1847567.45	6488271.73	CDM	0.010
MW04B	Abandoned on October 2, 2012, by ABC									
MW05	11/5/1999	34.5	17.0-32.0	10	394.61	394.25	1847310.67	6488553.10	CDM	0.010
MW06	1/25/2000	36.0	18.5-33.5	10	392.53	392.22	1847298.80	6488606.14	CDM	0.010
MW07	1/24/2000	36.5	19.0-34.0	10	396.19	395.81	1847393.38	6488551.80	CDM	0.010
MW08	8/16/2012	20.5	5.0-20.0	10	382.49	382.05	1847246.78	6488545.43	ABC	0.010
Soil Gas Probes										
SG08	8/7/2012	15.5	5, 10, 15	2.25	402.07	N/A	1847540.88	6488454.89	H&P	N/A
SG09	8/7/2012	15.5	5, 10, 15	2.25	393.43	N/A	1847265.50	6488577.32	H&P	N/A
SG10	8/7/2012	15.5	5, 10, 15	2.25	393.21	N/A	1847342.25	6488610.08	H&P	N/A
SG11	8/7/2012	15.5	5, 10, 15	2.25	397.72	N/A	1847446.79	6488562.00	H&P	N/A
SG12	8/7/2012	15.5	5, 10, 15	2.25	399.71	N/A	1847467.71	6488511.00	H&P	N/A
SG13	8/7/2012	15.5	5, 10, 15	2.25	400.75	N/A	1847492.98	6488491.81	H&P	N/A
SG14	8/7/2012	15.5	5, 10, 15	2.25	402.13	N/A	1847522.22	6488497.78	H&P	N/A

Note:

CalVada Surveying, Inc., resurveyed the site on October 12, 2012, using NAVD88 as the benchmark.

Acronyms and Abbreviations:

ABC – ABC Liovin Drilling, Inc.

bgs – below ground surface

CDM – CDM Federal Programs Corporation

ft – feet

H&P – H&P Mobile Geochemistry, Inc.

MSL – mean sea level

MW – monitoring well

N/A – not applicable

NAVD88 – North American Vertical Datum of 1988

SG – soil gas

TOC – top of casing

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Table 2
Groundwater Elevation Measurements
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Well I.D.	Date Measured	Top of Casing Elevation (feet above MSL)	Depth to Free Product (feet below TOC)	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet above MSL)
MW01	Apr-04	397.60	-	27.17	370.43
	Jul-04		-	27.50	370.10
	Oct-04		-	26.76	370.84
	Jan-05		-	26.55	371.05
	Apr-05		-	24.06	373.54
	Jun-05		-	24.61	372.99
	Oct-05		-	25.30	372.30
	Jan-06		-	25.71	371.89
	Oct-06		-	26.19	371.41
	Apr-07		-	27.00	370.60
	Jul-10		-	25.62	371.98
	Aug-12	400.33	-	26.18	374.15
	Feb-13		-	25.98	374.35
	Aug-13		-	26.92	373.41
	Feb-14		-	27.60	372.73
	Dec-14		-	28.98	371.35
	May-15		-	29.01	371.32
MW02	Apr-04	399.20	-	28.65	370.55
	Jul-04		-	28.96	370.24
	Oct-04		-	28.71	370.49
	Jan-05		-	28.07	371.13
	Apr-05		-	25.55	373.65
	Jun-05		-	26.05	373.15
	Oct-05		-	26.43	372.77
	Jan-06		-	27.14	372.06
	Oct-06		-	27.66	371.54
	Apr-07		-	28.43	370.77
	Jul-10		-	27.06	372.14
	Aug-12	401.89	-	27.60	374.29
	Feb-13		-	27.41	374.48
	Aug-13		-	28.33	373.56
	Feb-14		-	29.05	372.84
	Dec-14		-	30.43	371.46
	May-15		-	30.48	371.41
MW03	Apr-04	400.71	-	29.69	371.02
	Jul-04		-	30.04	370.67
	Oct-04		-	29.45	371.26
	Jan-05		-	28.92	371.79
	Apr-05		-	26.50	374.21
	Jun-05		-	26.98	373.73
	Oct-05		-	27.70	373.01
	Jan-06		-	28.08	372.63
	Oct-06		-	28.71	372.00
	Apr-07		-	29.45	371.26
	Jul-10		-	27.84	372.87
	Aug-12	403.43	-	28.38	375.05
	Feb-13		-	28.20	375.23
	Aug-13		-	29.15	374.28
	Feb-14		-	29.87	373.56
	Dec-14		-	31.43	372.00
	May-15		-	31.48	371.95

Table 2
Groundwater Elevation Measurements
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Well I.D.	Date Measured	Top of Casing Elevation (feet above MSL)	Depth to Free Product (feet below TOC)	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet above MSL)
MW04B	Apr-04	402.28	-	31.23	371.05
	Jul-04		-	31.57	370.71
	Oct-04		-	30.41	371.87
	Jan-05		-	30.76	371.52
	Apr-05		-	28.01	374.27
	Jun-05		-	28.54	373.74
	Oct-05		-	29.23	373.05
	Jan-06		-	29.79	372.49
	Oct-06		-	30.26	372.02
	Apr-07		-	31.05	371.23
	Jul-10		-	29.50	372.78
MW05	Apr-04	391.52	-	21.90	369.62
	Jul-04		-	22.27	369.25
	Oct-04		-	21.85	369.67
	Jan-05		-	20.92	370.60
	Apr-05		-	19.11	372.41
	Jun-05		-	19.68	371.84
	Oct-05		-	20.38	371.14
	Jan-06		-	20.68	370.84
	Oct-06		-	20.97	370.55
	Apr-07		-	21.76	369.76
	Jul-10		-	20.67	370.85
	Aug-12	394.25	-	21.23	373.02
	Feb-13		-	20.91	373.34
	Aug-13		-	21.88	372.37
	Feb-14		-	22.37	371.88
	Dec-14		-	23.66	370.59
	May-15		-	23.65	370.60
MW06	Apr-04	389.52	-	22.33	367.19
	Jul-04		-	23.03	366.49
	Oct-04		-	23.03	366.49
	Jan-05		-	21.42	368.10
	Apr-05		-	17.88	371.64
	Jun-05		-	19.83	369.69
	Oct-05		-	20.81	368.71
	Jan-06		-	20.98	368.54
	Oct-06		-	21.65	367.87
	Apr-07		-	22.20	367.32
	Jul-10		-	21.28	368.24
	Aug-12	392.22	-	21.36	370.86
	Feb-13		-	21.80	370.42
	Aug-13		-	22.14	370.08
	Feb-14		-	22.43	369.79
	Dec-14		-	23.75	368.47
	May-15		-	23.71	368.51

Table 2
Groundwater Elevation Measurements
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Well I.D.	Date Measured	Top of Casing Elevation (feet above MSL)	Depth to Free Product (feet below TOC)	Depth to Groundwater (feet below TOC)	Groundwater Elevation (feet above MSL)
MW07	Apr-04	393.10	-	22.94	370.16
	Jul-04		-	23.28	369.82
	Oct-04		-	22.70	370.40
	Jan-05		-	22.15	370.95
	Apr-05		-	19.95	373.15
	Jun-05		-	20.50	372.60
	Oct-05		-	21.18	371.92
	Jan-06		-	21.55	371.55
	Oct-06		-	22.00	371.10
	Apr-07		-	22.36	370.74
	Jul-10		-	21.53	371.57
	Aug-12	395.81	-	22.05	373.76
	Feb-13		-	21.82	373.99
	Aug-13		-	22.78	373.03
	Feb-14		-	23.39	372.42
	Dec-14		-	24.77	371.04
	May-15		-	24.75	371.06
MW08	Aug-12	382.05	-	10.24	371.81
	Feb-13		-	9.84	372.21
	Aug-13		-	10.87	371.18
	Feb-14		-	11.22	370.83
	Dec-14		-	12.52	369.53
	May-15		-	12.50	369.55

Notes:

MW01 through MW07 were surveyed by Dulin and Boynton on January 27, 2000 (NAVD29).

MW01 through MW08 were resurveyed by CalVada Surveying, Inc., on October 12, 2012 (NAVD88).

MW04B was abandoned on October 2, 2012.

MSL mean sea level

NAVD29 North American Vertical Datum of 1929

NAVD88 North American Vertical Datum of 1988

MW monitoring well

TOC top of casing

- free product not encountered

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Table 3
Water Quality Parameters
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Well I.D.	Date	Depth to Water (below TOC)	Temp (°C)	EC (mS/cm)	DO (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	DO (mg/L) Field Kit	Fe ²⁺ (mg/L) Field Kit	H ₂ S (mg/L) Field Kit
MW01	1/19/2006	25.79	21.81	2.150	0.26	8.73	1.09	106.0	NA	NA	0.0	0.0
	4/25/2007	28.48	21.94	1.920	1.48	7.74	0.97	83.0	Clear	1.50	0.0	0.0
	7/28/2010	25.72	22.43	1.920	0.54	6.99	0.97	203.0	Clear	0.60	0.2	0.0
	8/23/2012	26.23	24.25	1.895	0.20	6.75	NA	97.8	2.33	NA	0.0	0.0
	2/26/2013	26.05	23.52	1.835	0.10	6.75	NA	138.6	0.01	NA	0.0	0.0
	8/15/2013	27.03	24.15	1.813	0.13	6.75	NA	85.0	0.08	NA	0.0	0.0
	2/12/2014	27.69	23.67	1.783	0.20	6.72	NA	130.2	0.08	NA	0.0	0.0
	12/11/2014	28.98	23.48	1.772	0.23	6.41	NA	114.9	0.13	NA	0.0	0.0
	5/19/2015	29.01	23.93	1.745	0.20	6.45	NA	102.7	0.07	NA	0.0	0.0
MW02	1/19/2006	27.70	21.61	1.840	0.38	8.49	0.93	105.0	Clear	<1	0.0	0.0
	4/25/2007	27.33	22.36	2.410	1.27	7.72	1.23	115.0	Clear	1.25	0.0	0.0
	7/28/2010	27.80	22.34	1.760	0.86	7.02	0.89	4.0	Clear	0.80	0.6	0.0
	8/23/2012	28.20	23.09	1.650	1.19	6.65	NA	122.5	1.76	NA	0.0	0.0
	2/26/2013	27.88	22.52	1.731	0.14	6.62	NA	144.0	0.24	NA	0.0	0.0
	8/15/2013	28.87	23.28	1.717	0.20	6.56	NA	83.1	0.47	NA	0.0	0.0
	2/12/2014	29.50	22.83	1.691	0.23	6.56	NA	133.2	0.01	NA	0.0	0.0
	12/11/2014	30.43	22.97	1.686	4.58	6.21	NA	135.6	0.24	NA	0.0	0.0
	5/19/2015	30.48	22.82	1.692	0.18	6.38	NA	123.4	0.29	NA	0.0	0.0
MW03	1/18/2006	28.82	21.12	1.790	1.08	7.25	0.90	100.0	NA	1.00	0.0	0.1
	4/24/2007	30.05	23.38	1.354	1.61	8.17	0.67	56.0	Clear	1.70	0.0	0.0
	7/27/2010	28.63	22.86	2.350	1.90	7.07	1.20	96.0	Clear	2.00	0.0	0.0
	8/23/2012	28.99	23.61	1.564	2.35	6.85	NA	97.7	2.04	NA	0.0	0.0
	2/26/2013	28.74	22.15	1.602	1.27	6.75	NA	178.2	0.55	NA	0.0	0.0
	8/15/2013	29.71	23.34	1.595	1.58	6.77	NA	193.8	1.85	NA	0.0	0.0
	2/12/2014	30.44	22.64	1.516	1.58	6.76	NA	195.1	0.14	NA	0.0	0.0
	12/11/2014	31.43	22.81	1.471	1.83	6.18	NA	199.4	1.70	NA	0.0	0.0
	5/19/2015	31.48	22.68	0.964	1.15	6.48	NA	189.9	0.80	NA	0.0	0.0

Table 3
Water Quality Parameters
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Well I.D.	Date	Depth to Water (below TOC)	Temp (°C)	EC (mS/cm)	DO (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	DO (mg/L) Field Kit	Fe ²⁺ (mg/L) Field Kit	H ₂ S (mg/L) Field Kit
MW04B	1/18/2006	29.79	22.25	1.230	2.87	7.40	0.61	127.0	NA	2.00	0.0	0.0
	4/24/2007	31.27	23.13	1.265	3.23	6.99	0.63	69.0	Slightly cloudy	3.00	0.0	0.0
	7/27/2010	29.64	23.26	1.411	2.09	7.12	0.71	184.0	Clear	2.00	0.2	0.0
	8/23/2012	Well abandoned on October 2, 2012										
	2/26/2013											
	8/15/2013											
	2/12/2014											
	12/11/2014											
	5/19/2015											
MW05	1/19/2006	20.80	20.81	3.550	0.34	8.62	1.86	121.0	Clear	0.40	0.0	0.0
	4/24/2007	22.03	23.53	3.540	2.32	8.37	1.85	78.0	Clear	2.50	0.0	0.0
	7/27/2010	20.86	24.04	2.800	1.75	7.22	1.44	85.0	Clear	2.00	0.0	0.0
	8/24/2012	21.39	22.40	2.442	1.57	6.67	NA	168.9	0.11	NA	0.0	0.0
	2/26/2013	21.12	22.18	2.463	0.38	6.77	NA	164.0	0.22	NA	0.0	0.0
	8/15/2013	22.12	23.15	2.410	0.36	6.77	NA	114.0	0.13	NA	0.0	0.0
	2/12/2014	22.62	22.66	2.330	0.85	6.75	NA	124.4	0.04	NA	0.0	0.0
	12/11/2014	23.66	22.75	2.255	0.63	6.44	NA	129.2	0.01	NA	0.0	0.0
	5/19/2015	23.65	23.06	2.187	0.65	6.45	NA	129.1	0.55	NA	0.0	0.0
MW06	1/19/2006	NA	NA	NA	NA	NA	NA	NA	N/A	NA	NA	NA
	4/24/2007	22.52	23.15	3.830	1.39	8.64	2.01	81.0	Clear	1.50	0.0	0.0
	7/27/2010	22.15	23.42	3.920	0.51	7.15	2.08	93.0	Clear	0.60	0.0	0.0
	8/23/2012	22.27	23.29	3.183	0.95	6.63	NA	75.8	0.16	NA	0.0	0.0
	2/26/2013	21.60	22.01	3.908	0.31	6.73	NA	170.6	0.06	NA	0.0	0.0
	8/15/2013	22.94	25.49	4.051	1.25	6.61	NA	144.3	1.62	NA	0.0	0.0
	2/12/2014	23.38	22.96	3.717	0.39	6.66	NA	108.4	0.57	NA	0.0	0.0
	12/11/2014	23.75	22.43	3.824	0.66	6.30	NA	133.1	0.05	NA	0.0	0.0
	5/19/2015	23.71	23.90	3.733	0.79	6.39	NA	150.7	0.16	NA	0.0	0.0

Table 3
Water Quality Parameters
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Well I.D.	Date	Depth to Water (below TOC)	Temp (°C)	EC (mS/cm)	DO (mg/L)	pH	Salinity (PSS)	ORP (mV)	Turbidity (Visual or NTU)	DO (mg/L) Field Kit	Fe ²⁺ (mg/L) Field Kit	H ₂ S (mg/L) Field Kit
MW07	1/19/2006	NA	NA	NA	NA	NA	NA	NA	N/A	NA	NA	NA
	4/24/2013	23.09	25.96	3.530	2.29	7.93	1.85	69.0	Slightly cloudy	2.50	0.0	0.0
	7/27/2010	21.64	24.69	2.350	1.28	7.21	1.20	90.0	Clear	1.50	0.0	0.0
	8/23/2012	22.13	25.15	2.394	0.26	6.81	NA	38.6	1.60	NA	0.0	0.0
	2/26/2013	21.94	23.58	2.214	0.10	6.88	NA	140.5	3.03	NA	0.0	0.0
	8/15/2013	22.88	24.29	2.149	0.31	6.87	NA	86.6	1.86	NA	0.0	0.0
	2/12/2014	23.54	23.79	2.129	0.34	6.84	NA	116.1	0.67	NA	0.0	0.0
	12/11/2014	24.77	24.06	2.012	0.25	6.58	NA	115.7	0.26	NA	0.0	0.0
	5/19/2015	24.75	24.01	1.644	0.14	6.57	NA	95.8	0.41	NA	0.0	0.0
MW08	8/23/2012	10.91	25.23	3.077	3.48	7.07	NA	59.0	3.88	NA	0.0	0.0
	8/15/2013	11.60	23.63	2.569	0.27	6.80	NA	163.9	0.27	NA	0.0	0.0
	2/12/2014	12.28	22.76	2.713	0.19	6.83	NA	52.4	1.00	NA	0.0	0.0
	2/26/2013	10.38	22.11	2.607	1.16	7.10	NA	176.1	0.84	NA	0.0	0.0
	12/11/2014	12.52	22.72	2.748	0.36	6.61	NA	140.5	2.83	NA	0.0	0.0
	5/19/2015	12.50	21.98	3.057	0.27	6.63	NA	170.4	5.05	NA	0.0	0.1

Acronyms & Abbreviations:

°C	degrees Celsius	mS/cm	milliSiemens per centimeter	NTU	Nephelometric turbidity units
DO	dissolved oxygen	mV	millivolts	ORP	oxidation-reduction potential
EC	electrical conductivity	MW	monitoring well	PSS	practical salinity scale
mg/L	milligrams per liter	NA	not analyzed	TOC	top of casing

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Table 4
Groundwater Analytical Results (May 2015)
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				MW01	MW02	Duplicate (MW02)		MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate 1	Equipment Rinsate 2	Trip Blank 1	Trip Blank 2											
Sample ID				MW01-Q2-2015	MW02-Q2-2015	Duplicate-1		MW03-Q2-2015	NA	MW05-Q2-2015	MW06-Q2-2015	MW07-Q2-2015	MW08-Q2-2015	Source Blank	Equipment Rinsate 1	Equipment Rinsate 2	Trip Blank 1	Trip Blank 2											
Sample Date				05/19/15	05/19/15	05/19/15		05/19/15	NA	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	NA	05/19/15	NA											
Analytes	EPA Analytical Method	Unit	Screening Criteria																										
TOTAL DISSOLVED SOLIDS	160.1	mg/L	NE	1160		1130		873		838		NA		1520		2900		1350		2150		NA		NA		NA		NA	
CHLORIDE	300.0	mg/L	NE	142		115		114		129		NA		214		463		191		336		NA		NA		NA		NA	
NITRATE	300.0	mg/L	NE	9.41		8.94		8.74		0.363		NA		12.2		32.1		12.7		13.3		NA		NA		NA		NA	
SULFATE	300.0	mg/L	NE	309		289		284		138		NA		419		930		355		659		NA		NA		NA		NA	
ALKALINITY, TOTAL	310.1	mg/L	NE	411		439		440		447		NA		471		463		459		587		NA		NA		NA		NA	
AMMONIA	350.2	mg/L	NE	0.113		0.266		0.123		0.118		NA		0.155		0.134		0.208		0.128		NA		NA		NA		NA	
NITROGEN, TOTAL KJELDAHL	351.3	mg/L	NE	0.209		0.891		0.268		0.118		NA		0.263		0.665		0.247		0.338		NA		NA		NA		NA	
PHOSPHATE	365.2	mg/L	NE	0.02	U	0.02	U	0.02	U	0.02	U	NA		0.02	U	0.02	U	0.02	U	0.02	U	NA		NA		NA		NA	
ALUMINUM	6020A	µg/L	1000	20.0	U	20.0	U	20.0	U	20.0	U	NA		20.0	U	20.0	U	20.0	U	20.0	U	NA		NA		NA		NA	
ANTIMONY	6020A	µg/L	6	0.500	U	0.500	U	0.500	U	0.500	U	NA		0.500	U	0.406	J	0.500	U	0.275	J	NA		NA		NA		NA	
ARSENIC	6020A	µg/L	10	0.700	J	1.37		1.36		9.96		NA		0.808	J	1.56		0.518	J	3.13		NA		NA		NA		NA	
BARIUM	6020A	µg/L	1000	36.6		48.6		48.9		57.4		NA		21.7		22.0		26.9		31.8		NA		NA		NA		NA	
BERYLLIUM	6020A	µg/L	4	0.100	U	0.100	U	0.100	U	0.100	U	NA		0.100	U	0.100	U	0.100	U	0.100	U	NA		NA		NA		NA	
CADMIUM	6020A	µg/L	5	0.200	U	0.312	J	0.368	J	0.134	J	NA		0.200	U	0.194	J	0.200	U	0.110	J	NA		NA		NA		NA	
CALCIUM	6020A	µg/L	NE	136000		146000		145000		115000		NA		165000		284000		150000		218000		NA		NA		NA		NA	
CHROMIUM, TOTAL	6020A	µg/L	50	0.319	J	0.479	J	0.473	J	0.168	J	NA		0.419	J	0.377	J	0.275	J	0.177	J	NA		NA		NA		NA	
COBALT	6020A	µg/L	NE	0.779	J	0.354	J	0.360	J	0.401	J	NA		0.421	J	0.718	J	0.440	J	0.811	J	NA		NA		NA		NA	
COPPER	6020A	µg/L	1300	0.877	J	1.01		1.12		1.47		NA		1.26		1.35		0.702	J	1.07		NA		NA		NA		NA	
IRON	6020A	µg/L	NE	10.0	U	10.0	U	10.0	U	10.0	U	NA		10.0	U	10.0	U	10.0	U	10.0	U	NA		NA		NA		NA	
LEAD	6020A	µg/L	15	0.100	U	0.100	U	0.100	U	0.100	U	NA		0.100	U	0.100	U	0.100	U	0.100	U	NA		NA		NA		NA	
MAGNESIUM	6020A	µg/L	NE	63000		55300		55900		45900		NA		112000		222000		87500		147000		NA		NA		NA		NA	
MANGANESE	6020A	µg/L	NE	269	J	153	J	153	J	116	J	NA		14.3	J	26.0	J	65.9	J	83.0	J	NA		NA		NA		NA	
MOLYBDENUM	6020A	µg/L	NE	51.6		22.7		23.0		47.2		NA		24.8		32.8		19.9		34.5		NA		NA		NA		NA	
NICKEL	6020A	µg/L	100	5.26		5.23		5.23		2.09		NA		3.45		5.51		2.19		2.79		NA		NA		NA		NA	
POTASSIUM	6020A	µg/L	NE	3760		3170		3110		1770		NA		6280		8030		6060		7800		NA		NA		NA		NA	
SELENIUM	6020A	µg/L	50	13.6		12.6		12.5		0.438	J	NA		15.3		12.7		15.0		14.1		NA		NA		NA		NA	
SILVER	6020A	µg/L	NE	0.200	U	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA		NA		NA		NA	
SODIUM	6020A	µg/L	NE	134000		135000		134000		124000		NA		155000		217000		160000		215000		NA		NA		NA		NA	
THALLIUM/THALLIUM-201/230	6020A	µg/L	2	0.200	U	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA		NA		NA		NA	
VANADIUM	6020A	µg/L	NE	5.68		5.50		5.51		5.40		NA		3.75		3.58		4.54		5.36		NA		NA		NA		NA	
ZINC	6020A	µg/L	NE	10.0	U	21.1		9.03	J	8.73	J	NA		16.9	J	7.89	J	9.39	J	7.79	J	NA		NA		NA		NA	
MERCURY	7470A	µg/L	2	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA	
TPH-DIESEL RANGE	8015B	mg/L	0.1 ^f	0.056	J	0.051	U	0.049	U	0.048	U	NA		0.036	J	0.042	J	0.048	U	0.048	U	0.048	U	0.047	U	NA		NA	
TPH-PURGEABLE	8015B	mg/L	0.1 ^f	0.019	U	0.010	U	0.0061	U	0.0070	U	NA		0.010	U	0.0084	U	0.0054	U	0.0068	U	0.0078	J	0.0077	U	NA		NA	
1,2-DIBROMOETHANE	8260 SIM	µg/L	0.05	0.020	U	0.020	U	0.020	U	0.020	U	NA		0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
1,1,1,2-TETRACHLOROETHANE	8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1,1-TRICHLOROETHANE	8260B	µg/L	200	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1,2,2-TETRACHLOROETHANE	8260B	µg/L	1	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1,2-TRICHLOROETHANE	8260B	µg/L	5	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-DICHLOROETHANE	8260B	µg/L	5	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-DICHLOROETHENE	8260B	µg/L	6	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-DICHLOROPROPENE	8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U

Table 4
Groundwater Analytical Results (May 2015)
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				MW01		MW02		Duplicate (MW02)		MW03		MW04B ^d		MW05		MW06		MW07		MW08 ^e		Source Blank		Equipment Rinsate 1		Equipment Rinsate 2		Trip Blank 1		Trip Blank 2		
Sample ID				MW01-Q2-2015		MW02-Q2-2015		Duplicate-1		MW03-Q2-2015		NA		MW05-Q2-2015		MW06-Q2-2015		MW07-Q2-2015		MW08-Q2-2015		Source Blank		Equipment Rinsate 1		Equipment Rinsate 2		Trip Blank 1		Trip Blank 2		
Sample Date				05/19/15		05/19/15		05/19/15		05/19/15		NA		05/19/15		05/19/15		05/19/15		05/19/15		05/19/15		05/19/15		NA		05/19/15		NA		
Analytes		EPA Analytical Method	Unit	Screening Criteria																												
1,2,3-TRICHLOROBENZENE		8260B	µg/L	NE	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
1,2,3-TRICHLOROPROPANE		8260B	µg/L	NE	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
1,2,4-TRICHLOROBENZENE		8260B	µg/L	5	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
1,2,4-TRIMETHYLBENZENE		8260B	µg/L	12 ^b	4.2		0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
1,2-DIBROMO-3-CHLOROPROPANE		8260B	µg/L	NE	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
1,2-DICHLOROBENZENE		8260B	µg/L	600	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
1,2-DICHLOROETHANE		8260B	µg/L	0.5	2.6		0.19	J	0.20	J	0.20	U	NA		0.99	J	0.29	J	1.4		1.9		0.20	U	0.20	U	NA		0.20	U	NA	
1,2-DICHLOROPROPANE		8260B	µg/L	5	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
1,3,5-TRIMETHYLBENZENE		8260B	µg/L	12 ^b	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
1,3-DICHLOROBENZENE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
1,3-DICHLOROPROPANE		8260B	µg/L	0.5	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
1,4-DICHLOROBENZENE		8260B	µg/L	5	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
2,2-DICHLOROPROPANE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
2-BUTANONE		8260B	µg/L	NE	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	NA			
2-CHLOROTOLUENE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
2-HEXANONE		8260B	µg/L	NE	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	NA			
4-CHLOROTOLUENE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
4-ISOPROPYLTOLUENE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
4-METHYL-2-PENTANONE		8260B	µg/L	NE	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	NA			
ACETONE		8260B	µg/L	NE	5.0	U	5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	NA		5.0	U	NA			
BENZENE		8260B	µg/L	1	2.1		0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
BROMOBENZENE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
BROMOCHLOROMETHANE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
BROMODICHLOROMETHANE		8260B	µg/L	80	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
BROMOFORM		8260B	µg/L	80	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
BROMOMETHANE		8260B	µg/L	NE	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
CARBON DISULFIDE		8260B	µg/L	1000 ^b	0.12	J	0.11	J	0.13	J	0.17	J	NA		0.17	J	0.19	J	0.20	U	0.11	J	0.20	U	NA		0.20	U	NA			
CARBON TETRACHLORIDE		8260B	µg/L	0.5	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
CHLOROBENZENE		8260B	µg/L	70	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
CHLOROETHANE		8260B	µg/L	NE	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
CHLOROFORM		8260B	µg/L	80	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
CHLOROMETHANE		8260B	µg/L	NE	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
CIS-1,2-DICHLOROETHENE		8260B	µg/L	6	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
CIS-1,3-DICHLOROPROPENE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
DIBROMOCHLOROMETHANE		8260B	µg/L	80	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
DIBROMOMETHANE		8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
DICHLORODIFLUOROMETHANE		8260B	µg/L	NE	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
ETHYLBENZENE		8260B	µg/L	300	0.15	J	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
HEXACHLOROBUTADIENE		8260B	µg/L	NE	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
ISOPROPYLBENZENE		8260B	µg/L	NE	0.20	J	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			

Table 4
Groundwater Analytical Results (May 2015)
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				MW01	MW02	Duplicate (MW02)		MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate 1	Equipment Rinsate 2	Trip Blank 1	Trip Blank 2											
Sample ID				MW01-Q2-2015	MW02-Q2-2015	Duplicate-1		MW03-Q2-2015	NA	MW05-Q2-2015	MW06-Q2-2015	MW07-Q2-2015	MW08-Q2-2015	Source Blank	Equipment Rinsate 1	Equipment Rinsate 2	Trip Blank 1	Trip Blank 2											
Sample Date				05/19/15	05/19/15	05/19/15		05/19/15	NA	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	NA	05/19/15	NA											
Analytes	EPA Analytical Method	Unit	Screening Criteria																										
M- AND P-XYLENE	8260B	µg/L	1750 ^c	0.46	J	0.40	U	0.40	U	0.40	U	NA		0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	NA		0.40	U	NA	
METHYL TERT-BUTYL ETHER	8260B	µg/L	13	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
METHYLENE CHLORIDE	8260B	µg/L	5	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.99	U	0.86	U	NA		0.50	U	NA	
NAPHTHALENE	8260B	µg/L	6.2 ^b	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA	
N-BUTYLBENZENE	8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
O-XYLENE	8260B	µg/L	1750 ^c	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
PROPYLBENZENE	8260B	µg/L	NE	0.17	J	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
SEC-BUTYLBENZENE	8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
STYRENE	8260B	µg/L	100	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
TERT-BUTYLBENZENE	8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
TETRACHLOROETHENE	8260B	µg/L	5	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
TOLUENE	8260B	µg/L	150	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
TRANS-1,2-DICHLOROETHENE	8260B	µg/L	10	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
TRANS-1,3-DICHLOROPROPENE	8260B	µg/L	NE	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
TRICHLOROETHENE	8260B	µg/L	5	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
TRICHLOROFLUOROMETHANE	8260B	µg/L	150	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
CARBON DIOXIDE	RSK175M	µg/L	NE	88000		110000		110000		86000		NA		93000		100000		70000		86000		NA		NA		NA		NA	
ETHANE	RSK175	µg/L	NE	0.64	U	0.64	U	0.64	U	0.64	U	NA		0.64	U	0.64	U	0.64	U	0.64	U	0.64	U	NA		NA		NA	
ETHENE	RSK175	µg/L	NE	0.60	U	0.60	U	0.60	U	0.60	U	NA		0.60	U	0.60	U	0.60	U	0.60	U	0.60	U	NA		NA		NA	
METHANE	RSK175	µg/L	NE	3.9		0.21	J	0.19	J	1.7	J	NA		0.20	J	0.21	J	0.23	J	0.28	J	NA		NA		NA		NA	

Notes:

^a Screening criteria are based on CDPH MCLs, updated August 10, 2015.

^b The CDPH MCLs is NOT established for these compounds. The screening criteria were identified in the CDM Final SI Report.

^c The CDPH MCLs is established for total xylenes.

^d MW04B was abandoned in October of 2012

^e MW08 was constructed in August of 2012

^f Screening criteria are based on San Francisco Bay Regional Water Quality Control Board ESLs, updated December 2013. There are no established CDPH MCLs for TPH_d and TPH_g

Green shading indicates a detection.

Orange shading indicates a detection above the screening level.

CDPH - California Department of Public Health

EPA - U.S. Environmental Protection Agency

ESL - environmental screening levels

J - estimated concentration

MCLs - maximum contaminant levels

µg/L - micrograms per liter

mg/L - milligrams per liter

NA - not analyzed

NE - not established

U - not detected equal to or above the stated reporting limit

UJ - sample detection limit is an estimated value

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Table 5
Soil-Gas Analytical Results (May 2015)
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location			SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	Duplicate (SG10-05)	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05	Duplicate (SG12-05)	SG12-10	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	Duplicate (SG14-05)	SG14-10	SG14-15		
Sample ID			SG08-05-Q2- 2015	SG08-10-Q2- 2015	SG08-15-Q2- 2015	SG09-05-Q2- 2015	SG09-10-Q2- 2015	SG09-15-Q2- 2015	SG10-05-Q2- 2015	SG10-05-Q2- 2015-dup	SG10-10-Q2- 2015	SG10-15-Q2- 2015	SG11-05-Q2- 2015	SG11-10-Q2- 2015	SG11-15-Q2- 2015	SG12-05-Q2- 2015	SG12-05-Q2- 2015-dup	SG12-10-Q2- 2015	SG12-15-Q2- 2015	SG13-05-Q2- 2015	SG13-10-Q2- 2015	SG13-15-Q2- 2015	SG14-05-Q2- 2015	SG14-05-Q2- 2015-dup	SG14-10-Q2- 2015	SG14-15-Q2- 2015		
Sample Date			05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15	05/19/15		
Analytes	Screening Criteria ^a	Unit																										
HELIUM	2.5	Percentage	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.43		0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
1,1,1,2-TETRACHLOROETHANE	NE	µg/m³	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U
1,1,1-TRICHLOROETHANE	7000000	µg/m³	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U
1,1,2,2-TETRACHLOROETHANE	NE	µg/m³	7.0	U	7.0	U	7.0	U	12		7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U
1,1,2-TRICHLORO-1,2,2-TRICHLOROETHANE	NE	µg/m³	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U
1,1,2-TRICHLOROETHANE	NE	µg/m³	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U
1,1-DICHLOROETHANE	NE	µg/m³	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U
1,1-DICHLOROETHENE	NE	µg/m³	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
1,2,4-TRICHLOROBENZENE	NE	µg/m³	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U
1,2,4-TRIMETHYLBENZENE	NE	µg/m³	8.4		7.8		9.5		5.0		5.9	J	5.0		5.0		5.0		5.0		7.9		11		9.0		26	
1,2-DIBROMOETHANE	NE	µg/m³	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U
1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	NE	µg/m³	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U
1,2-DICHLOROBENZENE	NE	µg/m³	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U
1,2-DICHLOROETHANE	360	µg/m³	4.1	U	4.1	U	4.3		14		25	J	5.9		4.1	U	4.1	U	4.1	U	6.3		12		48		170	
1,2-DICHLOROPROPANE	NE	µg/m³	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U	9.4	U
1,3,5-TRIMETHYLBENZENE	NE	µg/m³	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	8.7		9.3		120		120	
1,3-BUTADIENE	NE	µg/m³	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	UJ	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U
1,3-DICHLOROBENZENE	NE	µg/m³	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	UJ	12	UJ	12	U
1,4-DICHLOROBENZENE	NE	µg/m³	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U
1,4-DIOXANE	NE	µg/m³	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	20		7.3	U	7.3	U	7.3	U	7.3	U	12	
2,2,4-TRIMETHYLPENTANE	NE	µg/m³	17		4.7		5.2		7.3		510	J	140		10		4.7		20	J	4.7		12		290		1900	
4-ETHYLTOLUENE	NE	µg/m³	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
ACETONE	NE	µg/m³	24	U	24	U	27		24	U	39	J	24	U	24	U	24	UJ	24	U	35		57		87		24	U
BENZENE	280	µg/m³	3.2	U	3.2	U	5.1		3.2	U	4.5	J	3.2	U	3.2	U	3.2	UJ	3.2	U	3.3		6.2		6.4		30	
BENZYL CHLORIDE	NE	µg/m³	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
BROMODICHLOROMETHANE	NE	µg/m³	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	UJ	6.8	U	6.8	U	6.8	UJ	6.8	UJ	6.8	U
BROMOFORM	NE	µg/m³	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	UJ	10	U	10	U	10	U	10	UJ	10	U
BROMOMETHANE	NE	µg/m³	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	UJ	16	U	16	U	16	U	16	UJ	16	U
CARBON DISULFIDE	NE	µg/m³	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	UJ	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U
CARBON TETRACHLORIDE	210	µg/m³	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	UJ	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U
CHLOROBENZENE	NE	µg/m³	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	UJ	4.7	U	4.7	U	4.7	U	4.7	UJ	4.7	U
CHLOROETHANE	NE	µg/m³	8.0	U	8.0	U	8.0	U	8.0	U	8.0	UJ	8.0	U	8.0	U	8.0	UJ	8.0	U	8.0	U	8.0	U	8.0	UJ	8.0	U
CHLOROFORM	NE	µg/m³	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	UJ	4.9	U	4.9	U	4.9	U	4.9	UJ	4.9	U
CHLOROMETHANE	NE	µg/m³	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	UJ	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U
CIS-1,2-DICHLOROETHENE	120000	µg/m³	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	UJ	4.0	U	4.0	U	4.0	U	4.0	UJ	4.0	U
CIS-1,3-DICHLOROPROPENE	NE	µg/m³	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	UJ	4.6	U	4.6	U	4.6	U	4.6	UJ	4.6	U

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Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location					MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date													
pH	150.1	standard	NE	Apr-05	6.86	6.77	7.02	6.88	6.9	6.96	6.76	NA	NA	NA	NA	NA	NA
				Jun-05	7	6.81	6.9	6.95	6.84	6.86	6.78	NA	NA	NA	NA	NA	NA
				Oct-05	7.32	7.17	6.92	2.01	7.23	7.22	7.23	NA	NA	NA	NA	NA	NA
				Jan-06	7.04	6.76	7.03	7.17	6.77	6.73	6.8	NA	7.17	NA	NA	NA	NA
				Oct-06	7.32	7.17	6.92	2.01	7.23	7.22	7.23	NA	NA	NA	NA	NA	NA
				Apr-07	7	7	6.79	6.91	6.73	6.72	6.75	NA	NA	NA	NA	NA	NA
				Jul-10	6.8	6.75	6.85	7.03	6.87	6.79	6.9	NA	NA	NA	NA	NA	NA
				Aug-12	6.75	6.65	6.85	NA	6.67	6.63	6.81	7.07	NA	NA	NA	NA	NA
				Feb-13	6.75	6.62	6.75	NA	6.77	6.73	6.88	7.10	NA	NA	NA	NA	NA
				Aug-13	6.75	6.56	6.77	NA	6.77	6.61	6.87	6.80	NA	NA	NA	NA	NA
				Feb-14	6.72	6.56	6.76	NA	6.75	6.66	6.84	6.83	NA	NA	NA	NA	NA
				Dec-14	6.41	6.21	6.18	NA	6.44	6.30	6.58	6.61	NA	NA	NA	NA	NA
				May-15	6.45	6.38	6.48	NA	6.45	6.39	6.57	6.63	NA	NA	NA	NA	NA
TOTAL DISSOLVED SOLIDS	160.1	mg/L	NE	Apr-05	1700	1280	1350	800	2670	1950	2950	NA	NA	NA	NA	NA	NA
				Jun-05	1550	1200	1660	900	3000	3800	2900	NA	NA	NA	NA	NA	NA
				Oct-05	1720	1320	1570	930	3220	3400	3120	NA	NA	NA	NA	NA	NA
				Jan-06	1630	1290	1160	895	2730	2870	2620	NA	1320	NA	NA	NA	NA
				Oct-06	1720	1320	1570	930	3220	3400	3120	NA	NA	NA	NA	NA	NA
				Apr-07	1670	1300	790	860	2410	2800	2420	NA	NA	NA	NA	NA	NA
				Jul-10	1330	1150	1500	1050	2060	3040	1680	NA	NA	NA	NA	NA	NA
				Aug-12	1260	1150	990	NA	1890	2890	1640	2030	NA	NA	NA	NA	NA
				Feb-13	1270	1220	1010	NA	1840	3080	1560	1940	NA	NA	NA	NA	NA
				Aug-13	1270	1140	1010	NA	1710	3090	1500	1840	NA	NA	NA	NA	NA
				Feb-14	1280	1120	962	NA	1630	3130	1420	1960	NA	NA	NA	NA	NA
				Dec-14	1240	1100	920	NA	1570	2970	1340	1960	NA	NA	NA	NA	NA
				May-15	1160	1130	838	NA	1520	2900	1350	2150	NA	NA	NA	NA	NA
CHLORIDE	300.0	mg/L	NE	Apr-05	154	133	66.5	70.3	540	J 347	J 399	NA	NA	NA	NA	NA	NA
				Jun-05	158	147	83.2	67.3	543	618	486	NA	NA	NA	NA	NA	NA
				Oct-05	157	130	112	61.2	492	456	473	NA	NA	NA	NA	NA	NA
				Jan-06	166	124	90.7	65	472	441	458	NA	130	NA	NA	NA	NA
				Oct-06	157	130	112	61.2	492	456	473	NA	NA	NA	NA	NA	NA
				Apr-07	179	142	71.7	69.2	510	549	434	NA	NA	NA	NA	NA	NA
				Jul-10	194	144	215	110	329	593	249	NA	NA	NA	NA	NA	NA
				Aug-12	155	119	104	NA	251	511	244	405	NA	NA	NA	NA	NA
				Feb-13	157	121	110	NA	244	532	215	292	NA	NA	NA	NA	NA
				Aug-13	147	123	118	NA	241	543	210	264	NA	NA	NA	NA	NA
				Feb-14	145	115	120	NA	222	483	203	273	NA	NA	NA	NA	NA
				Dec-14	143	126	133	NA	229	519	193	311	NA	NA	NA	NA	NA
				May-15	142	115	129	NA	214	463	191	336	NA	NA	NA	NA	NA
NITRATE	300.0	mg/L	NE	Aug-12	10.7	9.02	0.767	NA	16.3	29.6	12.6	14.9	NA	NA	NA	NA	NA
				Feb-13	8.88	6.60	1.14	NA	14.8	33.2	12.1	15.4	NA	NA	NA	NA	NA
				Aug-13	11.0	6.22	0.465	NA	14.7	30.6	12.7	16.0	NA	NA	NA	NA	NA
				Feb-14	10.6	7.21	0.722	NA	14.3	34.4	12.6	7.50	NA	NA	NA	NA	NA
				Dec-14	10.7	8.73	0.716	NA	12.3	30.1	11.3	8.85	NA	NA	NA	NA	NA
				May-15	9.41	8.94	0.363	NA	12.2	32.1	12.7	13.3	NA	NA	NA	NA	NA
SULFATE	300.0	mg/L	NE	Apr-05	411	264	5.11	215	616	J 538	J 678	NA	NA	NA	NA	NA	NA
				Jun-05	428	275	518	222	675	1030	648	NA	NA	NA	NA	NA	NA
				Oct-05	432	270	385	198	649	830	617	NA	NA	NA	NA	NA	NA
				Jan-06	427	280	287	198	620	820	598	NA	270	NA	NA	NA	NA
				Oct-06	432	270	385	198	649	830	617	NA	NA	NA	NA	NA	NA
				Apr-07	547	327	385	228	684	943	738	NA	NA	NA	NA	NA	NA
				Jul-10	301	246	413	258	590	942	483	NA	NA	NA	NA	NA	NA
				Aug-12	303	276	163	NA	508	856	397	511	NA	NA	NA	NA	NA
				Feb-13	271	243	184	NA	454	870	350	539	NA	NA	NA	NA	NA
				Aug-13	318	261	180	NA	463	975	375	541	NA	NA	NA	NA	NA
				Feb-14	296	264	167	NA	428	931	358	538	NA	NA	NA	NA	NA
				Dec-14	319	302	166	NA	431	998	351	574	NA	NA	NA	NA	NA
				May-15	309	289	138	NA	419	930	355	659	NA	NA	NA	NA	NA

Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2											
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																							
ALKALINITY, TOTAL	310.1	mg/L	NE	Apr-05	439		545		553		343		500		442		525		NA		NA		NA		NA		
				Jun-05	320		524		968		353		507		537		507		NA		NA		NA		NA		
				Oct-05	437		490		640		350		510		460		472		NA		NA		NA		NA		
				Jan-06	433		494		544		355		491		436		464		NA	490		NA		NA		NA	
				Oct-06	437		490		640		350		510		460		472		NA		NA		NA		NA		
				Apr-07	438		525		450		363		510		480		474		NA		NA		NA		NA		
				Jul-10	448		538		662		355		521		491		491		NA		NA		NA		NA		
				Aug-12	420		423		490		NA		488		463		466		424		NA		NA		NA		
				Feb-13	437		495		519		NA		508		493		489		402		NA		NA		NA		
				Aug-13	418		484		516		NA		487		500		473		464		NA		NA		NA		
				Feb-14	404		450		487		NA		472		476		460		535		NA		NA		NA		
				Dec-14	404		429		472		NA		471		465		457		532		NA		NA		NA		
				May-15	411		439		447		NA		471		463		459		587		NA		NA		NA		
AMMONIA (NH ₃ -N)	350.2	mg/L	NE	Apr-05	0.24		0.17		0.52		0.71		0.22		0.18		0.16		NA		NA		NA		NA		
				Jun-05	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	0.1	UJ	NA		NA		NA		NA		
				Oct-05	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		
				Jan-06	0.272		0.1	U	0.16		0.1	U	0.102		0.1	U	0.582		NA		0.1	U	NA		NA		
				Oct-06	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		
				Apr-07	0.1	U	0.1	U	0.1	U	0.122		0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		
				Jul-10	0.1	U	0.1	U	0.1	U	0.1	U	0.267		0.1	U	0.1	U	NA		NA		NA		NA		
				Aug-12	0.03	U	0.03	U	0.03	U	NA		0.03	U	0.03	U	0.03	U	0.295		NA		NA		NA		
				Feb-13	0.03	U	0.03	U	0.03	U	NA		0.03	U	0.03	U	0.03	U	0.03	U	NA		NA		NA		
				Aug-13	0.120		0.185		0.140		NA		0.299		0.03	U	0.120		0.219		NA		NA		NA		
				Feb-14	0.167		0.108		0.146		NA		0.103		0.113		0.03	U	0.03	U	NA		NA		NA		
				Dec-14	0.03	U	0.03	U	0.03	U	NA		0.03	U	0.03	U	0.0748	J	0.167		NA		NA		NA		
				May-15	0.113		0.266		0.118		NA		0.155		0.134		0.208		0.128		NA		NA		NA		
TOTAL KJELDAHL NITROGEN	351.3	mg/L	NE	Apr-05	0.57		0.43		0.63		0.99		0.98		0.46		0.589		NA		NA		NA		NA		
				Jun-05	0.388		0.309		0.407		0.66		0.458		0.346		0.533		NA		NA		NA		NA		
				Oct-05	0.845		0.585		0.552		0.607		0.91		0.942		0.693		NA		NA		NA		NA		
				Jan-06	0.508		0.347		0.173		0.406		0.615		0.684		0.572		NA	0.585		NA		NA		NA	
				Oct-06	0.845		0.585		0.552		0.607		0.91		0.942		0.693		NA		NA		NA		NA		
				Apr-07	0.557		0.326		0.201		0.363		0.749		0.436		0.551		NA		NA		NA		NA		
				Jul-10	0.337		0.238		0.243		0.145		0.326		0.181		0.197		NA		NA		NA		NA		
				Aug-12	0.361		0.253		0.249		NA		0.345		0.480		0.186		0.443		NA		NA		NA		
				Feb-13	0.816		0.603		0.386		NA		0.618		0.396		0.360		0.553		NA		NA		NA		
				Aug-13	0.398		0.351		0.140		NA		0.525		0.351		0.414		0.314		NA		NA		NA		
				Feb-14	0.754		0.31		0.414		NA		0.562		0.35		0.769		0.187		NA		NA		NA		
				Dec-14	0.221		0.283		0.198		NA		0.328		0.446		0.333		0.918		NA		NA		NA		
				May-15	0.209		0.891		0.118		NA		0.263		0.665		0.247		0.338		NA		NA		NA		
PHOSPHATE	365.2	mg/L	NE	Apr-05	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		
				Jun-05	0.5	U	0.5	U	0.1	U	0.1	U	0.1	U	0.1	U	0.117		NA		NA		NA		NA		
				Oct-05	0.1	U	0.1	U	0.107		0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		
				Jan-06	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	NA		NA		
				Oct-06	0.1	U	0.1	U	0.107		0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		
				Apr-07	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		
				Jul-10	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		
				Aug-12	0.0290	J	0.0304	J	0.0537	J	NA		0.0277	J	0.0153	J	0.0194	J	0.103		NA		NA		NA		
				Feb-13	0.0247	J	0.0394	J	0.0511	J	NA		0.0321	J	0.0174	J	0.0262	J	0.110		NA		NA		NA		
				Aug-13	0.01	U	0.01	U	0.01	U	NA		0.01	U	0.01	U	0.01	U	0.107		NA		NA		NA		
				Feb-14	0.0240	J	0.0417	J	0.0512	J	NA		0.0336	J	0.01	U	0.0213	J	0.0390	J	NA		NA		NA		
				Dec-14	0.01	U	0.01	U	0.01	U	NA		0.01	U	0.01	U	0.01	U	0.01	U	NA		NA		NA		
				May-15	0.02	U	0.02	U	0.02	U	NA		0.02	U	0.02	U	0.02	U	0.02	U	NA		NA		NA		

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Sample Location					MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2													
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
DISSOLVED ALUMINUM	6020A	µg/L	1000	Apr-05	73.9	J	100	U	82.9	J	100	U	100	U	55.4	J	84.1	J	NA		100	U	63.4	J	NA		NA		NA	
				Jun-05	103		75.9	J	109		78.9	J	241		304		92.7	J	NA		53.7	J	95.5	J	NA		NA		NA	
				Oct-05	85.5	J	100	U	71.3	J	154		100	U	100	U	100	U	NA		100	U	100	U	NA		NA		NA	
				Jan-06	70.9	J	100	U	100	U	59.9		100	U	62.3	J	100	U	NA		100	U	100	U	NA		NA		NA	
				Oct-06	85.5	J	100	U	71.3	J	154		100	U	100	U	100	U	NA		100	U	100	U	100	U	NA		NA	
				Apr-07	100	U	100	U	100	U	100	U	100	U	100	U	100	U	NA		NA		NA		NA		NA		NA	
				Jul-10	100	U	100	U	100	U	100	U	100	U	100	U	100	U	NA		NA		NA		NA		NA		NA	
				Aug-12	25.9	J	16.0	J	12.5	J	NA		34.3	J	13.8	J	20.0	U	18.8	J	NA		NA		NA		NA		NA	
				Feb-13	20.0	U	20.0	U	20.0	U	NA		20.0	U	20.0	U	20.0	U	22.2	J	NA		NA		NA		NA		NA	
				Aug-13	20.0	U	20.0	U	20.0	U	NA		20.0	U	20.0	U	20.0	U	20.0	U	NA		NA		NA		NA		NA	
				Feb-14	20.0	U	20.0	U	20.0	U	NA		20.0	U	20.0	U	20.0	U	20.0	U	NA		NA		NA		NA		NA	
				Dec-14	20.0	U	20.0	U	20.0	U	NA		20.0	U	20.0	U	20.0	U	20.0	U	NA		NA		NA		NA		NA	
May-15	20.0	U	20.0	U	20.0	U	NA		20.0	U	20.0	U	20.0	U	20.0	U	NA		NA		NA		NA		NA					
DISSOLVED ANTIMONY	6020A	µg/L	6	Apr-05	1	U	1	U	1	U	1	U	1	U	1.08	U	1	U	NA		1	U	1	U	NA		NA		NA	
				Jun-05	1.03		0.676	J	0.855	J	1.23		0.782	J	1.81		1.21		NA		0.629	J	0.68	J	NA		NA		NA	
				Oct-05	1	U	1	U	1	U	1	U	0.541	J	0.582	J	1	U	NA		1	U	1	U	NA		NA		NA	
				Jan-06	1	U	1	U	1	U	1	U	1	U	0.599	UJ	1	U	NA		1	U	1	U	NA		NA		NA	
				Oct-06	1	U	1	U	1	U	1	U	0.541	J	0.582	J	1	U	NA		1	U	1	U	1	U	NA		NA	
				Apr-07	1	U	1	U	1	U	1	U	1	U	0.502	J	1	U	NA		NA		NA		NA		NA		NA	
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		NA		NA		NA		NA		NA	
				Aug-12	0.500	U	0.500	U	0.500	U	NA		0.500	U	0.622	J	0.500	U	0.575	J	NA		NA		NA		NA		NA	
				Feb-13	0.500	U	0.500	U	0.260	J	NA		0.500	U	0.423	J	0.500	U	0.325	J	NA		NA		NA		NA		NA	
				Aug-13	0.500	U	0.500	U	0.500	U	NA		0.500	U	0.395	J	0.500	U	0.323	J	NA		NA		NA		NA		NA	
				Feb-14	0.500	U	0.500	U	0.500	U	NA		0.500	U	0.396	J	0.500	U	0.298	J	NA		NA		NA		NA		NA	
				Dec-14	0.500	U	0.500	U	0.266	J	NA		0.500	U	0.446	J	0.500	U	0.436	J	NA		NA		NA		NA		NA	
May-15	0.500	U	0.500	U	0.500	U	NA		0.500	U	0.406	J	0.500	U	0.275	J	NA		NA		NA		NA		NA					
DISSOLVED ARSENIC	6020A	µg/L	10	Apr-05	1.19		2.01		4.85		1.29		0.885	J	1.51		0.86	J	NA		1	U	1	U	NA		NA		NA	
				Jun-05	1.35		2.14		4.86		1.31		1.93		3.14		1.64		NA		0.533	J	0.67	J	NA		NA		NA	
				Oct-05	0.757	J	1.85		5.44		1.6		1.13		2.09		0.944	J	NA		1	U	1	U	NA		NA		NA	
				Jan-06	0.915	J	1.81		5.95		1.29		1.11		1.91		1.01		NA		1	U	1	U	NA		NA		NA	
				Oct-06	0.757	J	1.85		5.44		1.6		1.13		2.09		0.944	J	NA		1	U	1	U	1	U	NA		NA	
				Apr-07	0.552	J	0.905	J	6.72		1.27		0.887	J	2.07		0.785	J	NA		NA		NA		NA		NA		NA	
				Jul-10	0.731	J	1.69		3.8		0.832	J	0.949	J	1.77		0.616	J	NA		NA		NA		NA		NA		NA	
				Aug-12	0.622	J	1.18		8.68		NA		0.806	J	1.64		0.492	J	4.39		NA		NA		NA		NA		NA	
				Feb-13	0.663	J	1.17		4.04		NA		0.784	J	1.66		0.496	J	4.51		NA		NA		NA		NA		NA	
				Aug-13	0.636	J	1.21		4.08		NA		0.640	J	1.50		0.460	J	3.57		NA		NA		NA		NA		NA	
				Feb-14	0.618	J	1.22		4.28		NA		0.724	J	1.68		0.459	J	5.04		NA		NA		NA		NA		NA	
				Dec-14	0.691	J	1.36		6.52		NA		0.702	J	1.49		0.422	J	5.07		NA		NA		NA		NA		NA	
May-15	0.700	J	1.37		9.96		NA		0.808	J	1.56		0.518	J	3.13		NA		NA		NA		NA		NA					
DISSOLVED BARIUM	6020A	µg/L	1000	Apr-05	40.9		72.4		54.8		45.6		24.1		43.2		68		NA		1	U	1.47		NA		NA		NA	
				Jun-05	37.6		83.3		70.2		46.5		25.4		48		50.8		NA		1	U	1	U	NA		NA		NA	
				Oct-05	42.2		78.9		68		50.7		25.2		35.7		34		NA		1	U	1	U	NA		NA		NA	
				Jan-06	38.4		71.8		58.7		53		24		31.3		31.6		NA		1	U	1	U	NA		NA		NA	
				Oct-06	42.2		78.9		68		50.7		25.2		35.7		34		NA		1	U	1	U	1	U	NA		NA	
				Apr-07	42.2		65.2		56		52.4		26.5		30.7		32.1		NA		NA		NA		NA		NA		NA	
				Jul-10	40.1		66.9		81.2		60.6		20.7		23.4		23.5		NA		NA		NA		NA		NA		NA	
				Aug-12	37.5		62.1		47.6		NA		20.9		25.4		26.1		50.8		NA		NA		NA		NA		NA	
				Feb-13	39.4		89.5		49.9		NA		19.9		22.6		26.7		23.8		NA		NA		NA		NA		NA	
				Aug-13	36.2		91.6		50.7		NA		18.8		22.6		24.1		25.5		NA		NA		NA		NA		NA	
				Feb-14	36.9		74.1		55.1		NA		20.5		22.6		25.2		33.4		NA		NA		NA		NA		NA	
				Dec-14	37.7		51.3		56.9		NA		20.7		21.4		25.6		34.9		NA		NA		NA		NA		NA	
May-15	36.6		48.6		57.4		NA		21.7		22.0		26.9		31.8		NA		NA		NA		NA		NA					

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Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2											
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																							
DISSOLVED BERYLLIUM	6020A	µg/L	4	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	1	U	NA	NA		
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	NA	NA	NA	NA	NA	NA	NA	NA			
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA	NA	NA	NA	NA	NA	NA	NA			
				Aug-12	0.100	U	0.100	U	0.100	U	NA	0.100	U	0.100	U	0.100	U	0.100	U	NA	NA	NA	NA	NA	NA		
				Feb-13	0.100	U	0.100	U	0.100	U	NA	0.100	U	0.100	U	0.100	U	0.100	U	NA	NA	NA	NA	NA	NA		
				Aug-13	0.100	U	0.100	U	0.100	U	NA	0.100	U	0.100	U	0.100	U	0.100	U	NA	NA	NA	NA	NA	NA		
				Feb-14	0.100	U	0.100	U	0.100	U	NA	0.100	U	0.100	U	0.100	U	0.100	U	NA	NA	NA	NA	NA	NA		
				Dec-14	0.100	U	0.100	U	0.100	U	NA	0.100	U	0.100	U	0.100	U	0.100	U	NA	NA	NA	NA	NA	NA		
May-15	0.100	U	0.100	U	0.100	U	NA	0.100	U	0.100	U	0.100	U	0.100	U	NA	NA	NA	NA	NA	NA						
DISSOLVED CADMIUM	6020A	µg/L	5	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	1	U	NA	NA		
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	NA	NA	NA	NA	NA	NA	NA	NA			
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA	NA	NA	NA	NA	NA	NA	NA			
				Aug-12	0.101	J	0.138	J	0.250	J	NA	0.200	U	0.177	J	0.103	J	0.106	J	NA	NA	NA	NA	NA	NA		
				Feb-13	0.200	U	0.195	J	0.200	U	NA	0.200	U	0.143	J	0.200	U	0.200	U	NA	NA	NA	NA	NA	NA		
				Aug-13	0.200	U	0.214	J	0.108	J	NA	0.200	U	0.165	J	0.200	U	0.200	U	NA	NA	NA	NA	NA	NA		
				Feb-14	0.200	U	0.224	J	0.200	U	NA	0.200	U	0.231	J	0.200	U	0.126	J	NA	NA	NA	NA	NA	NA		
				Dec-14	0.200	U	0.136	J	0.154	J	NA	0.200	U	0.242	J	0.200	U	0.200	U	NA	NA	NA	NA	NA	NA		
May-15	0.200	U	0.312	J	0.134	J	NA	0.200	U	0.194	J	0.200	U	0.110	J	NA	NA	NA	NA	NA	NA						
DISSOLVED CALCIUM	6020A	µg/L	NE	Apr-05	188000		158000		186000		130000		312000		224000		286000		NA	107	150		NA	NA	NA		
				Jun-05	178000		175000		227000		122000		333000		365000		301000		NA	66.8	J	110		NA	NA	NA	
				Oct-05	196000		166000		211000		132000		325000		310000		294000		NA	83.2	UJ	234	U	NA	NA	NA	
				Jan-06	173000		148000		160000		126000		287000		282000		274000		NA	275		80.1	J	NA	NA	NA	
				Oct-06	196000		166000		211000		132000		325000		310000		294000		NA	83.2	J	234		234		NA	NA
				Apr-07	182000		157000		110000		124000		293000		301000		290000		NA	NA	NA	NA	NA	NA	NA	NA	
				Jul-10	136000		132000		202000		122000		197000		269000		160000		NA	NA	NA	NA	NA	NA	NA	NA	
				Aug-12	143000		140000		131000		NA		197000		299000		173000		165000		NA	NA	NA	NA	NA	NA	NA
				Feb-13	131000		132000		136000		NA		175000		313000		150000		172000		NA	NA	NA	NA	NA	NA	NA
				Aug-13	141000		139000		143000		NA		178000		309000		161000		189000		NA	NA	NA	NA	NA	NA	NA
				Feb-14	132000		136000		123000		NA		163000		284000		144000		194000		NA	NA	NA	NA	NA	NA	NA
				Dec-14	138000		142000		124000		NA		164000		306000		144000		197000		NA	NA	NA	NA	NA	NA	NA
May-15	136000		146000		115000		NA		165000		284000		150000		218000		NA	NA	NA	NA	NA	NA	NA				
DISSOLVED CHROMIUM	6020A	µg/L	50	Apr-05	1	U	1	U	1.55		1.98		0.705	J	1	U	1	U	NA	1	U	1	U	NA	NA	NA	
				Jun-05	1.09		0.723	J	1.23		2.33		1.2		2.48		0.794	J	NA	0.806	J	2.11		NA	NA	NA	
				Oct-05	0.651	J	0.553	J	1.11		2.37		1.06		0.588	J	0.958	J	NA	0.53	J	1	U	NA	NA	NA	
				Jan-06	0.643	J	1	U	0.728	J	2.17		0.928	J	0.737	J	0.798	J	NA	0.549	J	1	U	NA	NA	NA	
				Oct-06	0.651	J	1	U	1.11		2.37		1.06		0.588	J	0.958	J	NA	0.53	J	1	U	1	U	NA	NA
				Apr-07	1	U	1	U	1	U	1.71		0.73	J	1	U	0.985	J	NA	NA	NA	NA	NA	NA	NA	NA	
				Jul-10	1	U	1	U	1	U	1.43		0.527	J	1	U	1	U	NA	NA	NA	NA	NA	NA	NA	NA	
				Aug-12	0.292	J	0.412	J	0.189	J	NA		0.482	J	0.154	J	0.296	J	6.21		NA	NA	NA	NA	NA	NA	
				Feb-13	0.203	J	0.181	J	0.319	J	NA		0.337	J	0.152	J	0.185	J	0.824	J	NA	NA	NA	NA	NA	NA	
				Aug-13	0.279	J	0.219	J	0.260	J	NA		0.356	J	0.227	J	0.219	J	0.789	J	NA	NA	NA	NA	NA	NA	
				Feb-14	0.297	J	0.214	J	0.196	J	NA		0.342	J	0.232	J	0.186	J	0.185	J	NA	NA	NA	NA	NA	NA	
				Dec-14	0.236	J	0.382	J	0.218	J	NA		0.373	J	0.222	J	0.422	J	0.291	J	NA	NA	NA	NA	NA	NA	
May-15	0.319	J	0.479	J	0.168	J	NA		0.419	J	0.377	J	0.275	J	0.177	J	NA	NA	NA	NA	NA	NA					

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Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location					MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2												
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																									
DISSOLVED COBALT	6020A	µg/L	NE	Apr-05	1.14		3.88		1	U	1	U	1	U	1.05		NA	1	U	1	U	NA		NA	NA				
				Jun-05	1.22		4.27		1	U	1	U	0.865	J	1.05		1.6		NA	1	U	1	U	NA		NA	NA		
				Oct-05	1.18		3.64		1	U	1	U	0.792	J	0.542	J	0.767	J	NA	1	U	1	U	NA		NA	NA		
				Jan-06	0.957	J	3.26		1	U	1	U	0.742	J	0.685	J	0.898	J	NA	1	U	1	U	NA		NA	NA		
				Oct-06	1.18		3.64		1	U	1	U	0.792	J	0.542	J	0.767	J	NA	1	U	1	U	1	U	NA	NA		
				Apr-07	1	U	2.95		1	U	1	U	1	J	1	U	0.612	J	NA	NA		NA		NA		NA	NA		
				Jul-10	1.35		2.14		0.843	J	1	U	0.831	J	1.25		0.684	J	NA	NA		NA		NA		NA	NA		
				Aug-12	0.617	J	0.351	J	0.424	J	NA		0.509	J	0.836	J	0.558	J	0.481	J	NA		NA		NA		NA	NA	
				Feb-13	1.18		0.588	J	0.474	J	NA		0.584	J	0.898	J	0.581	J	0.547	J	NA		NA		NA		NA	NA	
				Aug-13	0.810	J	1.01		0.307	J	NA		0.328	J	0.514	J	0.304	J	0.451	J	NA		NA		NA		NA	NA	
				Feb-14	0.805	J	0.571	J	0.334	J	NA		0.382	J	0.618	J	0.385	J	1.50		NA		NA		NA		NA	NA	
				Dec-14	1.05		0.464	J	0.421	J	NA		0.463	J	0.829	J	0.448	J	2.69		NA		NA		NA		NA	NA	
				May-15	0.779	J	0.354	J	0.401	J	NA		0.421	J	0.718	J	0.440	J	0.811	J	NA		NA		NA		NA	NA	
DISSOLVED COPPER	6020A	µg/L	1300	Apr-05	5.68		3.41		7.75		4.98		2.86		5.82		8.9		NA	2.09		5.48		NA		NA	NA		
				Jun-05	3.94		5.65		6.49		5.18		14		30.6		4.47		NA	3.04		5.89		NA		NA	NA		
				Oct-05	6.28		2.18	U	6.03		9.78		2.56	U	3.47		1.81	U	NA	0.537	UJ	2.87		NA		NA	NA		
				Jan-06	5.89		3.94		4.33		5.47		4.25		5.02		1.65		NA	1	U	0.98	J	NA		NA	NA		
				Oct-06	6.28		2.18		6.03		9.78		2.56		3.47		1.81		NA	0.537	J	2.87		2.87		NA	NA		
				Apr-07	2.08		6.14		1.16		1.22		1.15		1.35		2.29		NA	NA		NA		NA		NA	NA		
				Jul-10	1.52		0.767	J	1.5		0.592	J	1.17		1.19		1.49		NA	NA		NA		NA		NA	NA		
				Aug-12	1.78		1.40		1.38		NA		1.82		1.52		1.09		3.32		NA		NA		NA		NA	NA	
				Feb-13	2.21		5.37		1.61		NA		1.77		2.02		1.20		1.86		NA		NA		NA		NA	NA	
				Aug-13	1.17		1.47		1.92		NA		0.983	J	1.99		1.21		1.15		NA		NA		NA		NA	NA	
				Feb-14	2.43		1.88		2.51		NA		1.80		3.07		0.815	J	0.689	J	NA		NA		NA		NA	NA	
				Dec-14	1.64		1.52		2.13		NA		1.48		1.98		1.87		2.47		NA		NA		NA		NA	NA	
				May-15	0.877	J	1.01		1.47		NA		1.26		1.35		0.702	J	1.07		NA		NA		NA		NA	NA	
DISSOLVED IRON	6020A	µg/L	NE	Apr-05	100	U	100	U	100	U	100	U	100	U	100	U	NA	100	U	100	U	NA		NA	NA				
				Jun-05	100	U	100	U	100	U	100	U	136		75.5	J	71.9	J	NA	100	U	100	U	NA		NA	NA		
				Oct-05	100	U	55.7	J	100	U	100	U	100	U	100	U	100	U	NA	100	U	100	U	NA		NA	NA		
				Jan-06	100	U	111	U	100	U	100	U	100	U	100	U	100	U	NA	100	J	100	U	NA		NA	NA		
				Oct-06	100	U	55.7	J	100	U	100	U	100	U	100	U	100	U	NA	100	U	100	U	100	U	NA	NA		
				Apr-07	100	U	100	U	100	U	100	U	100	U	100	U	100	U	NA	NA		NA		NA		NA	NA		
				Jul-10	100	U	137		100	U	100	U	100	U	100	U	100	U	NA	NA		NA		NA		NA	NA		
				Aug-12	10.0	U	10.0	U	10.0	U	NA		7.17	J	10.0	U	6.35	J	10.0	U	NA		NA		NA		NA	NA	
				Feb-13	10.0	U	14.2	J	10.0	U	NA		10.0	U	8.23	J	5.26	J	6.07	J	NA		NA		NA		NA	NA	
				Aug-13	10.0	U	13.4	J	10.0	U	NA		10.0	U	10.0	U	10.0	U	10.0	U	NA		NA		NA		NA	NA	
				Feb-14	10.0	U	6.62	J	10.0	U	NA		10.0	U	10.0	U	10.0	U	37.1	J	NA		NA		NA		NA	NA	
				Dec-14	10.0	U	10.0	U	10.0	U	NA		6.60	J	10.0	U	10.0	U	15.0	J	NA		NA		NA		NA	NA	
				May-15	10.0	U	10.0	U	10.0	U	NA		10.0	U	10.0	U	10.0	U	10.0	U	NA		NA		NA		NA	NA	
DISSOLVED LEAD	6020A	µg/L	15	Apr-05	1.2		1	U	1	U	1.04		1.06		1	U	1.14		NA	1	U	1	U	NA		NA	NA		
				Jun-05	1	U	0.652	J	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA		NA	NA		
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA		NA	NA		
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA		NA	NA		
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	1	U	NA	NA		
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	NA		NA		NA		NA	NA		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	NA		NA		NA		NA	NA		
				Aug-12	0.100	U	0.100	U	0.100	U	NA		0.100	U	0.100	U	0.100	U	0.100	U	NA		NA		NA		NA	NA	
				Feb-13	0.104	J	0.0554	J	0.100	U	NA		0.100	U	0.100	U	0.100	U	0.100	U	NA		NA		NA		NA	NA	
				Aug-13	0.0670	J	0.0762	J	0.100	U	NA		0.100	U	0.0607	J	0.106	J	0.0654	J	NA		NA		NA		NA	NA	
				Feb-14	0.157	J	0.0828	J	0.138	J	NA		0.0503	J	0.117	J	0.0843	J	0.100	U	NA		NA		NA		NA	NA	
				Dec-14	0.200	J	0.0734	J	0.100	U	NA		0.101	J	0.0537	J	0.143	J	0.152	J	NA		NA		NA		NA	NA	
				May-15	0.100	U	0.100	U	0.100	U	NA		0.100	U	0.100	U	0.100	U	0.100	U	NA		NA		NA		NA	NA	

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Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2														
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
DISSOLVED MAGNESIUM	6020A	µg/L	NE	Apr-05	99600		73100		65500		44600		218000		155000		191000		NA		100	U	100	U	NA		NA		NA	
				Jun-05	98000		84500		81600		43200		234000		293000		206000		NA		75.5	J	90.3	J	NA		NA		NA	
				Oct-05	107000		79100		74300		46100		221000		245000		193000		NA		100	U	81.5	J	NA		NA		NA	
				Jan-06	98900		74000		62900		46300		207000		230000		192000		NA		56.7	J	100	U	NA		NA		NA	
				Oct-06	107000		79100		74300		46100		221000		245000		193000		NA		100	U	81.5	J	81.5	J	NA		NA	
				Apr-07	92300		69700		43200		41600		21000		227000		197000		NA		NA		NA		NA		NA		NA	
				Jul-10	73900		54900		68800		36900		122000		228000		95200		NA		NA		NA		NA		NA			
				Aug-12	78200		55600		48300		NA		118000		242000		103000		112000		NA		NA		NA		NA		NA	
				Feb-13	72900		58300		51400		NA		120000		242000		96700		96500		NA		NA		NA		NA		NA	
				Aug-13	76200		57700		50000		NA		110000		249000		94800		104000		NA		NA		NA		NA		NA	
				Feb-14	65600	J	57000	J	45400	J	NA		104000	J	213000	J	89100	J	114000	J	NA		NA		NA		NA		NA	
				Dec-14	73300		55300		50900		NA		117000		237000		86000		137000		NA		NA		NA		NA		NA	
				May-15	63000		55300		45900		NA		112000		222000		87500		147000		NA		NA		NA		NA		NA	
DISSOLVED MANGANESE	6020A	µg/L	NE	Apr-05	547		2110		3.13		1	U	85		7.05		416		NA		1	U	0.94	J	NA		NA		NA	
				Jun-05	405		2370		3		0.859	J	111		146		374		NA		0.64	J	0.826	J	NA		NA		NA	
				Oct-05	470		2090		5.1		1.29		138		116		105		NA		1	U	1	U	NA		NA		NA	
				Jan-06	299		1750		49.1		1	U	131		43.4		116		NA		1	U	1	U	NA		NA		NA	
				Oct-06	470		2090		5.1		1.29		138		116		105		NA		1	U	1	U	1	U	NA		NA	
				Apr-07	64.6		1340		137		3.31		28		6.32		39.6		NA		NA		NA		NA		NA		NA	
				Jul-10	539		1000		0.509	J	1	U	47.8		25.9		24.4		NA		NA		NA		NA		NA		NA	
				Aug-12	317		77.4		13.6		NA		7.83		16.6		53.5		17.9		NA		NA		NA		NA		NA	
				Feb-13	436	J	508	J	1.30	J	NA		26.7	J	77.8	J	106	J	47.0	J	NA		NA		NA		NA		NA	
				Aug-13	313	J	819	J	1.70	J	NA		28.5	J	27.1	J	22.5	J	67.9	J	NA		NA		NA		NA		NA	
				Feb-14	285	J	709	J	5.45	J	NA		16.4	J	86.0	J	31.1	J	203	J	NA		NA		NA		NA		NA	
				Dec-14	374		79.1		44.3		NA		16.5		41.9		34.6		332		NA		NA		NA		NA		NA	
				May-15	269	J	153	J	116	J	NA		14.3	J	26.0	J	65.9	J	83.0	J	NA		NA		NA		NA		NA	
DISSOLVED MOLYBDENUM	6020A	µg/L	NE	Apr-05	53.5		25.7		40.2		29.1		19.4		26		23.4		NA		2	U	2	U	NA		NA		NA	
				Jun-05	47.1		29.5		33.2		23.1		18.1		54.5		19.1		NA		2	U	2	U	NA		NA		NA	
				Oct-05	50.5		30.1		33.4		24.8		17.9		46.5		13.6		NA		2	U	2	U	NA		NA		NA	
				Jan-06	48.1		26.8		34.4		22.8		16.6		48.9		13		NA		2	U	2	U	NA		NA		NA	
				Oct-06	50.5		30.1		33.4		24.8		17.9		46.5		13.6		NA		2	U	2	U	2	U	NA		NA	
				Apr-07	29.2		25		44.3		24.6		17.9		55.3		13.2		NA		NA		NA		NA		NA		NA	
				Jul-10	52		24.8		24		20.1		20.8		40.6		16.4		NA		NA		NA		NA		NA		NA	
				Aug-12	49.1		18.8		34.2		NA		20.2		32.3		16.2		30.8		NA		NA		NA		NA		NA	
				Feb-13	52.5		22.0		25.5		NA		22.3		32.1		17.5		42.5		NA		NA		NA		NA		NA	
				Aug-13	50.4		23.1		27.1		NA		22.2		35.7		17.6		32.7		NA		NA		NA		NA		NA	
				Feb-14	50.9		23.1		35.4		NA		23.6		28.9		18.6		27.7		NA		NA		NA		NA		NA	
				Dec-14	55.9		22.7		45.5		NA		25.3		40.6		20.2		34.8		NA		NA		NA		NA		NA	
				May-15	51.6		22.7		47.2		NA		24.8		32.8		19.9		34.5		NA		NA		NA		NA		NA	
DISSOLVED NICKEL	6020A	µg/L	100	Apr-05	7.99		10.5		10.1		3.24		8.73		3.34		14.9		NA		0.235	J	0.438	J	NA		NA		NA	
				Jun-05	7.47		14.4		12.6		3.42		13.8		15.8		13.6		NA		0.518	J	1.01		NA		NA		NA	
				Oct-05	6.2		12.7		19.8		25.8		10.9		18		11.7		NA		1	U	1	U	NA		NA		NA	
				Jan-06	6.32		16.4		20.7		5.89		13.3		26.6		7.54		NA		1	U	1	U	NA		NA		NA	
				Oct-06	6.2		12.7		19.8		25.8		10.9		18		11.7		NA		1	U	1	U	1	U	NA		NA	
				Apr-07	2.83		9.7		2.28		28.4		6.03		2.84		2.9		NA		NA		NA		NA		NA		NA	
				Jul-10	6.8		6.36		6.38		1.06		5.55		4.54		3.2		NA		NA		NA		NA		NA		NA	
				Aug-12	10.3		4.35		2.22		NA		2.53		5.06		14.6		2.62		NA		NA		NA		NA		NA	
				Feb-13	6.80		7.11		2.27		NA		4.16		7.81		3.25		1.94		NA		NA		NA		NA		NA	
				Aug-13	5.57		5.46		2.72		NA		3.71		4.41		2.12		2.74		NA		NA		NA		NA		NA	
				Feb-14	5.22		5.73		1.83		NA		3.12		7.76		2.20		4.65		NA		NA		NA		NA		NA	
				Dec-14	6.49		2.68		1.97		NA		2.93		7.16		2.08		4.94		NA		NA		NA		NA		NA	
				May-15	5.26		5.23		2.09		NA		3.45		5.51		2.19		2.79		NA		NA		NA		NA		NA	

Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location					MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2													
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
DISSOLVED POTASSIUM	6020A	µg/L	NE	Apr-05	5060		4640		2010		1350		8430		3840		10800		NA		69.1	U	54.2	U	NA		NA		NA	
				Jun-05	5130		5180		1750		1350		9100		7990		9950		NA		80.4	U	94.1	J	NA		NA		NA	
				Oct-05	5120		4480		1970		1340		8440		7480		8160		NA		100	U	100	U	NA		NA		NA	
				Jan-06	4620		4040		1950		1270		7960		7160		7770		NA		100	U	100	U	NA		NA		NA	
				Oct-06	5120		4480		1970		1340		8440		7480		8160		NA		100	U	100	U	100	U	NA		NA	
				Apr-07	4710		3990		1950		1350		8220		7920		8190		NA		NA		NA		NA		NA		NA	
				Jul-10	3680		3250		1470		1110		6570		7060		6120		NA		NA		NA		NA		NA		NA	
				Aug-12	3910		3170		1520		NA		6460		7750		6100		22100		NA		NA		NA		NA		NA	
				Feb-13	3720		3360		1530		NA		6500		7530		5980		10900		NA		NA		NA		NA		NA	
				Aug-13	3770		3250		1440		NA		6200		6120		5910		7540		NA		NA		NA		NA		NA	
				Feb-14	3620		3090		1440		NA		5830		7780		5600		7530		NA		NA		NA		NA		NA	
				Dec-14	3760		3130		1650		NA		6050		7830		5690		10700		NA		NA		NA		NA		NA	
				May-15	3760		3170		1770		NA		6280		8030		6060		7800		NA		NA		NA		NA		NA	
DISSOLVED SELENIUM	6020A	µg/L	50	Apr-05	11.6		5.42		21.6		13.1		5.29		5.36		7.35		NA		1	U	1	U	NA		NA		NA	
				Jun-05	6.14		5.17		8.25		12.1		7.15		6.28		8.54		NA		1	U	1	U	NA		NA		NA	
				Oct-05	10.9		7.1		3.68		14.3		7.14		9.36		10.3		NA		1	U	1	U	NA		NA		NA	
				Jan-06	12		6.55		1.49		13.8		6.83		9.6		9.36		NA		1	U	1	U	NA		NA		NA	
				Oct-06	10.9		7.1		3.68		14.3		7.14		9.36		10.3		NA		1	U	1	U	1	U	NA		NA	
				Apr-07	14.4		6.28		1.09		1.4		7.19		9.56		18.2		NA		NA		NA		NA		NA		NA	
				Jul-10	9.57		6.08		1	U	9.68		7.65		5.8		12.5		NA		NA		NA		NA		NA		NA	
				Aug-12	11.5		12.9		0.589	J	NA		10.6		8.91		8.22		10.0		NA		NA		NA		NA		NA	
				Feb-13	10.6		8.13		1.81		NA		9.51		9.75		6.97		11.8		NA		NA		NA		NA		NA	
				Aug-13	12.0		6.71		1.47		NA		10.4		10.4		8.21		11.7		NA		NA		NA		NA		NA	
				Feb-14	12.2		7.77		1.23		NA		11.0		12.2		9.74		7.39		NA		NA		NA		NA		NA	
				Dec-14	13.2		13.2		0.796	J	NA		13.2		10.6		12.3		9.83		NA		NA		NA		NA		NA	
				May-15	13.6		12.6		0.438	J	NA		15.3		12.7		15.0		14.1		NA		NA		NA		NA		NA	
DISSOLVED SILVER	6020A	µg/L	NE	Apr-05	1	U	1.38		1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		NA		NA	
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		NA		NA	
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		NA		NA	
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		NA		NA	
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	NA		NA	
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		NA		NA		NA		NA		NA	
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		NA		NA		NA		NA		NA	
				Aug-12	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA		NA		NA		NA		NA	
				Feb-13	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA		NA		NA		NA		NA	
				Aug-13	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA		NA		NA		NA		NA	
				Feb-14	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA		NA		NA		NA		NA	
				Dec-14	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA		NA		NA		NA		NA	
				May-15	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA		NA		NA		NA		NA	
DISSOLVED SODIUM	6020A	µg/L	NE	Apr-05	193000		170000		227000		105000		220000		214000		267000		NA		283		348		NA		NA		NA	
				Jun-05	189000		196000		251000		99100		238000		317000		253000		NA		258		283		NA		NA		NA	
				Oct-05	205000		182000		220000		106000		232000		243000		218000		NA		105	U	268	U	NA		NA		NA	
				Jan-06	183000		165000		171000		101000		210000		223000		208000		NA		222		70.3	J	NA		NA		NA	
				Oct-06	205000		182000		220000		106000		232000		243000		218000		NA		105		268		268		NA		NA	
				Apr-07	175000		158000		117000		95700		195000		206000		194000		NA		NA		NA		NA		NA		NA	
				Jul-10	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
				Aug-12	143000		131000		122000		NA		163000		218000		155000		293000		NA		NA		NA		NA		NA	
				Feb-13	136000		130000		122000		NA		158000		217000		149000		221000		NA		NA		NA		NA		NA	
				Aug-13	142000		136000		125000		NA		158000		233000		158000		206000		NA		NA		NA		NA		NA	
				Feb-14	131000		128000		117000		NA		149000		219000		146000		201000		NA		NA		NA		NA		NA	
				Dec-14	142000		134000		127000		NA		156000		219000		150000		210000		NA		NA		NA		NA		NA	
				May-15	134000		135000		124000		NA		155000		217000		160000		215000		NA		NA		NA		NA		NA	

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Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																							
DISSOLVED THALLIUM	6020A	µg/L	2	Apr-05	1	UJ	1	UJ	1	U	1	UJ	1	UJ	1	UJ	1	UJ	NA	1	UJ	1	UJ	NA	NA	NA	
				Jun-05	1	U	1	U	1	U	1	U	1.28	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Oct-05	1	U	1	U	0.512	J	1	U	0.503	J	1	U	1	U	NA	1	U	1	U	NA	NA	NA	
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	NA	NA			
				Oct-06	1	U	1	U	0.512	J	1	U	0.503	J	1	U	1	U	NA	1	U	1	U	1	U	NA	NA
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	NA	NA	NA	NA	NA	NA	NA	NA	NA		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA	NA	NA	NA	NA	NA	NA	NA			
				Aug-12	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA	NA	NA	NA	NA		
				Feb-13	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA	NA	NA	NA	NA		
				Aug-13	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA	NA	NA	NA	NA		
				Feb-14	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA	NA	NA	NA	NA		
				Dec-14	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA	NA	NA	NA	NA		
				May-15	0.200	U	0.200	U	0.200	U	NA		0.200	U	0.200	U	0.200	U	0.200	U	NA	NA	NA	NA	NA		
DISSOLVED VANADIUM	6020A	µg/L	NE	Apr-05	5.65		3.86		9.53		8.44		3.86		4.2		3.78		NA	1	U	1	U	NA	NA	NA	
				Jun-05	7.34		5.36		12.4		9.26		7.13		7.9		6.41		NA	2.84		3.22		NA	NA	NA	
				Oct-05	6.03		4.88		9.19		9.47		4.2		4	U	5.46		NA	0.645	UJ	1.24	U	NA	NA	NA	
				Jan-06	6.14		4.56		7.14		9.15		4.12		4.25		4.89		NA	0.689	J	0.81	J	NA	NA	NA	
				Oct-06	6.03		4.88		9.19		9.47		4.2		4		5.46		NA	0.645	J	1.24		1.24		NA	NA
				Apr-07	4.34		3.2		5.35		7.92		3.35		3.75		4.07		NA	NA		NA		NA	NA	NA	
				Jul-10	4.9		3.3		6.88		7.44		3.68		2.09		3.9		NA	NA		NA		NA	NA	NA	
				Aug-12	5.22		4.33		5.54		NA		3.20		3.71		3.88		4.40	NA	NA	NA	NA	NA	NA		
				Feb-13	5.37		4.05		6.23		NA		3.80		3.20		4.22		4.67	NA		NA		NA	NA	NA	
				Aug-13	5.42		3.77		6.27		NA		3.18		2.61		4.16		5.00	NA		NA		NA	NA	NA	
				Feb-14	5.44		4.21		6.09		NA		3.41		3.52		4.20		3.50	NA		NA		NA	NA	NA	
				Dec-14	5.67		5.28		6.09		NA		3.53		2.45		4.34		2.86	NA		NA		NA	NA	NA	
				May-15	5.68		5.50		5.40		NA		3.75		3.58		4.54		5.36	NA		NA		NA	NA	NA	
DISSOLVED ZINC	6020A	µg/L	NE	Apr-05	26.4		40		29		17.3		19.4		21.6		14.5		NA	6.43	J	9.98	J	NA	NA	NA	
				Jun-05	14.2		16.4		9.6	J	22.4		8.64	J	23.5		11.7		NA	9.57	J	9.57	J	NA	NA	NA	
				Oct-05	24.4		13.7		14.2		7.29	J	20.4		10.2		10.6		NA	10	U	27.6		NA	NA	NA	
				Jan-06	8.38	J	19.2		12.6		9.39	J	12.7		22.6		10	U	NA	7.42	J	5.68	J	NA	NA	NA	
				Oct-06	24.4		13.7		14.2		7.29	J	20.4		10.2		10.6		NA	10	U	27.6		27.6		NA	NA
				Apr-07	13.8		24.7		11.6		7.09	J	9.13	J	15.8		11.3		NA	NA		NA		NA	NA	NA	
				Jul-10	25	U	25	U	25	U	25	U	10.6	J	15.1	J	12.3	J	NA	NA		NA		NA	NA	NA	
				Aug-12	7.69	J	8.71	J	10.2	J	NA		8.01	J	9.56	J	7.07	J	10.2	J	NA		NA		NA	NA	
				Feb-13	9.34	J	19.2	J	11.6	J	NA		6.20	J	11.0	J	7.61	J	10.4	J	NA		NA		NA	NA	
				Aug-13	8.43	J	16.8	J	6.55	J	NA		10.0	U	9.28	J	9.80	J	6.17	J	NA		NA		NA	NA	
				Feb-14	10.0	U	14.5	J	7.58	J	NA		5.84	J	7.58	J	10.0	U	5.35	J	NA		NA		NA	NA	
				Dec-14	6.36	J	8.13	J	9.85	J	NA		6.85	J	9.96	J	5.05	J	8.03	J	NA		NA		NA	NA	
				May-15	10.0	U	21.1		8.73	J	NA		16.9	J	7.89	J	9.39	J	7.79	J	NA		NA		NA	NA	
DISSOLVED MERCURY	7470A	µg/L	2	Apr-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA	NA	NA		
				Jun-05	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	NA	0.5	UJ	0.5	UJ	NA	NA	NA	
				Oct-05	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	NA	0.5	U	0.5	UJ	NA	NA	NA	
				Jan-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA	0.5	U	0.5	U	NA	NA	NA	
				Oct-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA	0.5	U	0.5	U	0.5	U	NA	
				Apr-07	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA	NA	NA	NA	NA	NA	NA		
				Jul-10	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA	NA	NA	NA	NA	NA			
				Aug-12	0.100	U	0.100	U	0.100	U	NA		0.100	U	0.100	U	0.100	U	0.100	U	NA	NA	NA	NA	NA		
				Feb-13	0.100	U	0.100	U	0.100	U	NA		0.100	U	0.100	U	0.100	U	0.100	U	NA	NA	NA	NA	NA		
				Aug-13	.054	U	.054	U	.054	U	NA		.054	U	.054	U	.054	U	.054	U	NA	NA	NA	NA	NA		
				Feb-14	0.27	U	0.27	U	0.27	U	NA		0.27	U	0.27	U	0.27	U	0.27	U	NA	NA	NA	NA	NA		
				Dec-14	0.054	U	0.054	U	0.054	U	NA		0.054	U	0.0920	J	0.054	U	0.054	U	NA	NA	NA	NA	NA		
				May-15	0.1	U	0.1	U	0.1	U	NA		0.1	U	0.1	U	0.1	U	0.1	U	NA	NA	NA	NA	NA		

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Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2												
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																								
TPH-DIESEL RANGE	8015B	mg/L	0.1 ^f	Apr-05	0.11	J	0.12	J	0.47	U	0.48	U	0.47	U	0.47	U	0.11	J	NA		NA		NA		NA		NA	
				Jun-05	0.47	U	0.18	J	0.49	U	0.49	U	0.16	J	0.48	U	0.48	U	NA		0.47	U	0.47	U	NA		NA	
				Oct-05	0.48	U	0.26	J	0.47	U	0.47	U	0.47	U	0.47	U	0.48	U	NA		0.48	U	0.47	U	NA		NA	
				Jan-06	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	NA		0.47	U	0.47	U	NA		NA	
				Oct-06	0.48	U	0.26	J	0.47	U	0.47	U	0.47	U	0.47	U	0.48	U	NA		0.48	U	0.47	U	0.47	U	NA	
				Apr-07	0.48	U	0.1	J	0.47	U	0.47	U	0.47	U	0.47	U	0.48	U	NA		0.48	U	0.47	U	0.47	U	NA	
				Jul-10	0.48	U	0.12	J	0.47	U	0.47	U	0.47	U	0.47	U	0.47	U	NA		NA		NA		NA		NA	
				Aug-12	0.025	J	0.040	J	0.049	U	NA		0.049	J	0.027	J	0.051	U	0.027	J	0.054	U	0.053	U	0.050	U	NA	
				Feb-13	0.050	U	0.055	J	0.054	U	NA		0.037	J	0.029	J	0.031	J	0.051	U	0.052	U	0.047	U	NA		NA	
				Aug-13	0.050	U	0.051	U	0.047	U	NA		0.036	J	0.031	J	0.047	U	0.050	U	0.047	U	0.050	U	NA		NA	
				Feb-14	0.049	U	0.10	J	0.047	U	NA		0.044	J	0.036	J	0.047	J	0.056	J	0.055	U	0.048	U	NA		NA	
				Dec-14	0.037	J	0.049	U	0.050	U	NA		0.051	J	0.057	J	0.15	J	0.59	J	0.049	U	0.052	U	NA		NA	
				May-15	0.056	J	0.051	U	0.048	U	NA		0.036	J	0.042	J	0.048	U	0.048	U	0.048	U	0.047	U	NA		NA	
TPH-GASOLINE	8015B	mg/L	0.1 ^f	Apr-05	0.1	U	0.043	J	0.1	U	0.1	U	0.1	U	0.1	U	NA		NA		NA		NA		NA		NA	
				Jun-05	0.036	J	0.06	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	0.1	U	NA		NA	
				Oct-05	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	0.1	U	NA		NA	
				Jan-06	0.1	U	0.029	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	0.1	U	NA		NA	
				Oct-06	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	0.1	U	0.1	U	NA	
				Apr-07	0.023	J	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	0.1	U	0.1	U	NA	
				Jul-10	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	NA		0.1	U	0.1	U	0.1	U	NA	
				Aug-12	0.0065	J	0.10	U	0.010	U	NA		0.10	U	0.10	U	0.010	U	0.010	U	0.010	U	0.0062	J	0.0060	J	NA	
				Feb-13	0.10	U	0.10	U	0.010	U	NA		0.010	U	0.010	U	0.010	U	0.010	U	0.0067	J	0.10	U	NA		NA	
				Aug-13	0.0094	J	0.0058	J	0.0093	J	NA		0.0086	J	0.0063	J	0.0069	J	0.010	U	0.010	U	0.010	U	NA		NA	
				Feb-14	0.0095	U	0.0084	U	0.0058	U	NA		0.0064	U	0.010	U	0.0055	U	0.0070	U	0.0087	J	0.010	U	NA		NA	
				Dec-14	0.016	U	0.010	U	0.010	U	NA		0.010	U	0.010	U	0.010	U	0.010	U	0.0066	J	0.0065	U	NA		NA	
				May-15	0.019	U	0.010	U	0.0070	U	NA		0.010	U	0.0084	U	0.0054	U	0.0068	U	0.0078	J	0.0077	U	NA		NA	
1,2-DIBROMOETHANE	8260 SIM	mg/L	0.05	Aug-12	0.020	U	0.020	U	0.020	U	NA		0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U
				Feb-13	0.020	U	0.020	U	0.020	U	NA		0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	NA		0.020	U
				Aug-13	0.020	U	0.020	U	0.020	U	NA		0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	NA		0.020	U
				Feb-14	0.020	U	0.020	U	0.020	U	NA		0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	NA		0.020	U
				Dec-14	0.020	UJ	0.020	U	0.020	U	NA		0.020	U	0.020	U	0.020	U	0.50	U	0.020	U	0.020	U	NA		0.020	U
				May-15	0.020	U	0.020	U	0.020	U	NA		0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	0.020	U	NA		0.020	U
1,1,1,2-TETRACHLOROETHANE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
1,1,1-TRICHLOROETHANE	8260B	µg/L	200	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	UJ	1	U
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U

Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location					MW01	MW02		MW03		MW04B ^d		MW05	MW06		MW07		MW08 ^e		Source Blank	Equipment Rinsate #1		Equipment Rinsate #2		Trip Blank #1	Trip Blank #2			
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																								
1,1,2,2-TETRACHLOROETHANE	8260B	µg/L	1	Apr-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
				Jun-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
				Oct-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
				Jan-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
				Oct-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
				Apr-07	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1,2-TRICHLOROETHANE	8260B	µg/L	5	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-DICHLOROETHANE	8260B	µg/L	5	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-DICHLOROETHENE	8260B	µg/L	6	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
				Jul-10	1	U	0.21	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	0.22	J	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,1-DICHLOROPROPENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U

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Installation Restoration Program Site 1
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Sample Location					MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2													
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
1,2,3-TRICHLOROBENZENE	8260B	µg/L	NE	Aug-12	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U		
				Feb-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Aug-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Feb-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Dec-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
May-15	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA							
1,2,3-TRICHLOROPROPANE	8260B	µg/L	NE	Aug-12	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U		
				Feb-13	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
				Aug-13	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
				Feb-14	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
				Dec-14	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
May-15	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA							
1,2,4-TRICHLOROBENZENE	8260B	µg/L	5	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Jul-10	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Aug-12	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
				Feb-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Aug-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Feb-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Dec-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				May-15	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
1,2,4-TRIMETHYLBENZENE	8260B	µg/L	12 ^b	Apr-05	0.33	J	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U		
				Jun-05	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U		
				Oct-05	2	U	2	U	2	U	2	U	0.3	J	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Jan-06	2	U	2	U	2	U	2	U	0.3	J	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Oct-06	6		2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	2	U	1	U	2	U	2	U
				Apr-07	2	U	0.49	J	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	2	U	2	U	2	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.39	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.45	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.96	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	2.4		0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	4.2		0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
1,2-DIBROMO-3-CHLOROPROPANE	8260B	µg/L	NE	Aug-12	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U		
				Feb-13	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
				Aug-13	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
				Feb-14	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
				Feb-14	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA			
May-15	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA							
1,2-DICHLOROBENZENE	8260B	µg/L	600	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			

Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location					MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2							
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																				
1,2-DICHLOROETHANE	8260B	µg/L	0.5	Apr-05	9.4		44	J	0.5	U	0.5	U	5.4		0.5	U	4.2		NA		0.5	U	0.5	U
				Jun-05	51	J	43	J	0.5	U	0.5	U	8.5		0.5	U	7.1		NA		0.5	U	0.5	U
				Oct-05	7.9		12		0.5	U	0.5	U	6.3		0.5	U	6.1		NA		0.5	U	0.5	U
				Jan-06	15		25		0.5	U	0.5	U	6.9		0.5	U	5.6		NA		0.5	U	0.5	U
				Oct-06	49		18		0.5	U	0.5	U	7.1		0.5	U	6.9		NA		0.5	U	0.5	U
				Apr-07	30		2.4		0.5	U	0.5	U	5		0.5	U	3.5		NA		0.5	U	0.5	U
				Jul-10	11		17		1	U	1	U	1.8		1	U	2.3		NA		1	U	1	U
				Aug-12	3.0		1.7		0.20	U	NA		1.7		0.17	J	1.6		2.8		0.20	U	0.20	U
				Feb-13	4.9		4.2		0.20	U	NA		1.2		0.21	J	1.4		2.1		0.20	U	0.20	U
				Aug-13	2.9		2.6		0.20	U	NA		1.3		0.24	J	2.0		2.5		0.20	U	0.20	U
				Feb-14	2.6		5.3		0.20	U	NA		1.0		0.27	J	1.7		2.3		0.20	U	0.20	U
				Dec-14	3.1		0.19	J	0.20	U	NA		1.0		0.24	J	1.2		1.8		0.20	U	0.20	U
				May-15	2.6		0.19	J	0.20	U	NA		0.99	J	0.29	J	1.4		1.9		0.20	U	0.20	U
1,2-DICHLOROPROPANE	8260B	µg/L	5	Apr-05	1	U	0.46	J	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Jun-05	1	U	0.36	J	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	0.22	J	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	0.27	J	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Apr-07	0.56	J	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Jul-10	1	U	0.21	J	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Aug-12	0.2	U	0.2	U	0.2	U	NA		0.2	U	0.2	U	0.2	U	0.2	U	0.2	U	0.2	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,3,5-TRIMETHYLBENZENE	8260B	µg/L	12 ^b	Apr-05	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U
				Jun-05	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U
				Oct-05	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U
				Jan-06	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U
				Oct-06	0.93	J	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U
				Apr-07	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U
				Jul-10	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,3-DICHLOROBENZENE	8260B	µg/L	NE	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
1,3-DICHLOROPROPANE	8260B	µg/L	0.5	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				

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Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2														
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
1,4-DICHLOROBENZENE	8260B	µg/L	5	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U		1	U	1	U	
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U		1	U	1	U	
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U		1	U	1	U	
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		0.20	U	0.20	U	
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
2,2-DICHLOROPROPANE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		0.20	U	0.20	U			
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
2-BUTANONE (METHYL ETHYL KETONE)	8260B	µg/L	NE	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U		
				Jun-05	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA		5	UJ	5	UJ	NA		5	UJ	5	UJ
				Oct-05	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA		5	UJ	5	UJ	NA		5	UJ	5	UJ
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Jul-10	10	U	10	U	10	U	10	U	10	U	10	U	10	U	NA		10	U	10	U	10	U	10	U	10	U
				Aug-12	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U		4.0	U	4.0	U	
				Aug-13	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	NA			
				Feb-13	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	NA			
2-CHLOROETHYL VINYL ETHER	8260B	µg/L	NE	Feb-14	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U		4.0	U	NA				
				Dec-14	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	NA			
				May-15	4.0	U	4.0	U	4.0	U	NA		4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA		4.0	U	NA			
				Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jun-05	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA		5	UJ	5	UJ	NA		5	UJ	5	UJ
				Oct-05	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA		5	UJ	5	UJ	NA		5	UJ	5	UJ
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Apr-07	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA		5	UJ	5	UJ	5	UJ	5	UJ	5	UJ
				Jul-10	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
2-CHLOROTOLUENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		0.20	U	0.20	U			
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			

Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2											
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																							
2-HEXANONE (METHYL BUTYL KETONE)	8260B	µg/L	NE	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U	5	U
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U	5	U
				Jul-10	10	U	10	U	10	U	10	U	10	U	10	U	NA	10	U	10	U	10	U	10	U	10	U
				Aug-12	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
				Feb-13	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	U	NA
				Aug-13	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	U	NA
				Feb-14	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	U	NA
				Dec-14	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	U	NA
				May-15	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	U	NA
4-CHLOROTOLUENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Aug-13	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Feb-14	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Dec-14	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				May-15	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
4-ISOPROPYLTOLUENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Aug-13	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Feb-14	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	17		0.20	U	0.20	U	NA	0.20	U	NA
				Dec-14	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	17		0.20	U	0.20	U	NA	0.20	U	NA
				May-15	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA
4-METHYL-2-PENTANONE (METHYL ISOBUTYL KETONE)	8260B	µg/L	NE	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U	5	U
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U	5	U
				Jul-10	10	U	10	U	10	U	10	U	10	U	10	U	NA	10	U	10	U	10	U	10	U	10	U
				Aug-12	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
				Feb-13	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	U	NA
				Aug-13	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	U	NA
				Feb-14	4.0	UJ	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	UJ	NA
				Dec-14	4.0	UJ	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	UJ	NA
				May-15	4.0	U	4.0	U	4.0	U	NA	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	NA	4.0	U	NA
ACETONE	8260B	µg/L	NE	Apr-05	2.4	J	3.1	J	5	UJ	5	UJ	5	UJ	5	UJ	NA	5	UJ	5	UJ	NA	5	UJ	5	UJ	
				Jun-05	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA	5	UJ	5	UJ	NA	5	UJ	5	UJ	
				Oct-05	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA	5	UJ	2.9	J	NA	5	UJ	5	UJ	
				Jan-06	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA	5	UJ	2.4	J	NA	5	UJ	5	UJ	
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U	5	U
				Apr-07	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA	2.7	J	2.7	J	3.8	J	5	UJ	5	UJ
				Jul-10	10	U	10	U	10	U	10	U	10	U	10	U	NA	10	U	10	U	10	U	10	U	10	U
				Aug-12	5.0	U	5.0	U	5.0	U	NA	5.0	U	5.0	U	5.0	U	10	U	4.4	J	10	U	10	U	5.0	U
				Feb-13	5.0	U	5.0	U	10	U	NA	10	U	5.0	U	5.0	U	10	U	5.0	U	3.6	J	NA	5.0	U	NA
				Aug-13	10	U	10	U	5.0	U	NA	10	U	10	U	10	U	10	U	4.9	J	10	U	NA	5.0	U	NA
				Feb-14	5.0	U	5.0	U	5.0	U	NA	5.0	U	5.0	U	5.0	U	5.0	U	4.7	J	4.2	U	NA	5.0	U	NA
				Dec-14	3.3	J	5.0	U	5.0	U	NA	5.0	U	5.0	U	5.0	U	5.0	U	3.3	J	5.0	U	NA	5.0	U	NA
				May-15	5.0	U	5.0	U	5.0	U	NA	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	NA	5.0	U	NA

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Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2														
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
BENZENE	8260B	µg/L	1	Apr-05	1.2		5.6		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
				Jun-05	1.3		6.2		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
				Oct-05	0.5	U	1.3		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
				Jan-06	1.7		4.7		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
				Oct-06	5.7		4.5		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
				Apr-07	1.3		0.29	J	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
				Jul-10	0.46	J	1.2		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U		
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.72	J	1.5		0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Aug-13	0.19	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Feb-14	0.45	J	2.1		0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Dec-14	1.3		0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				May-15	2.1		0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
BROMOBENZENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
BROMOCHLOROMETHANE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA			
BROMODICHLOROMETHANE	8260B	µg/L	80	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U		
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.31	J	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	
BROMOFORM	8260B	µg/L	80	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U		
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Feb-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
				Aug-12	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.28	J	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
				Aug-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
				Feb-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
				Dec-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
				May-15	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	

Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2														
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
BROMOMETHANE	8260B	µg/L	NE	Apr-05	5	U	5	U	5	U	5	UJ	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	UJ	5	UJ	5	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
				Aug-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
				Feb-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
				Dec-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
				May-15	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA	
CARBON DISULFIDE	8260B	µg/L	1000 ^b	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-05	5	U	5	U	5	UJ	5	UJ	5	UJ	5	UJ	5	U	NA		5	UJ	5	UJ	NA		5	UJ	5	U
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Apr-07	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	NA		5	UJ	5	UJ	5	U	5	UJ	5	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				May-15	0.12	J	0.11	J	0.17	J	NA		0.17	J	0.19	J	0.20	U	0.11	J	0.20	U	0.20	U	NA		0.20	U	NA	
CARBON TETRACHLORIDE	8260B	µg/L	0.5	Apr-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U
				Jun-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U
				Oct-05	0.5	U	0.5	U	0.5	UJ	0.5	UJ	0.5	UJ	0.5	UJ	0.5	U	NA		0.5	UJ	0.5	UJ	NA		0.5	UJ	0.5	U
				Jan-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U
				Oct-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
				Apr-07	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
CHLOROBENZENE	8260B	µg/L	70	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-05	5	U	5	U	5	UJ	5	UJ	5	UJ	5	UJ	5	U	NA		5	UJ	5	UJ	NA		5	UJ	5	U
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	

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Los Angeles, California

Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2													
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																									
CHLOROETHANE	8260B	µg/L	NE	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U			
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U			
				Oct-05	5	U	5	U	5	UJ	5	UJ	5	UJ	5	UJ	5	U	NA	5	UJ	5	UJ	NA	5	UJ	5	U	
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U		
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	1	U	1	U		
				Aug-12	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U		
				Feb-13	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA		
				Aug-13	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA		
				Feb-14	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA		
				Dec-14	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA		
May-15	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA						
CHLOROFORM	8260B	µg/L	80	Apr-05	5	U	5	U	5	U	2	J	5	U	5	U	5	U	NA	0.26	J	0.22	J	NA	5	U	5	U	
				Jun-05	5	U	5	U	5	U	2	J	5	U	5	U	5	U	NA	0.3	J	0.27	J	NA	5	U	5	U	
				Oct-05	5	U	5	U	0.21	J	1.5	J	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Jan-06	5	U	5	U	5	U	1.3	J	5	U	5	U	5	U	NA	5	U	0.24	J	NA	5	U	5	U	
				Oct-06	5	U	5	U	5	U	1.3	J	5	U	5	U	5	U	NA	0.3	J	0.31	J	0.27	J	5	U	5	U
				Apr-07	5	U	5	U	5	U	1.4	J	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	0.2	J	1	U	1	U	1	U		
				Aug-12	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.46	J	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Aug-13	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Feb-14	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Dec-14	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.13	J	0.13	U	NA	0.20	U	NA		
May-15	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA						
CHLOROMETHANE	8260B	µg/L	NE	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U			
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	NA	5	U	5	U	
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U		
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA	5	U	5	U	5	U	5	U		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	1	U	1	U		
				Aug-12	0.30	U	0.30	U	0.30	U	NA	0.17	J	0.30	U	0.30	U	1.0	U	0.30	U	0.18	J	0.17	J	0.30	U	0.30	U
				Feb-13	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA		
				Aug-13	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA		
				Feb-14	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA		
				Dec-14	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA		
May-15	0.30	U	0.30	U	0.30	U	NA	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA	0.30	U	NA						
CIS-1,2-DICHLOROETHENE	8260B	µg/L	6	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	1	U	1	U			
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	1	U	1	U	
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	1	U	1	U	
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	NA	1	U	1	U	
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	1	U	1	U		
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	1	U	1	U		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA	1	U	1	U	1	U	1	U		
				Aug-12	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Aug-13	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Feb-14	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
				Dec-14	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA		
May-15	0.20	U	0.20	U	0.20	U	NA	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA	0.20	U	NA						

Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location					MW01	MW02		MW03		MW04B ^d		MW05		MW06		MW07		MW08 ^e		Source Blank	Equipment Rinsate #1		Equipment Rinsate #2		Trip Blank #1	Trip Blank #2						
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																												
CIS-1,3-DICHLOROPROPENE	8260B	µg/L	NE	Apr-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U				
				Jun-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U				
				Oct-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U				
				Jan-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U				
				Oct-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U				
				Apr-07	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U				
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
DIBROMOCHLOROMETHANE	8260B	µg/L	80	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U				
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U				
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U				
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U				
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U				
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U				
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.35	J	0.20	U	0.20	U	0.20	U	0.20	U				
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
DIBROMOMETHANE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U						
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U						
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U						
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U						
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U						
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U						
DICHLORODIFLUOROMETHANE	8260B	µg/L	NE	Aug-12	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
				Feb-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
				Aug-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
				Feb-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
				Dec-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
				May-15	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
ETHYLBENZENE	8260B	µg/L	300	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Oct-06	0.29	J	1.2		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Jul-10	1	U	0.22	J	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U				
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Dec-14	0.15	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				May-15	0.15	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
HEXACHLOROBUTADIENE	8260B	µg/L	NE	Aug-12	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
				Feb-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
				Aug-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						
				Feb-14	0.30	UJ	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	UJ						
				Dec-14	0.30	UJ	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	UJ						
				May-15	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U						

Table 6
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Installation Restoration Program Site 1
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Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2														
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
ISOPROPYLBENZENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.15	J	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.17	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
M/P-XYLENES	8260B	µg/L	1750 ^c	Apr-05	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Jun-05	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Oct-05	2	U	2	U	2	U	2	U	0.36	J	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Jan-06	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Oct-06	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	2	U	2	U	2	U
				Apr-07	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	2	U	2	U	2	U
				Jul-10	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	2	U	2	U	2	U
				Aug-12	0.40	U	0.40	U	0.40	U	NA		0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U
				Feb-13	0.40	U	0.40	U	0.40	U	NA		0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	NA		0.40	U	NA	
				Aug-13	0.40	U	0.40	U	0.40	U	NA		0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	NA		0.40	U	NA	
				Feb-14	0.40	U	0.40	U	0.40	U	NA		0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	NA		0.40	U	NA	
				Dec-14	0.32	J	0.40	U	0.40	U	NA		0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	NA		0.40	U	NA	
				May-15	0.46	J	0.40	U	0.40	U	NA		0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	0.40	U	NA		0.40	U	NA	
METHYL TERT-BUTYL ETHER	8260B	µg/L	13	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
METHYLENE CHLORIDE	8260B	µg/L	5	Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Jan-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U	5	U	5	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	0.61	J
				Aug-12	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
				Feb-13	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.32	J	NA	
				Aug-13	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA	
				Feb-14	0.50	U	0.50	U	0.27	U	NA		0.50	U	0.50	U	0.28	U	0.50	U	0.50	U	0.50	U	NA		0.41	J	NA	
				Dec-14	0.50	U	0.50	U	0.27	U	NA		0.50	U	0.50	U	0.28	U	0.50	U	0.50	U	0.50	U	NA		0.41	J	NA	
				May-15	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.99	U	0.86	U	NA		0.50	U	NA	
NAPHTHALENE	8260B	µg/L	6.2 ^b	Apr-05	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Jun-05	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Oct-05	2	U	2	U	2	UJ	2	UJ	2	UJ	2	U	2	U	NA		2	UJ	2	U	NA		2	UJ	2	U
				Jan-06	2	U	2	U	2	UJ	2	U	2	U	2	U	2	U	NA		2	U	2	U	NA		2	U	2	U
				Oct-06	1.3	J	2.1		2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	2	U	2	U	2	U
				Apr-07	2	U	2	U	2	U	2	U	2	U	2	U	2	U	NA		2	U	2	U	2	U	2	U	2	U
				Jul-10	1	U	0.93	J	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
				Feb-13	0.30	J	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA	
				Aug-13	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA	
				Feb-14	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA	
				Dec-14	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA	
				May-15	0.50	U	0.50	U	0.50	U	NA		0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	NA		0.50	U	NA	

Table 6
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Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2																
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																												
N-BUTYLBENZENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U				
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
O-XYLENE	8260B	µg/L	1750 ^c	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-05	1	U	1	U	1	U	1	U	1	U	0.32	J	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
PROPYLBENZENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				May-15	0.17	J	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
SEC-BUTYLBENZENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.25	J	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Feb-14	0.20	U	0.55	J	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Dec-14	0.20	U	0.55	J	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
STYRENE	8260B	µg/L	100	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	UJ	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
TERT-BUTYLBENZENE	8260B	µg/L	NE	Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.24	J	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Aug-13	0.20	U	0.15	J	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Feb-14	0.20	U	0.34	J	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				Dec-14	0.20	U	0.34	J	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA					

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Sample Location					MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2													
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
TETRACHLOROETHENE	8260B	µg/L	5	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U		
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U		
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
TOLUENE	8260B	µg/L	150	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-05	1	U	1	U	1	U	1	U	0.51	J	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U		
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U		
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
TRANS-1,2-DICHLOROETHENE	8260B	µg/L	10	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U		
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U		
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
TRANS-1,3-DICHLOROPROPENE	8260B	µg/L	NE	Apr-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U		
				Jun-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U		
				Oct-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U		
				Jan-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U		
				Oct-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
				Apr-07	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	0.5	U	0.5	U	0.5	U		
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U	1	U	1	U		
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U		
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			

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Sample Location				MW01	MW02	MW03	MW04B ^d	MW05	MW06	MW07	MW08 ^e	Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2														
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																										
TRICHLOROETHENE	8260B	µg/L	5	Apr-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jun-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-05	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Jan-06	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	NA		1	U	1	U		
				Oct-06	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U		1	U	1	U	
				Apr-07	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U		1	U	1	U	
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U		1	U	1	U	
				Aug-12	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U
				Feb-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Aug-13	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Feb-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
				Dec-14	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA	
TRICHLOROFLUOROMETHANE	8260B	mg/L	150	May-15	0.20	U	0.20	U	0.20	U	NA		0.20	U	0.20	U	0.20	U	0.20	U	0.20	U	NA		0.20	U	NA			
				Aug-12	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U		
				Feb-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Aug-13	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Feb-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Dec-14	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
VINYL ACETATE	8260B	µg/L	NE	May-15	0.30	U	0.30	U	0.30	U	NA		0.30	U	0.30	U	0.30	U	0.30	U	0.30	U	NA		0.30	U	NA			
				Apr-05	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U		
				Jun-05	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U		
				Oct-05	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	NA		5	U	5	U		
				Jan-06	5	UJ	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	UJ	NA		5	U	5	UJ		
				Oct-06	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U		5	U	5	U	
				Apr-07	5	U	5	U	5	U	5	U	5	U	5	U	NA		5	U	5	U	5	U		5	U	5	U	
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U		1	U	1	U	
				Aug-12	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
				Feb-13	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
				Aug-13	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
				Feb-14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
VINYL CHLORIDE	8260B	µg/L	0.5	Dec-14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
				May-15	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
				Apr-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U		
				Jun-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U		
				Oct-05	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U		
				Jan-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	NA		0.5	U	0.5	U		
				Oct-06	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	0.5	U		0.5	U	0.5	U	
				Apr-07	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	0.5	U	NA		0.5	U	0.5	U	0.5	U		0.5	U	0.5	U	
				Jul-10	1	U	1	U	1	U	1	U	1	U	1	U	NA		1	U	1	U	1	U		1	U	1	U	
				Aug-12	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
				Feb-13	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA			
CARBON DIOXIDE	RSK175M	µg/L	NE	Aug-13	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
				Feb-14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
				Dec-14	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
				May-15	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
				Apr-05	170000		300000		140000		64000		170000		140000		230000		NA		NA		NA		NA					
				Jun-05	100000		220000		170000		72000		180000		140000		170000		NA		NA		NA		NA					
				Oct-05	130000		200000		420000		82000		190000		130000		170000		NA		NA		NA		NA					
				Jan-06	100000		160000		130000		65000		140000		130000		140000		NA		200000		NA		NA					
				Oct-06	130000		200000		420000		82000		190000		130000		170000		NA		NA		NA		NA					
				Apr-07	210000		88000		100000		67000		170000		160000		130000		NA		NA		NA		NA					
				Jul-10	120000		180000		210000		68000		130000		170000		130000		NA		NA		NA		NA					
Aug-12	95000		130000		91000		NA		120000		130000		90000		49000		NA		NA		NA									
Feb-13	120000		180000		150000		NA		130000		130000		92000		49000		NA		NA		NA									
Aug-13	82000		160000		110000		NA		130000		140000		84000		76000		NA		NA		NA									
Feb-14	88000		150000		150000		NA		140000		160000		100000		120000		NA		NA		NA									
Dec-14	150000		160000		210000		NA		110000		140000		83000		94000		NA		NA		NA									
May-15	88000		110000		86000		NA		93000		100000		70000		86000		NA		NA		NA									

Table 6
Historical Groundwater Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location					MW01	MW02		MW03		MW04B ^d		MW05		MW06		MW07		MW08 ^e		Source Blank	Equipment Rinsate #1	Equipment Rinsate #2	Trip Blank #1	Trip Blank #2				
Analyte	U.S. EPA Analytical Method	Unit	Screening Criterion ^a	Sample Date																								
ETHANE	RSK175	µg/L	NE	Apr-05	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA	
				Jun-05	1.5	U	1.5	U	1.2	U	1.2	U	1.2	U	0.87	J	NA		NA		NA		NA		NA		NA	
				Oct-05	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA		NA	
				Jan-06	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		1.5	U	NA		NA		NA		NA	
				Oct-06	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA		NA	
				Apr-07	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA		NA	
				Jul-10	2	U	2	U	2	U	2	U	2	U	2	U	NA		NA		NA		NA		NA		NA	
				Aug-12	0.64	U	0.64	U	0.64	U	NA		0.64	U	0.64	U	0.64	U	0.64	U	NA		NA		NA		NA	
				Feb-13	0.64	U	0.64	U	0.64	U	NA		0.64	U	0.64	U	0.64	U	0.64	U	NA		NA		NA		NA	
				Aug-13	0.64	U	0.64	U	0.64	U	NA		0.64	U	0.64	U	0.64	U	0.64	U	NA		NA		NA		NA	
				Feb-14	0.64	U	0.64	U	0.64	U	NA		0.64	U	0.64	U	0.64	U	0.64	U	NA		NA		NA		NA	
				Dec-14	0.64	U	0.64	U	0.64	U	NA		0.64	U	0.64	U	0.64	U	0.64	U	NA		NA		NA		NA	
May-15	0.64	U	0.64	U	0.64	U	NA		0.64	U	0.64	U	0.64	U	0.64	U	NA		NA		NA		NA					
ETHENE	RSK175	µg/L	NE	Apr-05	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA		NA	
				Jun-05	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA		NA	
				Oct-05	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA		NA	
				Jan-06	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		1.5	U	NA		NA		NA		NA	
				Oct-06	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA		NA	
				Apr-07	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U	NA		NA		NA		NA		NA		NA	
				Jul-10	2	U	2	U	2	U	2	U	2	U	2	U	NA		NA		NA		NA		NA		NA	
				Aug-12	0.60	U	0.60	U	0.60	U	NA		0.60	U	0.60	U	0.60	U	0.33	J	NA		NA		NA		NA	
				Feb-13	0.60	U	0.60	U	0.60	U	NA		0.60	U	0.60	U	0.60	U	0.33	J	NA		NA		NA		NA	
				Aug-13	0.60	U	0.60	U	0.60	U	NA		0.60	U	0.60	U	0.60	U	0.60	U	NA		NA		NA		NA	
				Feb-14	0.60	U	0.60	U	0.60	U	NA		0.60	U	0.60	U	0.60	U	0.60	U	NA		NA		NA		NA	
				Dec-14	0.60	U	0.60	U	0.60	U	NA		0.60	U	0.60	U	0.60	U	0.60	U	NA		NA		NA		NA	
May-15	0.60	U	0.60	U	0.60	U	NA		0.60	U	0.60	U	0.60	U	0.60	U	NA		NA		NA		NA					
METHANE	RSK175	µg/L	NE	Apr-05	12		5.7		1.2	U	1.2	U	0.71	J	1.2	U	1.2	U	NA		NA		NA		NA		NA	
				Jun-05	3.5		6.1		1.5	U	1.5	U	1.5	U	1.5	U	0.87	J	NA		NA		NA		NA		NA	
				Oct-05	3.6		3.6		1.2	U	1.2	U	1.2	U	1.2	U	NA		NA		NA		NA		NA		NA	
				Jan-06	3.6		7		1.7		1.2	U	1.2	U	1.2	U	NA		3.6		NA		NA		NA		NA	
				Oct-06	3.6		3.6		1.2	U	1.2	U	1.2	U	1.2	U	NA		NA		NA		NA		NA		NA	
				Apr-07	6		59		3.5		3		1.2	U	1.2	U	1.2	U	NA		NA		NA		NA		NA	
				Jul-10	4.1		3.5		2	U	2	U	2	U	2	U	NA		NA		NA		NA		NA		NA	
				Aug-12	13		0.52	J	1.8	J	NA		0.38	J	0.17	J	0.31	J	0.77	J	NA		NA		NA		NA	
				Feb-13	3.6		2.2		0.42	J	NA		0.17	J	0.34	U	0.77	J	1.1	J	NA		NA		NA		NA	
				Aug-13	3.2		0.42	J	0.78	J	NA		0.34	U	0.34	U	0.22	J	0.63	J	NA		NA		NA		NA	
				Feb-14	2.1		3.0		1.1	J	NA		0.20	J	0.34	J	0.34	U	0.53	J	NA		NA		NA		NA	
				Dec-14	3.7		0.17	J	1.4	J	NA		0.34	U	0.17	J	0.20	J	0.33	J	NA		NA		NA		NA	
May-15	3.9		0.21	J	1.7	J	NA		0.20	J	0.21	J	0.23	J	0.28	J	NA		NA		NA		NA					

Notes:

^a Screening criteria are based on CDPH MCLs, updated August 10, 2015.

^b The CDPH MCLs is NOT established for these compounds. The screening criteria were identified in the CDM Final SI Report.

^c The CDPH MCLs is established for total xylenes.

^d MW04B was abandoned in October of 2012

^e MW08 was constructed in August of 2012

^f Screening criteria are based on San Francisco Bay Regional Water Quality Control Board ESLs, updated December 2013. There are no established CDPH MCLs for TPH_d and TPH_g

Green shading indicates a detection.

Orange shading indicates a detection above the screening level.

CDPH - California Department of Public Health

EPA - U.S. Environmental Protection Agency

ESL - environmental screening levels

J - estimated concentration

MCLs - maximum contaminant levels

µg/L - micrograms per liter

mg/L - milligrams per liter

NA - not analyzed

NE - not established

U - not detected equal to or above the stated reporting limit

UJ - sample detection limit is an estimated value

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Table 7
Historical Soil-Gas Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05 ^c	SG12-10 ^c	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	SG14-10	SG14-15																					
Analyte ^a	Unit	Screening Criterion ^b	Sample Date																																										
HELIUM	%	2.5	8/23/2012	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U						
			2/26/2013	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U	0.1	U						
			8/15/2013	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U				
			2/12/2014	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U				
			12/11/2014	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U				
5/19/2015	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U					
1,1,1,2-TETRACHLOROETHANE	µg/m ³	NE	8/23/2012	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
			2/26/2013	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
			8/15/2013	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
			2/12/2014	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA					
			12/11/2014	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	35	U	170	U	170	U	7.0	U	35	U	7.0	UJ	7.0	U	7.0	UJ	140	U		
5/19/2015	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	UJ	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	170	U	170	U	7.0	U	7.0	UJ	7.0	U	7.0	U	170	U					
1,1,1-TRICHLOROETHANE	µg/m ³	7000000	8/23/2012	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	28	U	28	UJ	69	UJ	55	U	28	U	28	U	28	UJ	28	U	56	U	63	U	550	U
			2/26/2013	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	28	UJ	28	UJ	28	UJ	28	U	28	U	28	UJ	5.5	UJ	28	U	550	U				
			8/15/2013	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	28	UJ	280	UJ	280	U	28	U	28	U	28	U	5.5	U	5.5	U	550	U				
			2/12/2014	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	UJ	28	UJ	140	U	140	UJ	140	U	140	UJ	28	UJ	5.5	U	5.5	U	140	U				
			12/11/2014	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	28	U	140	U	140	U	5.5	U	28	U	5.5	UJ	5.5	U	5.5	UJ	170	U				
5/19/2015	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	UJ	5.5	U	5.5	U	5.5	U	5.5	U	140	U	140	U	140	U	5.5	U	5.5	UJ	5.5	UJ	5.5	U	5.5	U	140	U					
1,1,2,2-TETRACHLOROETHANE	µg/m ³	NE	8/23/2012	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	35	U	35	UJ	87	UJ	70	U	35	U	35	UJ	35	U	71	U	79	U	700	U		
			2/26/2013	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	35	UJ	35	UJ	35	U	35	U	35	UJ	7.0	UJ	35	U	700	U				
			8/15/2013	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	35	UJ	350	UJ	350	U	35	U	35	U	35	U	7.0	U	7.0	U	700	U				
			2/12/2014	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	UJ	35	UJ	170	U	170	UJ	170	U	170	UJ	35	UJ	7.0	U	7.0	U	170	U				
			12/11/2014	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	7.0	U	35	U	170	U	170	U	7.0	U	35	U	7.0	UJ	7.0	U	7.0	UJ	190	U				
5/19/2015	7.0	U	7.0	U	7.0	U	12		7.0	U	7.0	U	7.0	U	7.0	UJ	7.0	U	7.0	U	7.0	U	7.0	U	170	U	170	U	7.0	U	7.0	UJ	7.0	UJ	7.0	U	7.0	U	170	U					
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	µg/m ³	NE	8/23/2012	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	39	U	39	UJ	96	UJ	77	U	39	U	39	UJ	39	U	78	U	88	U	770	U		
			2/26/2013	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	39	UJ	39	UJ	39	U	39	U	39	UJ	7.7	UJ	39	U	770	U				
			8/15/2013	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	39	UJ	390	UJ	390	U	39	U	39	U	39	U	7.7	U	7.7	U	770	U				
			2/12/2014	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	UJ	39	UJ	190	U	190	UJ	190	U	190	UJ	39	UJ	7.7	U	7.7	U	190	U				
			12/11/2014	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	39	U	190	U	190	U	7.7	U	39	U	7.7	UJ	7.7	U	7.7	UJ	140	U				
5/19/2015	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	U	7.7	UJ	7.7	U	7.7	U	7.7	U	7.7	U	190	U	190	U	7.7	U	7.7	UJ	7.7	UJ	7.7	U	7.7	U	190	U							
1,1,2-TRICHLOROETHANE	µg/m ³	NE	8/23/2012	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	28	U	28	UJ	69	UJ	55	U	28	U	28	UJ	28	U	56	U	63	U	550	U		
			2/26/2013	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	28	UJ	28	UJ	28	UJ	28	U	28	U	28	U	28	U	5.5	UJ	28	U	550	U		
			8/15/2013	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	28	UJ	280	UJ	280	U	28	U	28	U	28	U	5.5	U	5.5	U	550	U				
			2/12/2014	5.5	U	5.5	U	5.5																																					

Table 7
Historical Soil-Gas Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05 ^c	SG12-10 ^c	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	SG14-10	SG14-15																					
Analyte ^a	Unit	Screening Criterion ^b	Sample Date																																										
1,2,4-TRICHLOROBENZENE	µg/m ³	NE	8/23/2012	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	38	U	38	UJ	94	UJ	75	U	38	U	38	UJ	38	U	76	U	86	U										
			2/26/2013	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	38	UJ	38	UJ	38	U	38	U	38	UJ	38	U	750	U												
			8/15/2013	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	7.5	U	38	UJ	380	UJ	380	U	38	U	38	U	38	U	7.5	U	7.5	U	750	U								
			2/12/2014	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	UJ	190	UJ	940	U	940	UJ	940	U	940	UJ	190	UJ	38	U	38	U	940	U						
			12/11/2014	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	190	U	940	UJ	940	UJ	38	UJ	190	UJ	38	UJ	38	UJ	38	UJ	690							
5/19/2015	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	U	38	UJ	38	U	940	U	940	U	38	UJ	38	UJ	38	UJ	38	U	38	U	940	U							
1,2,4-TRIMETHYLBENZENE	µg/m ³	NE	8/23/2012	7.3		5.6		6.0		19		18		15		52		47		34		98		58		64		160		65	J	190	J	2800		1000		410	J	25	U	51	U	19000	
			2/26/2013	13		10		8.2		11		10		12		24		19		17		13		10		18		1700		35	J	35	J	30		30		30	J	19	J	25	U	2600	
			8/15/2013	15		7.4		6.1		7.3		5.8		5.0	U	6.7		5.0	U	5.0	U	7.6		16		15		29	J	530	J	250	U	25	U	29		25	U	5.1		5.8		2500	
			2/12/2014	5.4		5.0	U	5.0	U	5.0	U	5.0	U	5.5		10		8.7		7.2		9.3		13	J	25	UJ	120	U	120	UJ	120	U	120	UJ	25	UJ	7.8		11		1500			
			12/11/2014	7.9		5.5		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	25	U	120	U	120	U	8.9		25	U	5.4	J	5.0	U	5.0	UJ	190	U		
5/19/2015	8.4		7.8		9.5		5.0	U	5.9	J	5.0	U	5.0	U	5.0	UJ	5.0	U	7.9		11		9.0		26		120	U	120	U	17		12	J	14	J	5.0	U	5.0	U	1100				
1,2-DIBROMOETHANE	µg/m ³	NE	8/23/2012	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	39	U	39	UJ	97	UJ	78	U	39	U	39	UJ	39	U	79	U	89	U		
			2/26/2013	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	39	UJ	39	UJ	39	U	39	U	39	UJ	7.8	UJ	39	U	780	U				
			8/15/2013	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	39	UJ	390	UJ	390	U	39	U	39	U	39	U	7.8	U	7.8	U	780	U		
			2/12/2014	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	UJ	39	UJ	190	U	190	UJ	190	U	190	UJ	39	UJ	7.8	U	7.8	U	190	U		
			12/11/2014	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	39	U	190	U	190	U	7.8	U	39	U	7.8	UJ	7.8	U	7.8	UJ	180	U		
5/19/2015	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	7.8	UJ	7.8	U	7.8	U	7.8	U	7.8	U	7.8	U	190	U	190	U	7.8	U	7.8	UJ	7.8	UJ	7.8	U	7.8	U	190	U			
1,2-DICHLORO-1,1,2,2-TETRAFLUOROETHANE	µg/m ³	NE	8/23/2012	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	35	U	35	UJ	180	UJ	71	U	35	U	35	UJ	35	U	140	U	160	U		
			2/26/2013	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	35	UJ	35	UJ	35	U	35	U	35	UJ	7.1	UJ	35	U	710	U		
			8/15/2013	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	35	UJ	350	UJ	350	U	35	U	35	U	35	U	7.1	U	7.1	U	710	U		
			2/12/2014	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	UJ	35	UJ	180	U	180	UJ	180	U	180	UJ	35	UJ	7.1	U	7.1	U	180	U		
			12/11/2014	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	35	U	180	U	180	U	7.1	U	35	U	7.1	UJ	7.1	U	7.1	UJ	300	U		
5/19/2015	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	7.1	UJ	7.1	U	7.1	U	7.1	U	7.1	U	7.1	U	180	U	180	U	7.1	U	7.1	UJ	7.1	UJ	7.1	U	7.1	U	180	U			
1,2-DICHLOROBENZENE	µg/m ³	NE	8/23/2012	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	U	61	UJ	76	UJ	120	U	61	U	61	UJ	61	U	62	U	70	U				
			2/26/2013	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	UJ	61	UJ	61	UJ	61	U	61	U	61	UJ	12	UJ	61	U	1200	U		
			8/15/2013	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	UJ	610	UJ	610	U	61	U	61	U	61	U	61	U	12	U	12	U	1200	U
			2/12/2014	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	UJ	61	UJ	300	U	300	UJ	300	U	300	UJ	61	UJ	12	U	12	U	300	U		
			12/11/2014	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	U	300	U	300	U	12	U	61	U	12	UJ	12	U	12	UJ	100	U		
5/19/2015	12	U	12	U	12	U	12	U	12	U	12	U	12	UJ	12	U	12	U	12	U	12	U	12	U	300	U	300	U	12	U	12	UJ	12	UJ	12	U	12	U	300	U					
1,2-DICHLOROETHANE	µg/m ³	360	8/23/2012	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	8.3		4.1	U	4.1	U	21	U	340	J	1700	J	41	U	170		2100	J	21	U	890		4700					
			2/26/2013	4.1	U	4.1	U	4.1	U	5.4		4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	31		810	J	21	UJ	48		220		1300	J	8.8	J	21	U	1800			
			8/15/2013	4.1	U	4.1	U	4.1	U	6.8		5.3		4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	62	J	950	J	2100		21		270		2000		4.1							

Table 7
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Sample Location				SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05 ^c	SG12-10 ^c	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	SG14-10	SG14-15																					
Analyte ^a	Unit	Screening Criterion ^b	Sample Date																																										
1,3-BUTADIENE	µg/m ³	NE	8/23/2012	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	22	U	22	UJ	56	UJ	45	U	22	U	22	UJ	22	U	45	U	51	U		
			2/26/2013	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	22	UJ	22	UJ	22	UJ	22	U	22	U	22	UJ	4.5	UJ	22	U	450	U		
			8/15/2013	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	22	UJ	220	UJ	220	UJ	22	U	22	U	22	U	4.5	U	4.5	U	450	U		
			2/12/2014	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	UJ	22	UJ	110	U	110	UJ	110	U	110	UJ	22	UJ	4.5	U	4.5	U	110	U				
			12/11/2014	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	22	U	110	U	110	U	4.5	U	22	U	4.5	UJ	4.5	U	4.5	UJ	300	U				
1,3-DICHLOROBENZENE	µg/m ³	NE	5/19/2015	4.5	U	4.5	U	4.5	U	4.5	U	4.5	U	4.5	UJ	4.5	UJ	4.5	U	4.5	U	4.5	U	4.5	U	110	U	110	U	4.5	U	4.5	UJ	4.5	UJ	4.5	U	4.5	U	4.5	U	110	U		
			8/23/2012	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	U	61	UJ	76	UJ	120	U	61	U	61	U	61	UJ	61	U	62	U	70	U		
			2/26/2013	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	UJ	61	UJ	61	U	61	U	61	U	61	UJ	12	UJ	61	U	1200	U
			8/15/2013	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	UJ	610	UJ	610	U	61	U	61	U	61	U	61	U	12	U	12	U	1200	U		
			2/12/2014	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	UJ	61	UJ	300	U	300	UJ	300	U	300	UJ	61	UJ	12	U	12	U	300	U				
1,4-DICHLOROBENZENE	µg/m ³	NE	12/11/2014	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	U	300	U	300	U	12	U	61	U	12	UJ	12	U	12	UJ	12	U	12	UJ	300	U		
			5/19/2015	12	U	12	U	12	U	12	U	12	U	12	U	12	UJ	12	U	12	U	12	U	300	U	300	U	12	U	61	U	12	UJ	12	UJ	12	U	12	U	300	U				
			8/23/2012	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	U	61	UJ	76	UJ	120	U	61	U	61	U	61	UJ	61	U	62	U	70	U		
			2/26/2013	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	UJ	61	UJ	61	U	61	U	61	U	61	UJ	12	UJ	61	U	1200	U				
			8/15/2013	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	UJ	610	UJ	610	U	61	U	61	U	61	U	61	U	12	U	12	U	1200	U		
1,4-DIOXANE	µg/m ³	NE	2/12/2014	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	UJ	300	U	300	UJ	300	U	300	UJ	61	UJ	12	U	12	U	12	U	12	U	300	U		
			12/11/2014	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	12	U	61	U	300	U	300	U	12	U	61	U	12	UJ	12	U	12	UJ	180	U						
			5/19/2015	12	U	12	U	12	U	12	U	12	U	12	U	12	UJ	12	U	12	U	12	U	12	U	300	U	300	U	12	U	12	UJ	12	UJ	12	U	12	U	300	U				
			8/23/2012	7.3	U	7.3	U	9.4		23		8.8		7.3	U	39		7.3	U	62		52		7.3	U	140		36	U	36	UJ	91	UJ	73	U	36	U	46	J	36	U	74	U	83	U
			2/26/2013	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	16		7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	36	UJ	36	UJ	36	U	36	U	36	UJ	7.3	UJ	36	U	730	U
2,2,4-TRIMETHYLPENTANE	µg/m ³	NE	8/15/2013	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	UJ	36	UJ	360	UJ	360	U	36	U	36	U	36	U	7.3	U	7.3	U	730	U
			2/12/2014	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	UJ	36	UJ	180	U	180	UJ	180	U	180	UJ	36	UJ	7.3	U	7.3	U	7.3	U	180	U		
			12/11/2014	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	36	U	180	U	180	U	7.3	U	36	U	7.3	UJ	7.3	U	7.3	UJ	27000					
			5/19/2015	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	U	7.3	UJ	7.3	U	20		7.3	U	7.3	U	7.3	U	180	U	180	U	7.3	U	7.3	UJ	7.3	UJ	7.3	U	12		180	U		
			8/23/2012	7.3		5.4		4.7	U	6.5		4.9		9.2		12		40		10		75		41		15		440		690	J	59	UJ	490		260		2100	J	1800		48	U	54	U
4-ETHYLTOLUENE	µg/m ³	NE	2/26/2013	72		29		33		46		22		29		11		4.7	U	14		16		12		13		1500		6000	J	1200	J	1200		24	U	4400	J	51	J	41		82000	
			8/15/2013	4.9		4.7	U	42		71		120		4.7	U	29		4.7	U	4.7	U	4.7	U	15		9.2		6700	J	8600	J	3100		24	U	420		3600		6.5		48		70000	
			2/12/2014	4.7	U	14		130		4.7	U	7.6		4.7	U	10		4.7	U	4.7	U	4.7	U	4.7	U	20	J	3500	J	9900		42000	J	120	U	120	UJ	330	J	8.8		200		1500	
			12/11/2014	8.8		24		30		4.7		4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	4.7	U	6600	J	19000		4000		270		72		35	J	5.0		10	J	120	U
			5/19/2015	17		4.7	U	5.2		7.3		510	J	140		10		20	J	4.7	U	12		4.7	U	290		1900		660		42000		150		7.4	J	2100	J	10		6.0		26000	
ACETONE	µg/m ³	NE	8/23/2012	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	13		13		8.5		24		16		17		40		25	UJ	160	J	820		290		220	J	25	U	71		22000			
			2/26/2013	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	130		25	UJ	25	UJ	25	U	25	U	25	UJ	5.0	UJ	25	U	500	U		
			8/15/2013	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U																										

Table 7
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Sample Location				SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05 ^c	SG12-10 ^c	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	SG14-10	SG14-15																			
Analyte ^a	Unit	Screening Criterion ^b	Sample Date																																								
BENZYL CHLORIDE	µg/m ³	NE	8/23/2012	10	UJ	10	UJ	10	UJ	10	U	10	U	10	U	10	U	10	U	10	U	10	U	52	U	52	UJ	130	UJ	100	U	52	U	52	UJ	52	U	110	UJ	120	UJ		
			2/26/2013	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	52	UJ	52	UJ	52	UJ	52	U	52	U	52	UJ	10	UJ	52	U	1000	U		
			8/15/2013	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	52	UJ	520	UJ	520	U	52	U	52	U	52	U	10	UJ	10	U	1000	U		
			2/12/2014	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	UJ	52	UJ	260	U	260	UJ	260	U	260	UJ	52	UJ	10	U	10	U	260	U		
			12/11/2014	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	52	U	260	U	260	U	10	U	52	U	10	UJ	10	U	10	UJ	170	U		
BROMO-DICHLOROMETHANE	µg/m ³	NE	5/19/2015	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	260	U	260	U	10	U	10	UJ	10	UJ	10	U	10	U	260	U		
			8/23/2012	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	86	U	34	UJ	85	UJ	68	U	34	U	34	UJ	34	U	69	U	78	U		
			2/26/2013	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	34	UJ	34	UJ	34	U	34	U	34	U	34	UJ	6.8	UJ	34	U	680	U
			8/15/2013	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	34	UJ	340	UJ	340	U	34	U	34	U	34	U	6.8	U	6.8	U	680	U		
			2/12/2014	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	UJ	34	UJ	170	U	170	UJ	170	U	170	UJ	34	UJ	6.8	U	6.8	U	170	U		
BROMOFORM	µg/m ³	NE	12/11/2014	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	34	U	170	U	170	U	6.8	U	34	U	6.8	UJ	6.8	U	6.8	UJ	260	U				
			5/19/2015	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	6.8	UJ	6.8	U	6.8	U	6.8	U	6.8	U	6.8	U	170	U	170	U	6.8	U	6.8	UJ	6.8	U	6.8	U	6.8	U	170	U		
			8/23/2012	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	52	U	52	UJ	130	UJ	100	U	52	U	52	UJ	52	UJ	52	U	110	U	120	U
			2/26/2013	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	52	UJ	52	UJ	52	U	52	U	52	UJ	10	UJ	52	U	1000	U		
			8/15/2013	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	52	UJ	520	UJ	520	U	52	U	52	U	52	U	10	U	10	U	1000	U		
BROMOMETHANE	µg/m ³	NE	2/12/2014	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	UJ	52	UJ	260	U	260	UJ	260	U	260	UJ	52	UJ	10	U	10	U	260	U		
			12/11/2014	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	52	U	260	U	260	U	10	U	52	U	10	UJ	10	U	10	UJ	390	U		
			5/19/2015	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	UJ	10	U	10	U	10	U	260	U	260	U	10	U	10	UJ	10	UJ	10	U	10	U	260	U		
			8/23/2012	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	79	U	79	UJ	99	UJ	160	U	79	U	79	UJ	79	U	80	U	90	U		
			2/26/2013	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	79	U	79	UJ	79	UJ	79	U	79	U	79	UJ	16	UJ	79	U	1600	U		
CARBON DISULFIDE	µg/m ³	NE	8/15/2013	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	79	UJ	790	UJ	790	U	79	U	79	U	79	U	16	U	16	U	1600	U		
			2/12/2014	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	UJ	79	UJ	390	U	390	UJ	390	U	390	UJ	79	UJ	16	U	16	U	390	U		
			12/11/2014	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	U	79	U	390	U	390	U	16	U	79	U	16	UJ	16	U	16	UJ	160	U		
			5/19/2015	16	U	16	U	16	U	16	U	16	U	16	U	16	U	16	UJ	16	U	16	U	16	U	390	U	390	U	16	U	16	UJ	16	UJ	16	U	16	U	390	U		
			8/23/2012	180	U	460	U	480	U	57	U	15	U	630	U	770	U	550	U	330	U	330	U	760	U	200	U	140	J	240	J	65	U	37	U	50	J	240	U	1100	U	2900	U
CARBON TETRACHLORIDE	µg/m ³	210	2/26/2013	6.3	U	8.5	U	18	U	6.3	U	6.3	U	18	U	25	U	15	U	12	U	37	U	16	U	12	UJ	32	UJ	32	U	32	U	32	UJ	6.3	UJ	32	U	630	U		
			8/15/2013	6.3	U	6.3	U	10	U	6.3	U	6.3	U	16	U	17	U	8.4	U	16	U	18	U	12	U	32	UJ	320	UJ	320	U	32	U	32	U	32	U	6.3	U	6.3	U	630	U
			2/12/2014	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	7.4	U	6.3	U	6.3	U	6.3	U	8.1	J	32	UJ	160	U	160	UJ	160	U	160	UJ	32	UJ	6.3	U	6.3	U	160	U		
			12/11/2014	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	32	U	160	U	160	U	6.3	U	32	U	6.3	UJ	6.3	U	6.3	UJ	160	U		
			5/19/2015	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	U	6.3	UJ	6.3	U	6.3	U	6.3	U	6.3	U	210	U	160	U	6.3	U	10	J	17	J	6.3	U	6.3	U	160	U		
CHLOROBENZENE	µg/m ³	NE	8/23/2012	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	32	U	32	UJ	32	UJ	64	U	32	U	32	UJ	32	U	26	U	29	U				
			2/26/2013	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	32	UJ	32	UJ	32	U	32	U	32	UJ	6.4	UJ	32	U	640	U		
			8/15/2013	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	6.4	U	32	UJ	320	UJ	320	U	32	U	32	U	32	U	6.4	U	6.4	U	640	U		
			2/12/2014	6.4	U	6.4	U	6.4	U</																																		

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Sample Location				SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05 ^c	SG12-10 ^c	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	SG14-10	SG14-15																					
Analyte ^a	Unit	Screening Criterion ^b	Sample Date																																										
CHLOROFORM	μg/m ³	NE	8/23/2012	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	25	U	25	UJ	62	UJ	49	U	25	U	25	UJ	25	U	50	U	56	U		
			2/26/2013	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	25	UJ	250	UJ	250	U	25	U	25	UJ	4.9	UJ	25	U	490	U		
			8/15/2013	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	25	UJ	250	UJ	250	U	25	U	25	UJ	4.9	U	4.9	U	490	U		
			2/12/2014	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	UJ	25	UJ	120	U	120	UJ	120	U	120	UJ	25	UJ	4.9	U	4.9	U	120	U				
			12/11/2014	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	25	U	120	U	120	U	4.9	U	25	UJ	4.9	U	4.9	UJ	52	U		
5/19/2015	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	4.9	UJ	4.9	U	4.9	U	4.9	U	4.9	U	4.9	U	120	U	120	U	4.9	U	4.9	UJ	4.9	UJ	4.9	U	4.9	U	120	U			
CHLOROMETHANE	μg/m ³	NE	8/23/2012	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	5.4		2.8		2.1	U	2.1	U	10	U	10	UJ	52	UJ	21	U	10	U	10	UJ	10	U	42	U	47	U		
			2/26/2013	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	10	UJ	10	UJ	10	U	10	U	10	U	10	UJ	2.1	UJ	10	U	210	U
			8/15/2013	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	3.3		2.1	U	2.1	U	3.2		2.1	U	2.1	U	10	UJ	100	UJ	100	U	10	U	10	U	10	U	2.1	U	2.1	U	210	U
			2/12/2014	2.1	U	2.1	U	2.1	U	2.2		2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	UJ	10	UJ	52	U	52	UJ	52	U	52	UJ	10	UJ	2.1	U	2.1	U	52	U				
			12/11/2014	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	10	U	52	U	52	U	2.1	U	10	U	2.1	UJ	2.1	U	2.1	UJ	100	U		
5/19/2015	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	UJ	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	2.1	U	52	U	52	U	2.1	U	2.9	J	3.0	J	2.1	U	2.1	U	52	U			
CIS-1,2-DICHLOROETHENE	μg/m ³	120000	8/23/2012	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	20	U	20	UJ	100	UJ	40	U	20	U	20	U	20	UJ	20	U	82	UJ	92	UJ
			2/26/2013	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	28		4.0	U	4.0	U	20	UJ	20	UJ	20	U	20	U	20	UJ	4.0	UJ	20	U	400	U		
			8/15/2013	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	20	UJ	200	UJ	200	U	20	U	20	U	20	U	4.0	U	4.0	U	400	U
			2/12/2014	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	UJ	20	UJ	100	U	100	UJ	100	U	100	UJ	20	UJ	4.0	U	4.0	U	100	U		
			12/11/2014	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	20	U	100	U	100	U	4.0	U	20	U	4.0	UJ	4.0	U	4.0	UJ	120	U
5/19/2015	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	UJ	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	100	U	100	U	4.0	U	4.0	UJ	4.0	UJ	4.0	U	4.0	U	100	U			
CIS-1,3-DICHLOROPROPENE	μg/m ³	NE	8/23/2012	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	23	U	23	UJ	58	UJ	46	U	23	U	23	UJ	23	U	47	U	52	U		
			2/26/2013	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	23	UJ	23	UJ	23	U	23	U	23	UJ	4.6	UJ	23	U	460	U		
			8/15/2013	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	23	UJ	230	UJ	230	U	23	U	23	U	4.6	U	4.6	U	460	U		
			2/12/2014	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	UJ	23	UJ	120	U	120	UJ	120	U	120	UJ	23	UJ	4.6	U	4.6	U	120	U				
			12/11/2014	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	23	U	120	U	120	U	4.6	U	23	U	4.6	UJ	14000					
5/19/2015	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	UJ	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	120	U	120	U	4.6	U	4.6	UJ	4.6	UJ	4.6	U	4.6	U	120	U			
CYCLOHEXANE	μg/m ³	NE	8/23/2012	17	U	24		25		17	U	17	U	17	U	33		62		23		64		70		39		98		100	J	87	UJ	610		230		150	J	3400		78000		280000	
			2/26/2013	21		17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	31		180	J	2700	J	98		87	U	87	UJ	17	UJ	87	U	120000	
			8/15/2013	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	87	UJ	870	UJ	3200		87	U	87	U	17	U	24		81000			
			2/12/2014	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	UJ	87	UJ	440	U	4200	J	440	U	440	UJ	87	UJ	17	U	220		46000	J				
			12/11/2014	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	87	U	810		10000		30		87	U	17	UJ	17	U	17	UJ	220	U
5/19/2015	18		17	U	17	U	22		140	J	17	U	17	U	21	J	17	U	17	U	46		88		60		2100		12000		35		25	J	21	J	17	U	17	U	12000				
DIBROMO-CHLOROMETHANE	μg/m ³	NE	8/23/2012	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	43	U	43	UJ	110	UJ	86	U	43	U	43	UJ	43	U	88	U	98	U		
			2/26/2013	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	43	UJ	43	UJ	43	U	43	U	43	UJ	8.6	UJ	43	U	860	U		
			8/15/2013	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	43	UJ	430	UJ	430	U	43	U	43	U	43	U	8.6	U	8.6	U	860	U
			2/12/2014	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	UJ	43	UJ	220	U	220	UJ	220	U	220	UJ	43	UJ	8.6	U	8.6	U	220	U				
			12/11/2014	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	43	U	220	U	220	U	8.6	U	43	U	8.6	UJ	8.6	U	8.6	UJ	130	U		
5/19/2015	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	UJ	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	8.6	U	220	U	220	U	8.6	U	8.6	UJ	8.6	UJ	8.6	U	8.6	U	220	U			
DICHLORO-DIFLUOROMETHANE	μg/m ³	NE	8/23/2012	5.0	U	5.0	U	5.0	U	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	5.0	UJ	25	UJ	25	UJ	63	UJ	50	UJ	25	UJ	25	UJ	25	UJ	51	U	57	U		
			2/26/2013	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	25	UJ	25	UJ	25	U	25	U	25	UJ	5.0	UJ	25	U	500	U		
			8/15/2013	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	25	UJ	250	UJ	250	U	25	U	25	U	25	U	5.0	U	5.0	U	500	U
			2/12/2014	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	UJ	25	UJ	130																			

Table 7
Historical Soil-Gas Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05 ^c	SG12-10 ^c	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	SG14-10	SG14-15																					
Analyte ^a	Unit	Screening Criterion ^b	Sample Date																																										
ETHYLBENZENE	μg/m ³	3600	8/23/2012	4.4	U	4.4	U	4.4	U	8.0		5.2		4.4	U	13		13		8.9		24		15		17		60		29	J	110	J	840		230		110	J	22	U	290		16000	
			2/26/2013	6.9		5.4		5.8		5.9		5.4		6.1		6.9		7.8		6.3		14		5.4		5.5		40		40	J	67	J	22	U	45		22	UJ	4.4	UJ	22	U	980	
			8/15/2013	9.8		4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.6		4.4	U	4.4	U	5.3		4.4	U	5.3		22	UJ	220	UJ	220	U	22	U	22	U	4.4	U	4.4	U	1200			
			2/12/2014	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.7		4.4	U	4.4	U	4.7		5.8	J	22	UJ	110	U	110	UJ	110	U	110	UJ	22	UJ	4.4	U	5.2		360	
			12/11/2014	18		13		12		4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	4.4	U	22	U	110	U	110	U	7.3		22	U	4.4	UJ	4.4	U	6.7	J	15000	
5/19/2015	5.1		4.9		7.8		4.4	U	4.4	U	4.4	U	4.4	U	4.4	UJ	4.4	U	4.4	U	6.5		15		9.5		110	U	120		9.1		5.9	J	26	J	4.4	U	4.4	U	110	U			
HEPTANE	μg/m ³	NE	8/23/2012	4.1	U	4.1	U	4.1	U	5.7		6.4		4.5		16		15		12		30		23		25		78		46	J	690	J	1700		490		300	J	21	U	21000	J	480000	J
			2/26/2013	9.9		4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.2		4.1	U	4.1	U	13		48	J	550	J	36		21	U	100	J	4.1	UJ	21	U	24000	
			8/15/2013	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	21	UJ	230	J	840		21	U	21	U	21	U	4.1	U	4.1	U	25000	
			2/12/2014	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	UJ	21	UJ	100	U	1600	J	100	U	100	UJ	21	UJ	4.1	U	97		18000	
			12/11/2014	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	4.1	U	21	U	290		4600		17		21	U	4.1	UJ	4.1	U	4.1	UJ	12000	
5/19/2015	4.1	U	4.1	U	6.8		8.3		55	J	14		4.1	U	4.1	UJ	4.1	U	4.1	U	6.0		22		21		1100		5600		23		12	J	11	J	4.1	U	4.1	U	4.1	U	13000		
HEXANE	μg/m ³	NE	8/23/2012	3.6	U	3.8		3.6	U	4.1		4.0		3.6	U	17		68		13		22		42		16		180		150	J	2800	J	560		390		380	J	3500		100000		410000	J
			2/26/2013	35		3.6	U	4.6		5.1		5.5		13		3.6	U	3.6	U	3.6	U	4.7		3.6	U	3.6	U	38		250	J	3500	J	69		31		240	J	3.6	UJ	18	U	81000	
			8/15/2013	3.6	U	3.6	U	3.6	U	4.3		6.8		3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	45	J	590	J	4100		18	U	22		48		3.6	U	11		54000	
			2/12/2014	3.6	U	3.6	U	11		9.0		3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	UJ	18	UJ	400		5600	J	89	U	89	UJ	21	J	3.6	U	120		24000	
			12/11/2014	3.6	U	3.6	U	4.6		3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	27	J	2500		32000		45		21		9.0	J	3.6	U	3.6	UJ	6300	
5/19/2015	8.4		21		42		73		380	J	96		6.7		11	J	3.6	U	3.8		39		160		200		9300		42000		59		49	J	75	J	3.7		3.6	U	12000				
M- AND P-XYLENE	μg/m ³	2100000	8/23/2012	13		8.8	U	9.4		42		39		30		110		110		76		240		140		150		470		210	J	750	J	10000		2800		1200	J	44	U	1100		200000	
			2/26/2013	24		21		22		24		21		23		26		31		26		49		20		22		1900		44	UJ	70	J	47		52		78	J	27	J	44	U	31000	
			8/15/2013	29		10		11		22		13		8.8	U	13		12		8.8	U	10		19		17		110	J	2200	J	440	U	44	U	55		58		8.8		16		33000	
			2/12/2014	11		9.3		12		10		10		8.8	U	11		21		15		11		20		23	J	44	UJ	220	U	220	UJ	220	U	220	UJ	44	UJ	13		61		11000	
			12/11/2014	120		89		80		8.8	U	8.8	U	8.8	U	8.8	U	8.8	U	8.8	U	8.8	U	8.8	U	8.8	U	77	J	220	U	220	U	8.8	U	44	U	12	J	8.8	U	8.8	UJ	91	U
5/19/2015	26		25		32		12		12	J	10		8.8	U	9.5	J	8.8	U	15		21		19		39		220	U	220	U	37		24	J	32	J	8.8	U	8.8	U	5400				
METHYL TERT-BUTYL ETHER	μg/m ³	29000	8/23/2012	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	18	U	18	UJ	46	UJ	36	U	18	U	18	UJ	18	U	37	U	42	U		
			2/26/2013	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	18	UJ	18	UJ	18	U	18	U	18	UJ	3.6	UJ	18	U	360	U		
			8/15/2013	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	18	UJ	180	UJ	180	U	18	U	18	U	18	U	3.6	U	3.6	U	360	U
			2/12/2014	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	UJ	18	UJ	91	U	91	UJ	91	U	91	UJ	18	UJ	3.6	U	3.6	U	91	U
			12/11/2014	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	18	U	91	U	91	U	3.6	U	18	U	3.6	UJ	3.6	U	3.6	UJ	88	U
5/19/2015	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	UJ	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	91	U	91	U	3.6	U	3.6	UJ	3.6	UJ	3.6	U	3.6	U	91	U			
METHYLENE CHLORIDE	μg/m ³	NE	8/23/2012	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	18	U	18	UJ	44	UJ	35	U	18	U	18	UJ	18	U	36	U	40	U		
			2/26/2013	4.6		3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	4.9		4.2		5.3		7.1		3.5	U	3.5	U	18	UJ	18	UJ	18	U	22		18	UJ	3.5	UJ	18	U	350	U
			8/15/2013	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	18	UJ	180	UJ	180	U	18	U	18	U	18	U	3.5	U	3.5	U	350	U
			2/12/2014	3.5	U	3.5	U	3.6		3.5	U	3.5	U	3.9		3.6		4.1		3.5	U	4.4		3.8		4.4	J	18	UJ	88	U	88	UJ	88	U	88	UJ	18	UJ	3.5	U	3.5	U	88	U
			12/11/2014	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	18	U	88	U	88	U	3.5	U	18	U	3.5	UJ	3.5	U	3.5	UJ	130	UJ
5/19/2015	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	3.5	UJ	3.5	U	3.5	U	3.5	U	3.5	U	3.5	U	88	U	88	U	89		3.5	U	5.9	J	4.5	J	3.5	U	3.5	U	88	U			
NAPHTHALENE	μg/m ³	310	8/23/2012	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	7.7		5.4		5.3	U	27	UJ	66	UJ	53	U	27	U	27	UJ	27	U	27	UJ	27	U	54	U	61	U		
			2/26/2013	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	36		27	UJ	27	U	27	U	27	UJ	5.3	UJ	27	U	530	U		
			8/15/2013	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	27	UJ	270	UJ	270	U	27	U	27	U	27	U	5.3	U	5.3	U	530	U
			2/12/2014	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	U	5.3	UJ	27	UJ	130	U	130	UJ	130	U	130	UJ	27	UJ	5.3	U	5.3	U	130	

Table 7
Historical Soil-Gas Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05 ^c	SG12-10 ^c	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	SG14-10	SG14-15																					
Analyte ^a	Unit	Screening Criterion ^b	Sample Date																																										
STYRENE	µg/m ³	NE	8/23/2012	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	22	U	22	UJ	54	UJ	43	U	22	U	22	UJ	22	U	44	U	49	U		
			2/26/2013	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	22	UJ	22	UJ	22	U	22	U	22	UJ	4.3	UJ	22	U	430	U		
			8/15/2013	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	22	UJ	220	UJ	220	U	22	U	22	U	22	U	4.3	U	4.3	U	430	U		
			2/12/2014	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	UJ	22	UJ	110	U	110	UJ	110	U	110	U	110	UJ	22	UJ	4.3	U	4.3	U	110	U		
			12/11/2014	4.3	UJ	4.3	UJ	4.3	UJ	4.3	UJ	4.3	UJ	4.3	UJ	4.3	UJ	4.3	UJ	4.3	UJ	4.3	UJ	22	UJ	110	UJ	110	UJ	4.3	UJ	22	UJ	4.3	UJ	4.3	UJ	4.3	UJ	170	U				
5/19/2015	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	U	4.3	UJ	4.3	U	4.3	U	4.3	U	4.3	U	110	U	110	U	4.3	U	4.3	UJ	4.3	UJ	4.3	U	4.3	U	110	U					
TETRA-CHLOROETHENE	µg/m ³	1600	8/23/2012	6.9	U	6.9	U	17		170		110		96		180		31		40		88		15		35		34	U	34	UJ	86	UJ	69	U	34	U	34	UJ	34	U	70	U	78	U
			2/26/2013	6.9	U	6.9	U	11		37		28		43		380		59		68		24		430		34		27		310	J	34	UJ	34	U	34	U	34	UJ	6.9	UJ	34	U	690	U
			8/15/2013	13		9.3		23		160		120		75		310		170		160		280		67		63		74	J	340	UJ	340	U	34	U	34	U	34	U	6.9	U	6.9	U	690	U
			2/12/2014	8.3		9.9		22		81		62		66		150		110		98		120		54		54	J	34	UJ	170	U	170	UJ	170	U	7000	J	34	UJ	6.9	U	6.9	U	170	U
			12/11/2014	7.5		15		24		95		78		65		210		200		120		110		97		48		49	J	170	U	170	U	6.9	U	34	U	6.9	UJ	6.9	U	7.5	J	750	U
5/19/2015	6.9	U	14		21		74		66	J	64		260		160	J	110		140		80		57		49		170	U	170	U	16		6.9	UJ	6.9	UJ	6.9	U	6.9	U	170	U			
TETRA-HYDROFURAN	µg/m ³	NE	8/23/2012	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	150	U	150	UJ	300	U	150	U	150	U	150	UJ	150	U	61	U	68	U		
			2/26/2013	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	150	UJ	150	UJ	150	U	150	U	150	UJ	30	UJ	150	U	3000	U		
			8/15/2013	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	150	UJ	1500	UJ	1500	U	150	U	150	U	150	U	30	U	30	U	3000	U		
			2/12/2014	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	UJ	150	UJ	750	U	750	UJ	750	U	750	UJ	150	UJ	30	U	30	U	750	U		
			12/11/2014	30	U	41		48		30	U	30	U	30	U	30	U	30	U	30	U	30	U	30	U	150	U	750	U	750	U	30	U	150	U	30	UJ	30	U	30	UJ	100			
5/19/2015	30	U	36		37		30	U	30	U	30	U	30	UJ	30	U	30	U	30	U	30	U	30	U	750	U	750	U	30	U	30	UJ	30	UJ	30	U	30	U	750	U					
TOLUENE	µg/m ³	890000	8/23/2012	13		9.9		16		14		6.0		4.2		12		28		23		23		17		45		130		60	J	150	J	67		74		150	J	19	U	180		1200	
			2/26/2013	35		15		20		14		15		14		12		18		13		30		15		10		94		32	J	140	J	31		23		29	J	5.7	J	19	U	610	
			8/15/2013	8.3		5.3		6.4		6.4		6.8		5.6		7.4		7.6		4.0		6.9		9.5		10		41	J	190	UJ	380		19	U	46		38		4.6		6.1		380	U
			2/12/2014	9.8		9.8		12		9.2		8.2		6.7		11		18		12		9.7		16		19	J	23	J	95	U	170	J	95	U	240	J	22	J	8.9		12		120	
			12/11/2014	120		110		110		9.5		5.8		6.4		4.1		4.9		3.8	U	4.8		4.9		9.2		45	J	140		430		10		19	U	7.2	J	4.2		5.3	J	200	U
5/19/2015	14		14		18		8.5		12	J	7.8		6.2		7.7	J	7.5		15		15		15		31		130		260		16		22	J	26	J	4.4		6.4		130				
TRANS-1,2-DICHLOROETHENE	µg/m ³	240000	8/23/2012	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	40	U	40	UJ	100	UJ	80	U	40	U	40	UJ	40	U	82	U	92	U		
			2/26/2013	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	40	UJ	40	UJ	40	U	40	U	40	UJ	8.0	UJ	40	U	800	U		
			8/15/2013	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	40	UJ	400	UJ	400	U	40	U	40	U	40	U	8.0	U	8.0	U	800	U		
			2/12/2014	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	UJ	40	UJ	200	U	200	UJ	200	U	200	UJ	40	UJ	8.0	U	8.0	U	200	U				
			12/11/2014	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	40	U	200	U	200	U	8.0	U	40	U	8.0	UJ	8.0	U	8.0	UJ	120	U				
5/19/2015	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	UJ	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U	200	U	200	U	8.0	U	8.0	UJ	8.0	UJ	8.0	U	8.0	U	200	U					
TRANS-1,3-DICHLOROPROPENE	µg/m ³	NE	8/23/2012	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	23	U	23	UJ	58	UJ	46	U	23	U	23	UJ	23	U	23	UJ	4.6	UJ	23	U	460	U
			2/26/2013	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	23	UJ	23	UJ	23	UJ	23	U	23	U	23	UJ	4.6	UJ	23	U	460	U		
			8/15/2013	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	23	UJ	230	UJ	230	U	23	U	23	U	23	U	4.6	U	4.6	U	460	U		
			2/12/2014	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	UJ	23	UJ	120	U	120	UJ	120	U	120	UJ	23	UJ	4.6	U	4.6	U	120	U				
			12/11/2014	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	23	U	120	U	120	U	4.6	U	23	U	4.6	UJ	4.6	U	4.6	UJ	140	U				
5/19/2015	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	4.6	UJ	4.6	U	4.6	U	4.6	U	4.6	U	4.6	U	120	U	120	U	4.6	U	4.6	UJ	4.6	UJ	4.6	U	4.6	U	120	U							
TRI-CHLOROETHENE	µg/m ³	4400	8/23/2012	14		5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	27	U	27	UJ	68	UJ	55	U	27	U	27	UJ	27	U	55	U	62	U				
			2/26/2013	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	27	UJ	27	UJ	27	U	27	U	27	U	27	UJ	5.5	UJ	27	U	550	U				
			8/15/2013	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	27	UJ	270	UJ	270	U	27	U	27	U	27	U	5.5	U	5.5	U	550	U				
			2/12/2014	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	UJ	27	UJ	140	U	140	UJ	140	U	140	UJ	27	UJ	5.5	U	5.5	U	140	U						
			12/11/2014	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	5.5	U	27	U	140	U	140	U	5.5	U	27	U	5.5	UJ	5.5	U	5.5	UJ	140	U				
5/19/2015	5.5	U	5.5	U	5.5	U	5.5</																																						

Table 7
Historical Soil-Gas Analytical Results
Installation Restoration Program Site 1
Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location				SG08-05	SG08-10	SG08-15	SG09-05	SG09-10	SG09-15	SG10-05	SG10-10	SG10-15	SG11-05	SG11-10	SG11-15	SG12-05 ^c	SG12-10 ^c	SG12-15	SG13-05	SG13-10	SG13-15	SG14-05	SG14-10	SG14-15																			
Analyte ^a	Unit	Screening Criterion ^b	Sample Date																																								
VINYL ACETATE	µg/m ³	NE	8/23/2012	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	18	U	18	UJ	45	UJ	36	U	18	U	18	UJ	18	U	36	U	41	U
			2/26/2013	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	18	UJ	18	UJ	18	U	18	U	18	UJ	3.6	UJ	18	U	360	U
			8/15/2013	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	18	UJ	180	UJ	180	U	18	U	18	U	18	U	3.6	U	3.6	U	360	U
			2/12/2014	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	UJ	18	UJ	89	U	89	UJ	89	U	89	UJ	18	UJ	3.6	U	3.6	U	89	U		
			12/11/2014	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	18	U	89	U	89	U	3.6	U	18	U	3.6	UJ	3.6	U	3.6	UJ	65	U		
			5/19/2015	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	3.6	U	11		3.6	UJ	3.6	U	3.6	U	3.6	U	3.6	U	89	UJ	89	UJ	3.6	U	3.6	UJ	3.6	UJ	3.6	UJ	89	UJ		
VINYL CHLORIDE	µg/m ³	95	8/23/2012	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	13	U	13	UJ	32	UJ	26	U	13	U	13	UJ	13	U	26	U	30	U
			2/26/2013	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	13	UJ	13	UJ	13	U	13	U	13	UJ	2.6	UJ	13	U	260	U
			8/15/2013	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	13	UJ	130	UJ	130	U	13	U	13	U	13	U	2.6	U	2.6	U	260	U
			2/12/2014	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	UJ	13	UJ	65	U	65	UJ	65	U	65	UJ	13	UJ	2.6	U	2.6	U	65	U		
			12/11/2014	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	13	U	65	U	65	U	65	U	13	U	2.6	UJ	2.6	U	2.6	UJ	260	U		
			5/19/2015	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	2.6	UJ	2.6	UJ	2.6	U	2.6	U	2.6	U	2.6	U	2.6	U	65	U	65	U	2.6	U	2.6	UJ	2.6	UJ	2.6	U	2.6	U	65	U

Notes:
^a Helium analyzed by ASTM Method D1945M and VOCs analyzed by U.S. EPA Method TO-15.
^b Screening criteria based on OEHHA CHHSLs for Soil-Gas-Screening Numbers for Volatile Chemicals below Buildings Constructed With Engineered Fill below Sub-Slab Gravel (Table 2), updated September 23, 2010.
^c Sample location was resampled for the 2/26/13 event on 3/12/13 due to the presence of helium.

Green shading indicates a detection.
Orange shading indicates a detection above the screening level.
CHHSLs - California Human Health Screening Levels
J - estimated concentration
µg/m3 - micrograms per cubic meter
NA - not analyzed
NE - not established
OEHHA - Office of Environmental Health Hazard Assessment
U - not detected equal to or above the stated reporting limit
UJ - sample detection limit is an estimated value

Appendix A. Field Forms

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Accord MACTEC 8A JV

Groundwater Level Measurements IRP Site 1, NMCRC LA

Inspected by: Joe Sevrean and Qihai Chen

Date: 12/11/14

Monitoring Well No.	GW Level from TOC (feet bgs)	Total Well Depth from TOC (feet bgs)	Time	Notes
MW01	28.98	39.72	7:47	PID = 10.00ppm (23sec.) 0ppm 5 sec, ^{Strong} ~~single~~ ~~order~~
MW02	30.43	40.91	7:57	PID = 0.0 ppm
MW03	31.43	41.87	6:24	PID = 0.0 ppm
MW04B	Destroyed			
MW05	23.66	34.00	7:06	PID = 0.0 ppm
MW06	23.75	35.44	7:00	PID = 0.0 ppm
MW07	24.77	36.04	7:15	PID = 0.0 ppm
MW08	12.52	~~11.34~~ 20.61 ^{km}	~~6:48~~ 7:32 ^{km}	PID = 6.0 ppm; roots in well @ 11.34' bgs

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Accord MACTEC 8A JV

Groundwater Level Measurements IRP Site 1, NMCRC LA

Inspected by: Rice Xiao and Qihai Chen

Date: 5/19/15

Monitoring Well No.	GW Level from TOC (feet bgs)	Total Well Depth from TOC (feet bgs)	Time	Notes
MW01	29.01	39.71	0753	minor odor
MW02	30.48	40.90	0800	
MW03	31.48	41.50	0730	
MW04B	Destroyed			
MW05	23.65	33.96	0745	
MW06	23.71	29.28	0738	
MW07	24.75	36.00	0749	
MW08	12.50	20.58	0726	some roots

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Accord MACTEC 8A JV

Well ID: MW01

Date: 12/11/2014

Name: Jason Muntz

Signature: [Signature]

Reviewed by:

Name: Qihai Chen

Signature: Walter

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Remarks:

MS/MSD collected

Depth to Water 28.98 feet BTOC

Casing Diameter 4 inches

Screen Interval 22.5 – 37.5 feet bgs

Base of Well 40 feet bgs

Purge Start Time: ~~12:40~~ 14:40

Pump Type: Non-Dedicated

System Purge Volume 1103 ml

Cycles Per Minute 4

Sample Time: 15:10

Pump Intake Depth 33.5 feet bgs

Reading Intervals 3 minutes

[illegible]

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

Accord MACTEC 8A IV

Sample ID: MW02-Q4-2014

Date: 12/11/2014

Name: Kelli Miller

Signature: Ken Miller

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, $+ 0.3$ mg/L for DO, $+ 0.1$ for pH, $+ 10$ mV for ORP, and $+ 10\%$ for turbidity (if >10 NTUs)

Name: Qihai Chen

Signature: Edith K

Remarks:

Depth to Water 30.45 feet BTOC

Casing Diameter 4 inches

Screen Interval 23.5 – 38.5 feet bgs

Base of Well	41	feet bgs

Purge Start Time:

Pump Type: Non-Dedicated

System Purge Volume 1103 ml

Cycles Per Minute

Sample Time:

Pump Intake Depth 34.5 feet bgs

Reading Intervals 6 minutes

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

WELL SAMPLING LOG

Accord MACTEC 8A JV

Project Name: IRP Site 1, NMCRCCLA – GW Sampling

Well ID: MW03

Sample ID: MW03-Q4-2014

Date: 12/11/2014

Prepared by:

Name:

Signature:

Reviewed by:

Name:

Signature:

Purging Guidelines for Low-Flow Purging:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Remarks:

Groundwater Well Information:

Depth to Water 31.43 feet BTOC

Casing Diameter 4 inches

Screen Interval 25 - 40 feet bgs

Base of Well 42.5 feet bgs

Purge Start Time: 0702

Pump Type: Non-Dedicated

System Purge Volume 1146 ml

Cycles Per Minute 4

Sample Time: 0745

Pump Intake Depth 36 feet bgs

Reading Intervals 4 minutes

Purge Log

Water Quality Parameters

Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Comments
0707	300	31.76	22.71	1.470	4.51	6.54	201.0	2.73	clear, no odor
0711	300	31.83	22.78	1.471	2.88	6.46	199.6	2.60	" "
0715	300	31.95	22.79	1.472	2.44	6.38	199.4	1.89	" "
0719	300	32.05	22.80	1.473	2.69	6.33	199.6	2.03	" "
0723	300	32.10	22.82	1.473	2.74	6.28	199.9	1.77	" "
0727	300	32.18	22.83	1.473	2.67	6.23	200.2	2.11	" "
0731	300	32.19	22.81	1.473	2.50	6.22	200.2	1.34	" "
0735	300	32.25	22.81	1.473	2.22	6.19	200.3	1.60	" "
0739	300	32.25	22.79	1.471	1.91	6.19	199.4	1.57	" "
0742	300	32.27	22.81	1.471	1.83	6.18	199.4	1.70	" "

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

Accord MACTEC 8A JV

Sample ID: Not Collected

Date: 12/11/2014

Signature: _____

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, $+ 0.3$ mg/L for DO, $+ 0.1$ for pH, $+ 10$ mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Signature:

Remarks: Well abandoned on October 2, 2012.

Cycles Per Minute _____

[illegible]

Ferrous Iron (HACH Field Kit): _____

Accord MACTEC 8A JV

Well ID: MW05

Date: 12/11/2014

Name: Jason Meriz

Signature:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Name: Qihai Chen

Signature:

Remarks:

Depth to Water 23.64 feet BTOC

Purge Start Time: 12:45

Sample Time: 13:15

Casing Diameter 4 inches

Pump Type: Non-Dedicated

Pump Intake Depth 28 feet bgs

Screen Interval 17 - 32 feet bgs

System Purge Volume 973 ml

Reading Intervals 3 minutes

Base of Well 34.5 feet bgs

Cycles Per Minute [illegible]

Hydrogen Sulfide (HACH Field Kit): 0.00

Ferrous Iron (HACH Field Kit): 0.00

WELL SAMPLING LOG

Accord MACTEC 8A JV

Project Name: IRP Site 1, NMCRCCLA – GW Sampling

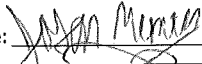
Well ID: MW06

Sample ID: MW06-Q4-2014

Date: 12/11/2014

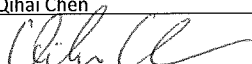
Prepared by:

Name: Jason Muniz

Signature: 

Reviewed by:

Name: Qihai Chen

Signature: 

Purging Guidelines for Low-Flow Purging:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Remarks:

Groundwater Well Information:

Depth to Water 23.76 feet BTOC

Purge Start Time: 10:55

Sample Time: 1210

Casing Diameter 4 inches

Pump Type: Non-Dedicated

Pump Intake Depth 29 feet bgs

Screen Interval 18.5 – 33.5 feet bgs

System Purge Volume 1038 ml

Reading Intervals 7-11 minutes

Base of Well 36 feet bgs

Cycles Per Minute 4

Purge Log

Water Quality Parameters

Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Comments
11:03	150	23.95	22.32	3.813	1.86	6.41	140.2	0.16	clear, no odor
11:10	150	24.20	22.43	3.809	1.47	6.38	139.3	0.26	" " "
11:17	150	24.32	22.46	3.807	1.16	6.37	138.4	0.26	" " "
11:24	150	24.48	22.46	3.806	0.95	6.35	138.2	0.32	" " "
11:31	150	24.64	22.49	3.807	~~2.04~~ 0.86	6.34	138.1	0.17	" " "
11:38	100	24.68	22.35	3.810	0.82	6.34	137.8	0.00	changed flow rate to 100ml/min
11:44	100	24.83	22.47	3.811	0.77	6.32	136.3	0.08	clear, no odor
11:55	100	24.97	22.68	3.818	0.69	6.31	132.6	0.10	" "
12:06	100	25.09	22.43	3.824	0.66	6.30	133.1	0.05	" "

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

Accord MACTEC 8A JV

Sample ID: MW07-Q4-2014

Date: 12/11/2014

Name:

Signature:

Reviewed by:

Name:

Signature:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, $+0.3$ mg/L for DO, $+0.1$ for pH, $+10$ mV for ORP, and $+10\%$ for turbidity (if >10 NTUs)

Remarks:

Depth to Water 24.75 feet BTOC

Casing Diameter 4 inches

Screen Interval 19 - 34 feet bgs

Base of Well 36.5 feet bgs

Purge Start Time:

Pump Type: Non-Dedicated

System Purge Volume 775 ml

Cycles Per Minute

Sample Time:

Pump Intake Depth 29.5 feet bgs

Reading Intervals 4 minutes

Hydrogen Sulfide (HACH Field Kit):

Ferrous Iron (HACH Field Kit):

Accord MACTEC 8A IV

Sample ID: MW08-Q4-2014

Date: 12/11/2014

Name: Kelli Miller

Signature: Ken Allen

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, $+ 0.3$ mg/L for DO, $+ 0.1$ for pH, $+ 10$ mV for ORP, and $+ 10\%$ for turbidity (if >10 NTUs)

Name: Qihai Chen

Signature:

Remarks:

Depth to Water 12.195 feet BTOC

Casing Diameter 4 inches

Screen Interval	5 - 20	feet bgs

Base of Well	20.5	feet bgs

Purge Start Time:

Pump Type: Non-Dedicated

System Purge Volume 500 ml

Cycles Per Minute

Sample Time:

Pump Intake Depth 16.5 feet bgs

Reading Intervals 7 minutes

Water Quality Parameters

[illegible]

Hydrogen Sulfide (HACH Field Kit):

Ferrous Iron (HACH Field Kit): 0.0

Accord MACTEC 8A JV

Sample ID: MW01-Q2-2015

Date: 05/19/2015

Name: Kelli Miller

Signature: Kenneth

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, $+ 0.3$ mg/L for DO, $+ 0.1$ for pH, $+ 10$ mV for ORP, and $+ 10\%$ for turbidity (if >10 NTUs)

Name: Qihai Chen

Signature:

MS/MSD collected

Depth to Water 29.00 feet BTOC

Casing Diameter 4 inches

Screen Interval 22.5 – 37.5 feet bgs

Base of Well 40 feet bgs

Purge Start Time: 14:27

Pump Type: Non-Dedicated

System Purge Volume 1147 ml

Cycles Per Minute 4

Sample Time: 14:40

Pump Intake Depth 33.5 feet bgs

Reading Intervals **3** minutes

[illegible]

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

Accord MACTEC 8A JV

Sample ID: MW02-Q2-2015

Date: 05/19/2015

Prepared by:

Name: _____

Signature:

Reviewed by:

Name: _____

Signature:

Purging Guidelines for Low-Flow Purging:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Remarks:

Groundwater Well Information:

Depth to Water 30-48 feet BTOC

Purge Start Time: 15:41

Sample Time: 16:40

Casing Diameter 4 inches

Pump Type: Non-Dedicated

Pump Intake Depth 34.3 feet bgs

Screen Interval 23.5 – 38.5 feet bgs

System Purge Volume 1125 ml

Reading Intervals 8-12 minutes

Base of Well 41 feet bgs

Cycles Per Minute 4

Purge Log

Water Quality Parameters

[illegible]

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0 0

WELL SAMPLING LOG

Accord MACTEC 8A JV

Project Name: IRP Site 1, NMCRCCLA – GW Sampling

Well ID: MW03

Sample ID: MW03-Q2-2015

Date: 05/19/2015

Prepared by:

Name: Kelli Miller

Signature: Kelli Miller

Purging Guidelines for Low-Flow Purging:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Reviewed by:

Name: Qihai Chen

Signature: Qihai Chen

Remarks:

Trip Blank #1 (Batch # TB-003-10-02) @ 0910.

Groundwater Well Information:

Depth to Water 31.48 feet BTOC

Purge Start Time: 0737

Sample Time: 08:28

Casing Diameter 4 inches

Pump Type: Non-Dedicated

Pump Intake Depth 36 feet bgs

Screen Interval 25 - 40 feet bgs

System Purge Volume 1168 ml

Reading Intervals 5 minutes

Base of Well 42.5 feet bgs

Cycles Per Minute 4

Purge Log

Water Quality Parameters

Time of Reading	Flow Rate (ml/min)	GW Level	Temp (°C)	Electrical Conductivity (mS/cm)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Turbidity (NTU)	Comments
0745	250	31.78	22.40	0.967	1.53	6.49	210.2	0.27	clear, no odor
0750	250	31.90	22.53	0.967	1.53	6.48	209.4	0.48	" "
0755	250	32.00	22.60	0.967	1.59	6.47	208.8	0.34	" "
0800	250	32.05	22.53	0.966	1.48	6.47	207.2	0.37	" "
0805	250	32.08	22.65	0.967	1.35	6.47	204.0	0.20	" "
0810	250	32.11	22.62	0.965	1.27	6.46	200.4	0.31	" "
0815	250	32.13	22.65	0.962	1.24	6.48	197.5	0.76	" "
0820	250	32.14	22.63	0.963	1.19	6.48	193.1	0.63	" "
0825	250	32.14	22.68	0.964	1.15	6.48	189.9	0.80	" "

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

Accord MACTEC 8A JV

Sample ID: Not Collected

Date: 05/19/2015

Signature: _____

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, $+ 0.3$ mg/L for DO, $+ 0.1$ for pH, $+ 10$ mV for ORP, and $+ 10\%$ for turbidity (if >10 NTUs)

Signature:

Remarks: Well abandoned on October 2, 2012.

Cycles Per Minute

Ferrous Iron (HACH Field Kit): _____

Accord MACTEC 8A JV

Sample ID: MW05-Q2-2015

Date: 05/19/2015

Name: Rice Niao

Signature:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Name: Qihai Chen

Signature:

Remarks:

Depth to Water 23.66 feet BTOC

Purge Start Time: 12:33

Sample Time: 28 K.A.

Casing Diameter 4 inches

Pump Type: Non-Dedicated

Pump Intake Depth 28 feet bgs

Screen Interval 17 - 32 feet bgs

System Purge Volume 973 ml

Reading Intervals 4 minutes

Base of Well 34.5 feet bgs

Cycles Per Minute 4

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

Accord MACTEC 8A JV

Sample ID: MW06-Q2-2015

Date: 05/19/2015

Name:

Signature:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, $+ 0.3$ mg/L for DO, $+ 0.1$ for pH, $+ 10$ mV for ORP, and $+ 10\%$ for turbidity (if >10 NTUs)

Name:

Signature:

Remarks:

Depth to Water 23.72 feet BTOC

Casing Diameter 4 inches

Screen Interval 18.5 – 33.5 feet bgs

Base of Well 36 feet bgs

Purge Start Time: 11:05.

Pump Type: Non-Dedicated

System Purge Volume 995 ml

Cycles Per Minute

Sample Time: 11:40

Pump Intake Depth 28.5 feet bgs

Reading Intervals 10 minutes

Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

Accord MACTEC 8A JV

Sample ID: MW07-Q2-2015

Date: 05/19/2015

Name: _____

Signature:

Reviewed by:

Name: Qihai Chen

Signature:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Remarks:

Depth to Water 24.75 feet BTOC

Casing Diameter 4 inches

Screen Interval 19 - 34 feet bgs

Base of Well 36.5 feet bgs

Purge Start Time: 13:36

Pump Type: Non-Dedicated

System Purge Volume 973 ml

Cycles Per Minute 4

Sample Time: 13:55

Pump Intake Depth 29.5 feet bgs

Reading Intervals 3 minutes

Water Quality Parameters

[illegible]

Hydrogen Sulfide (HACH Field Kit):

Ferrous Iron (HACH Field Kit):

Accord MACTEC 8A JV

Sample ID: MW08-Q2-2015

Date: 05/19/2015

Name:

Signature:

flow rate of 100-500 ml/min; ready to sample after 3 consecutive readings of stable parameters: $\pm 3\%$ for conductivity, ± 0.3 mg/L for DO, ± 0.1 for pH, ± 10 mV for ORP, and $\pm 10\%$ for turbidity (if >10 NTUs)

Name: _____

Signature:

Remarks:

Depth to Water 12.50 feet BTOC

Casing Diameter 4 inches

Screen Interval 5 - 20 feet bgs

Base of Well 20.5 feet bgs

Purge Start Time:

Pump Type: Non-Dedicated

System Purge Volume 800 ml

Cycles Per Minute

Sample Time:

Pump Intake Depth 16.50 feet bgs

Reading Intervals 7-8 minutes

Water Quality Parameters

[illegible]

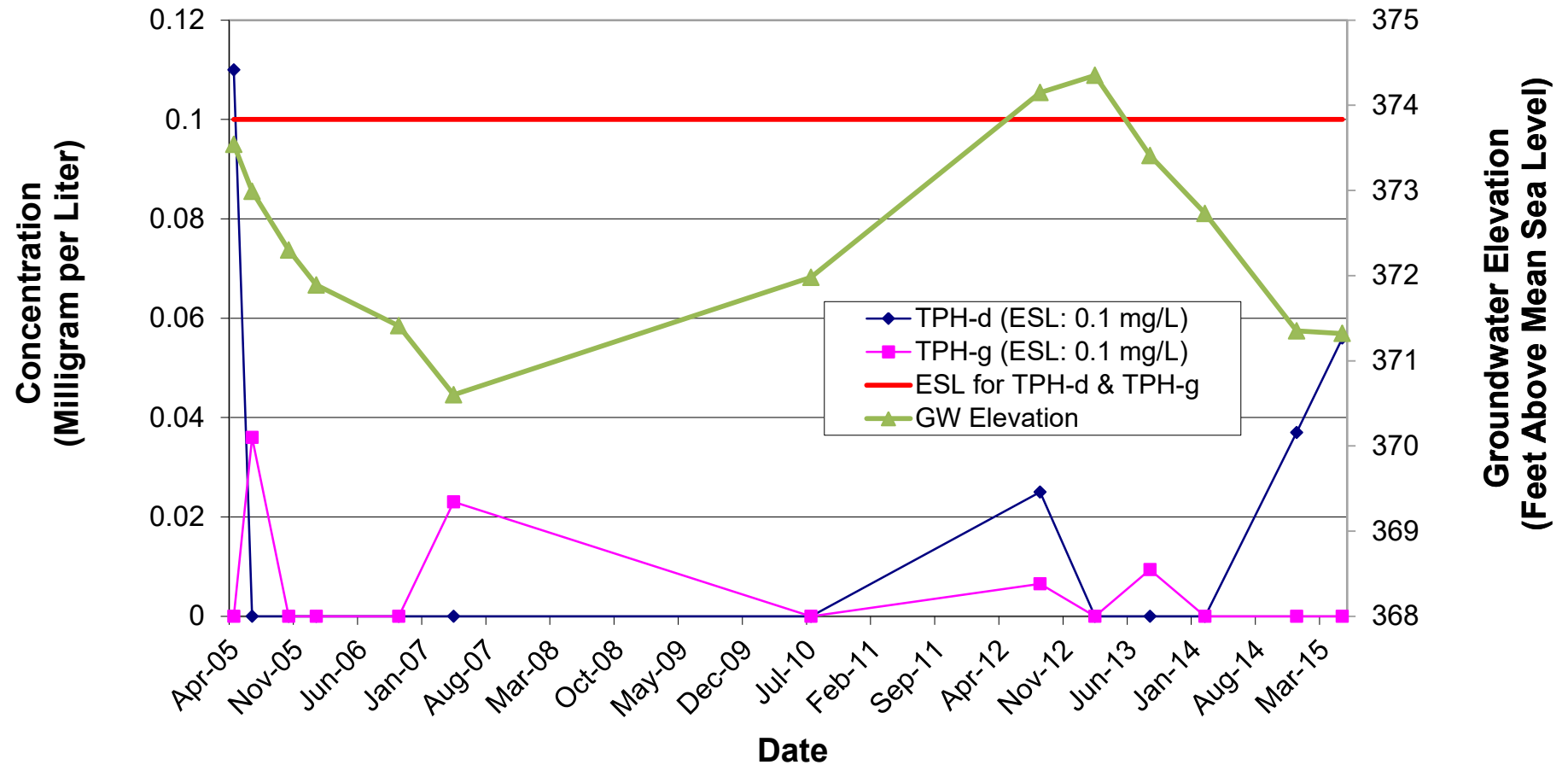
Hydrogen Sulfide (HACH Field Kit): 0.0

Ferrous Iron (HACH Field Kit): 0.0

Appendix B. Time-Series Concentration Graphs

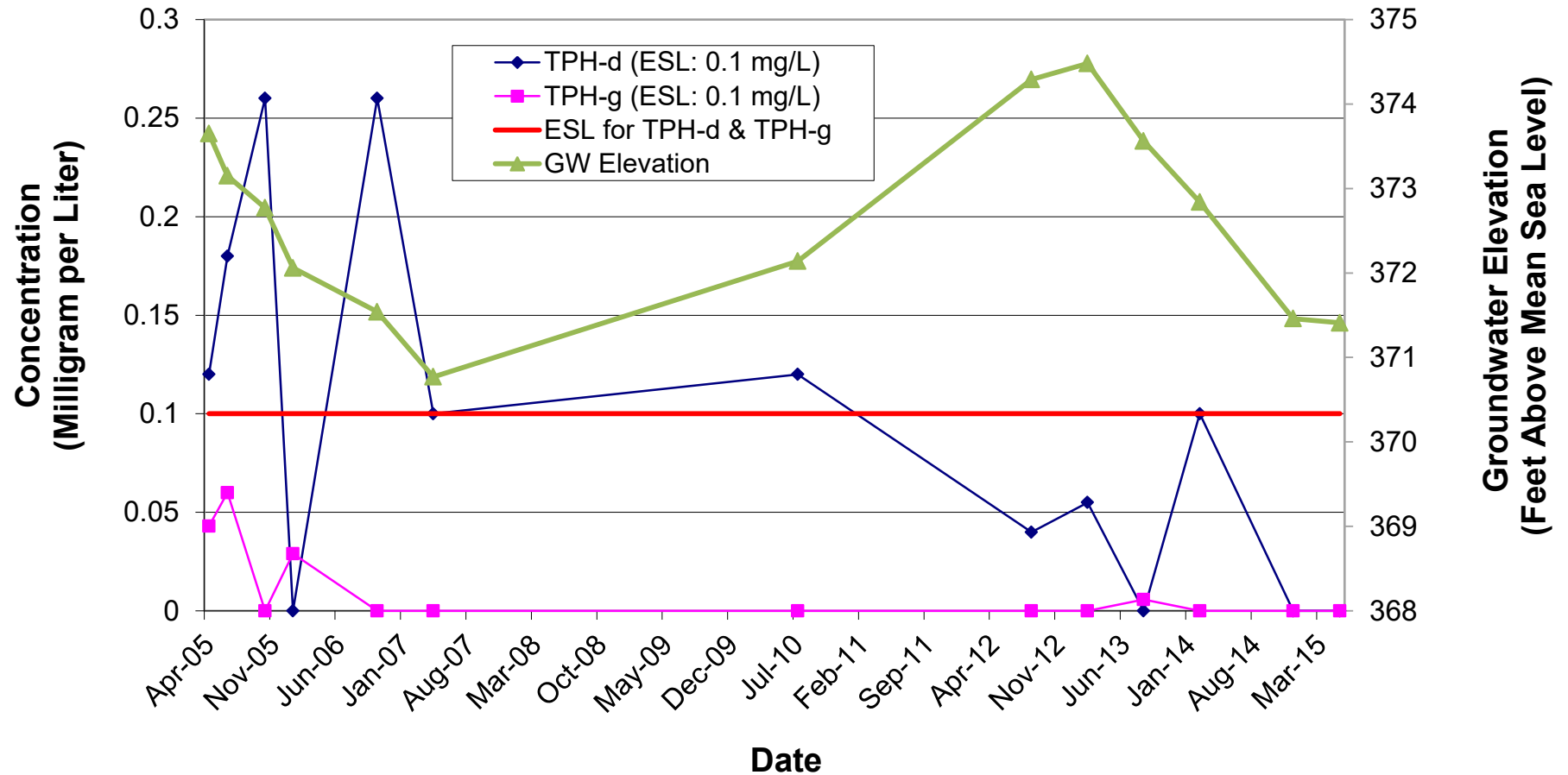
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MW01 TPH-d and TPH-g



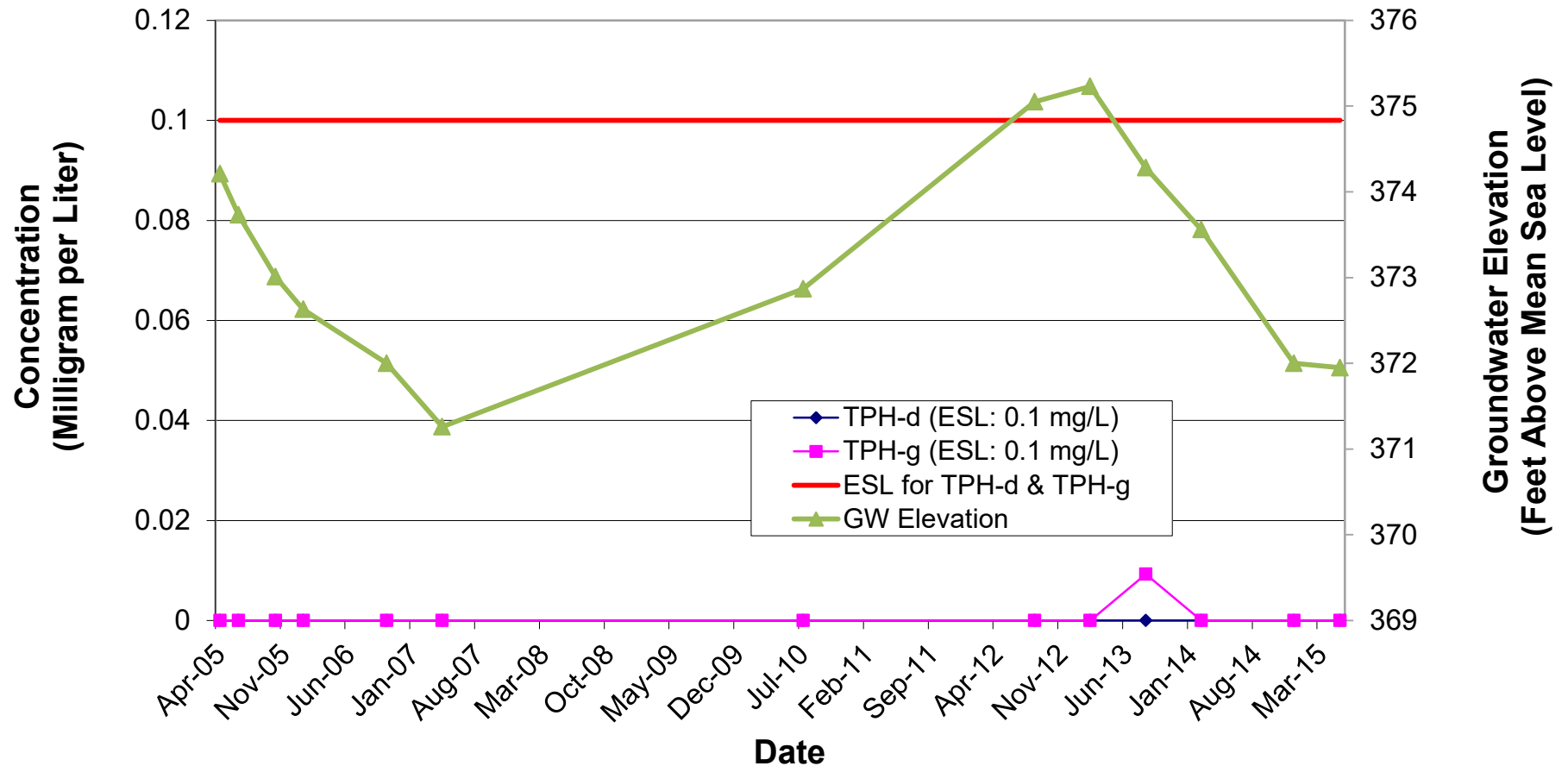
1. Total Petroleum Hydrocarbon as Diesel (TPH-d). Total Petroleum Hydrocarbon as Gasoline (TPH-g)
2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"
3. There are no established maximum contaminant levels (MCLs) for THP-d and TPH-g, the SF Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) are provided as a reference only.

MW02 TPH-d and TPH-g



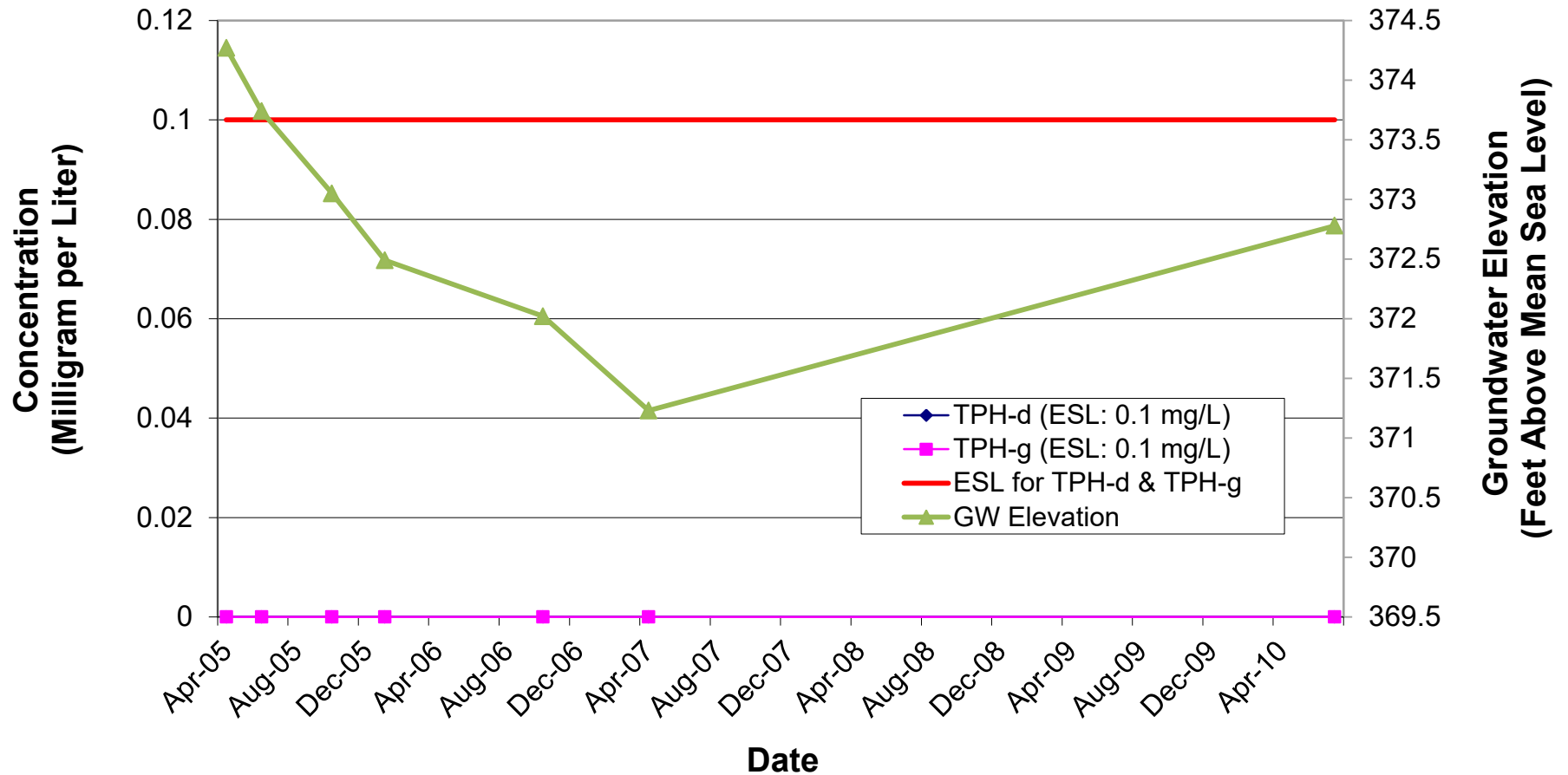
1. Total Petroleum Hydrocarbon as Diesel (TPH-d). Total Petroleum Hydrocarbon as Gasoline (TPH-g)
2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"
3. There are no established maximum contaminant levels (MCLs) for THP-d and TPH-g, the SF Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) are provided as a reference only.

MW03 TPH-d and TPH-g



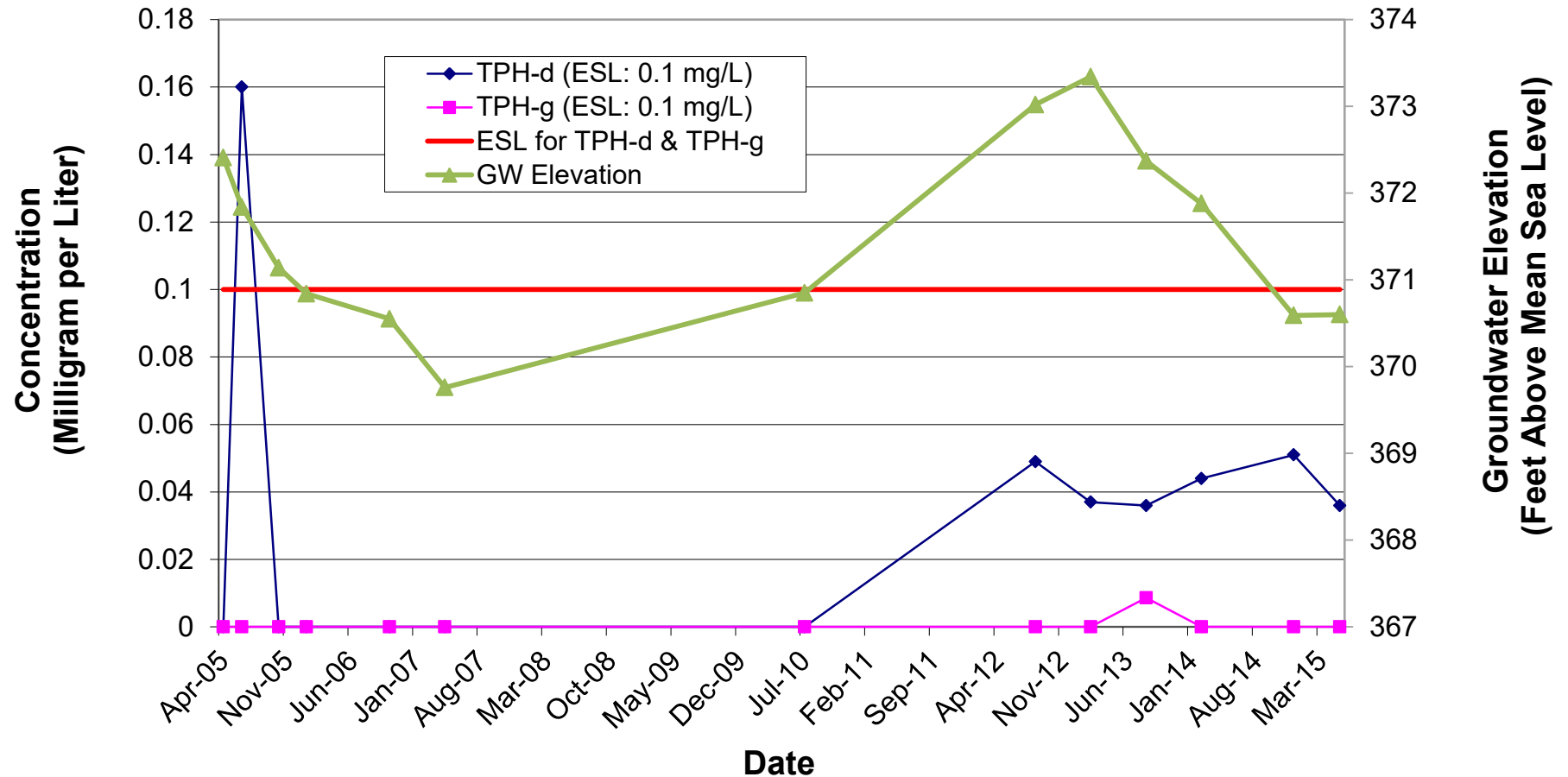
1. Total Petroleum Hydrocarbon as Diesel (TPH-d). Total Petroleum Hydrocarbon as Gasoline (TPH-g)
2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"
3. There are no established maximum contaminant levels (MCLs) for THP-d and TPH-g, the SF Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) are provided as a reference only.

MW04B (Abandoned) TPH-d and TPH-g



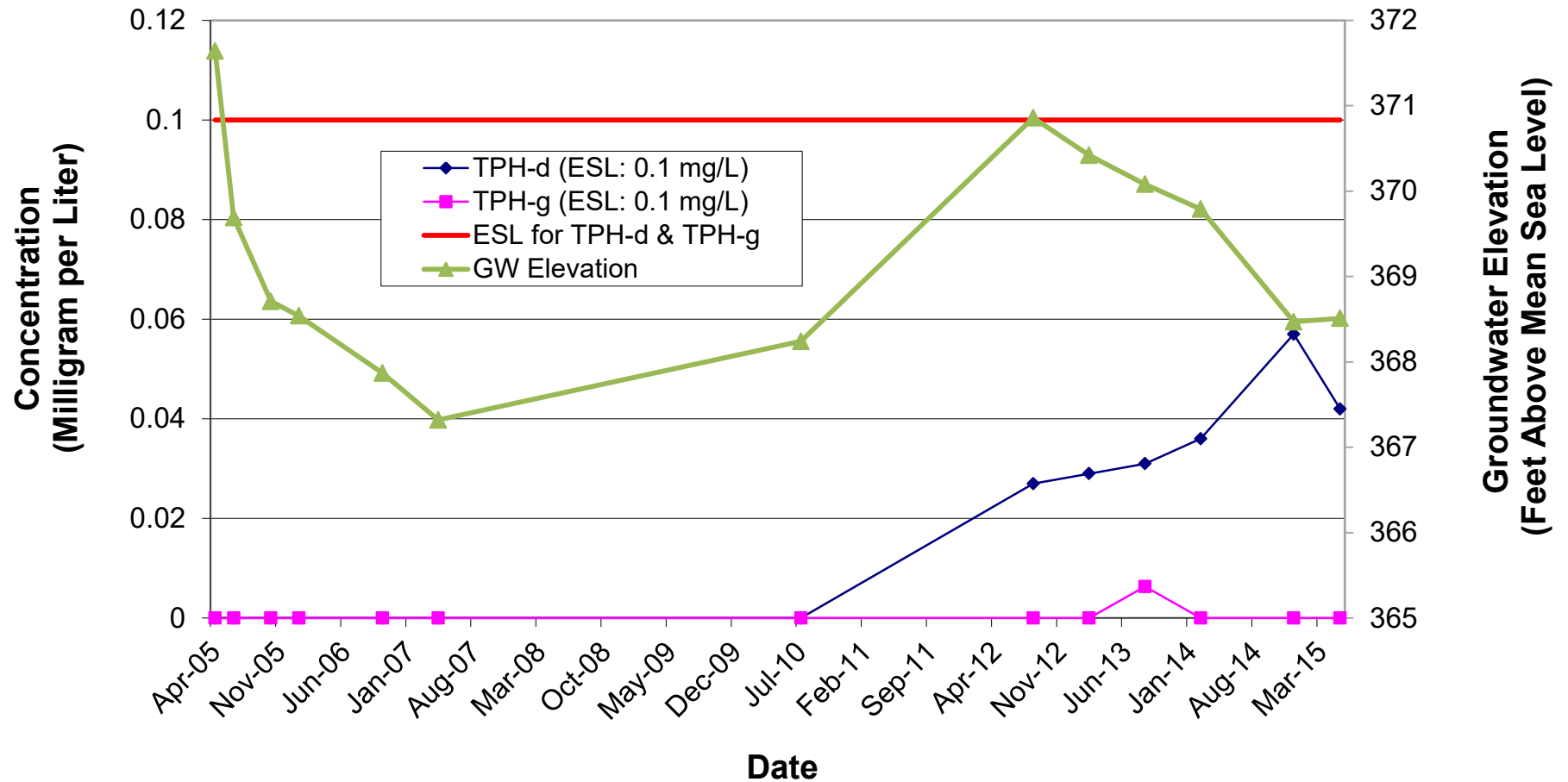
1. Total Petroleum Hydrocarbon as Diesel (TPH-d). Total Petroleum Hydrocarbon as Gasoline (TPH-g)
2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"
3. There are no established maximum contaminant levels (MCLs) for TPH-d and TPH-g, the SF Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) are provided as a reference only.

MW05 TPH-d and TPH-g



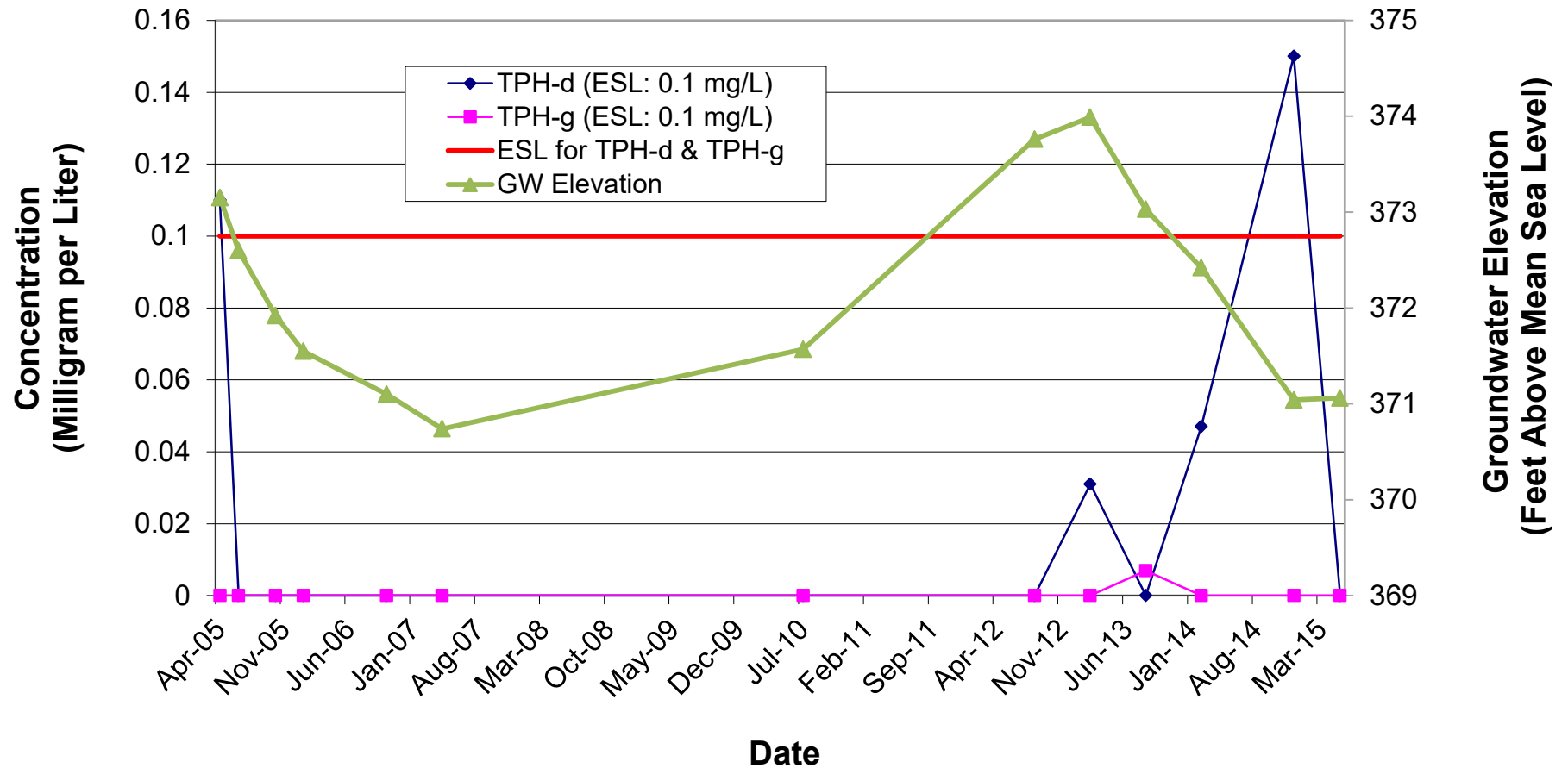
1. Total Petroleum Hydrocarbon as Diesel (TPH-d). Total Petroleum Hydrocarbon as Gasoline (TPH-g)
2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"
3. There are no established maximum contaminant levels (MCLs) for THP-d and TPH-g, the SF Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) are provided as a reference only.

MW06 TPH-d and TPH-g



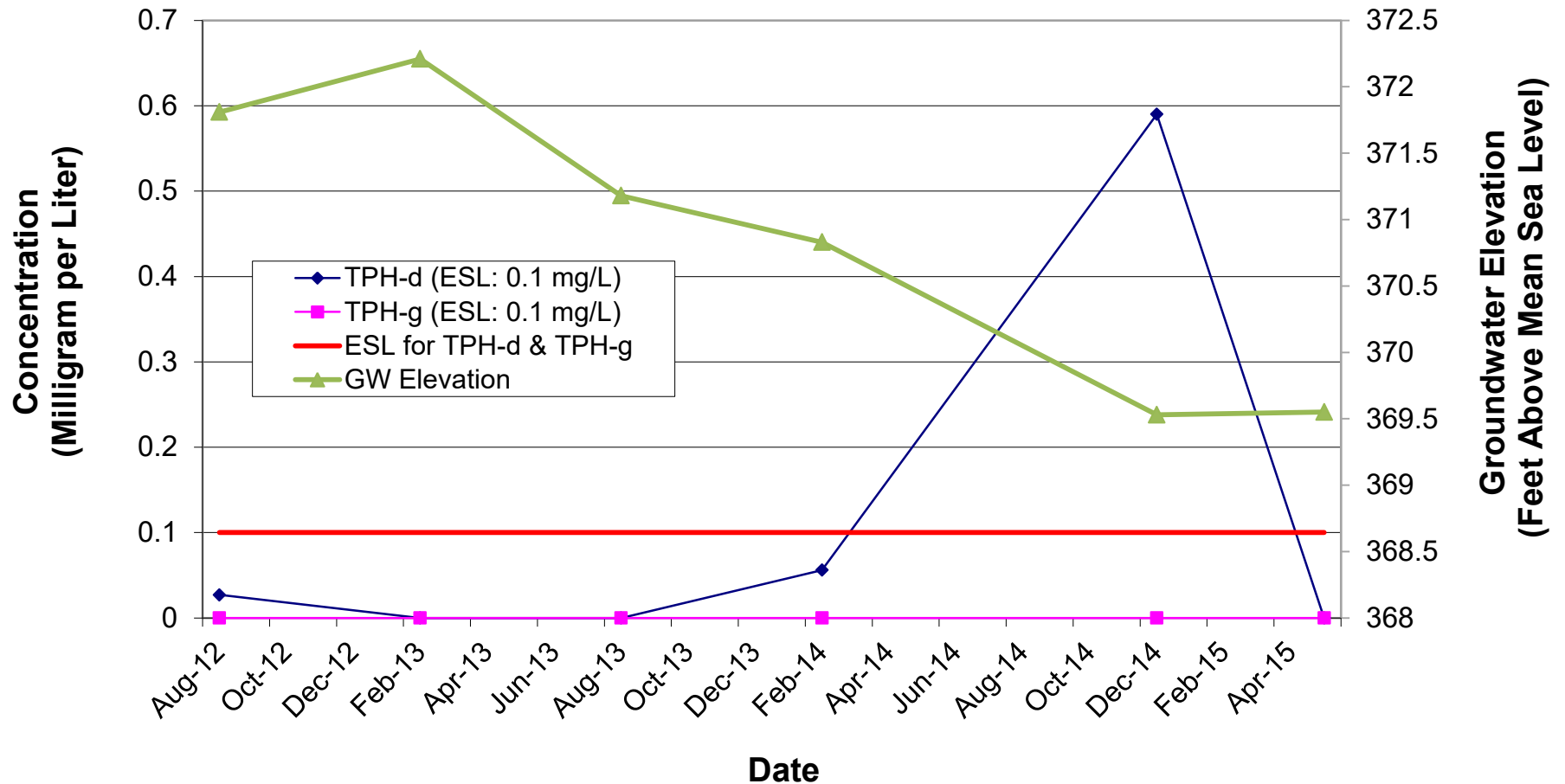
1. Total Petroleum Hydrocarbon as Diesel (TPH-d). Total Petroleum Hydrocarbon as Gasoline (TPH-g)
2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"
3. There are no established maximum contaminant levels (MCLs) for THP-d and TPH-g, the SF Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) are provided as a reference only.

MW07 TPH-d and TPH-g



1. Total Petroleum Hydrocarbon as Diesel (TPH-d). Total Petroleum Hydrocarbon as Gasoline (TPH-g)
2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"
3. There are no established maximum contaminant levels (MCLs) for THP-d and TPH-g, the SF Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) are provided as a reference only.

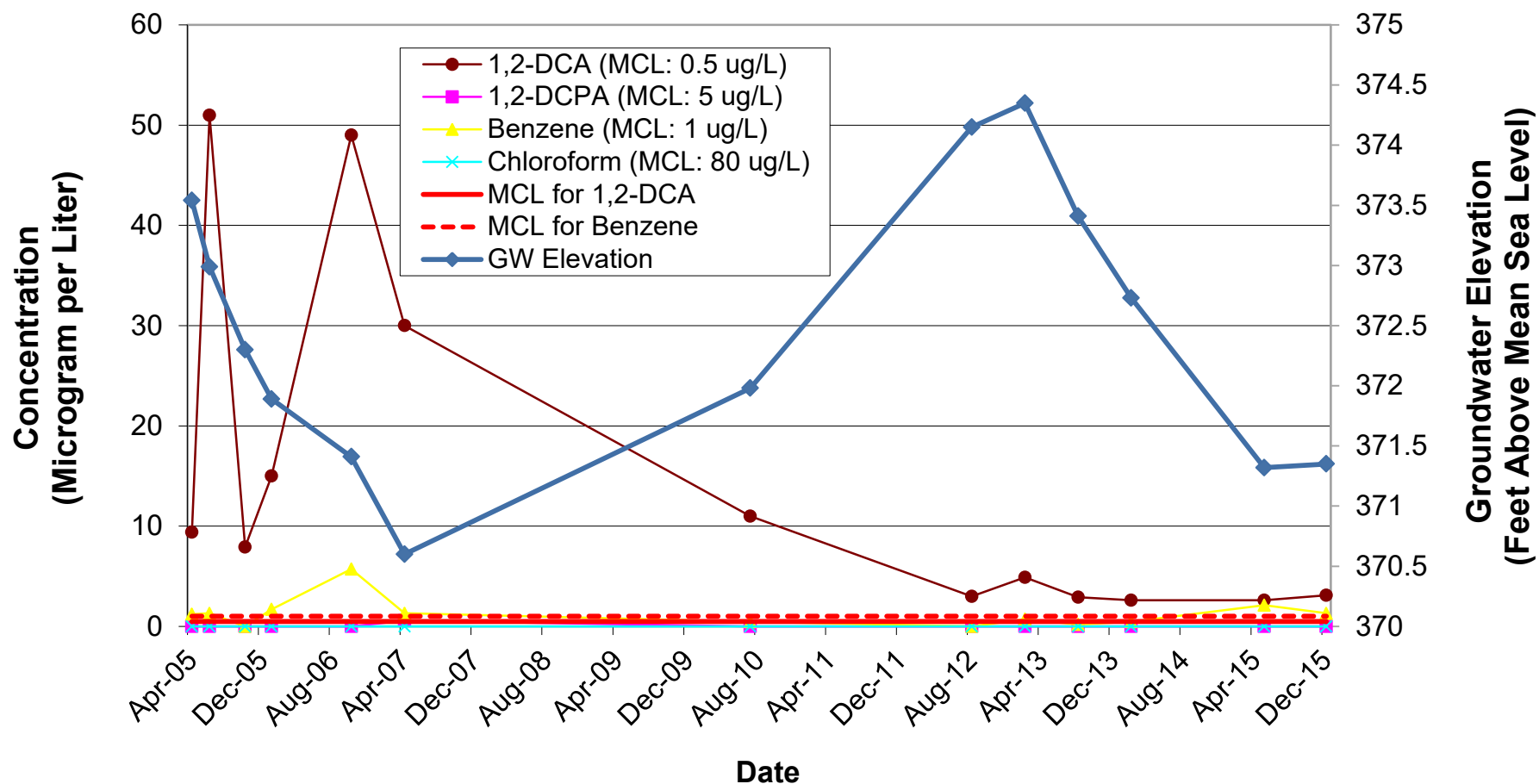
MW08 TPH-d and TPH-g



1. Total Petroleum Hydrocarbon as Diesel (TPH-d). Total Petroleum Hydrocarbon as Gasoline (TPH-g)
2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"
3. There are no established maximum contaminant levels (MCLs) for THP-d and TPH-g, the SF Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs) are provided as a reference only.

MW01

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



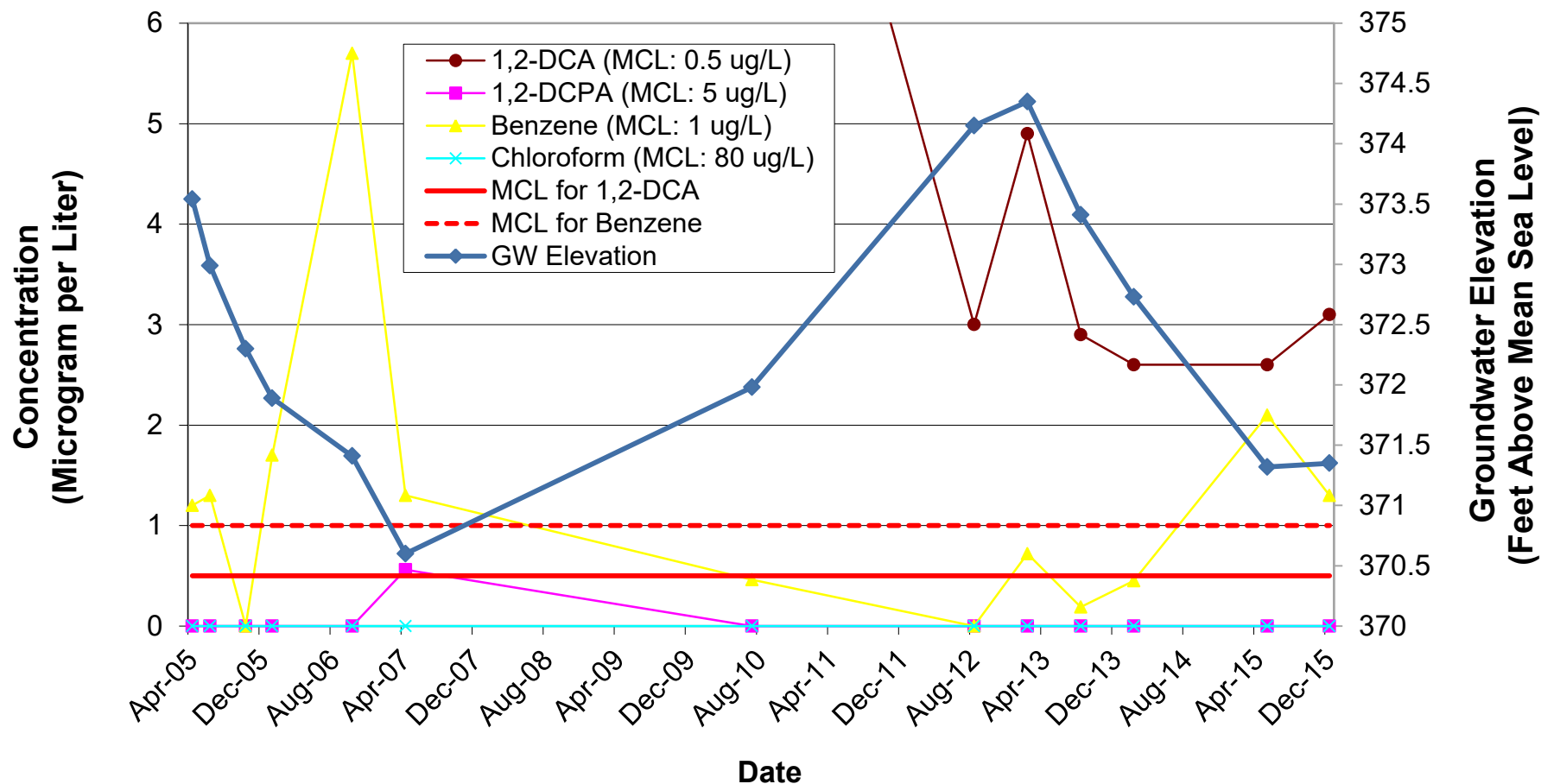
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW01 (Rescaled)

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



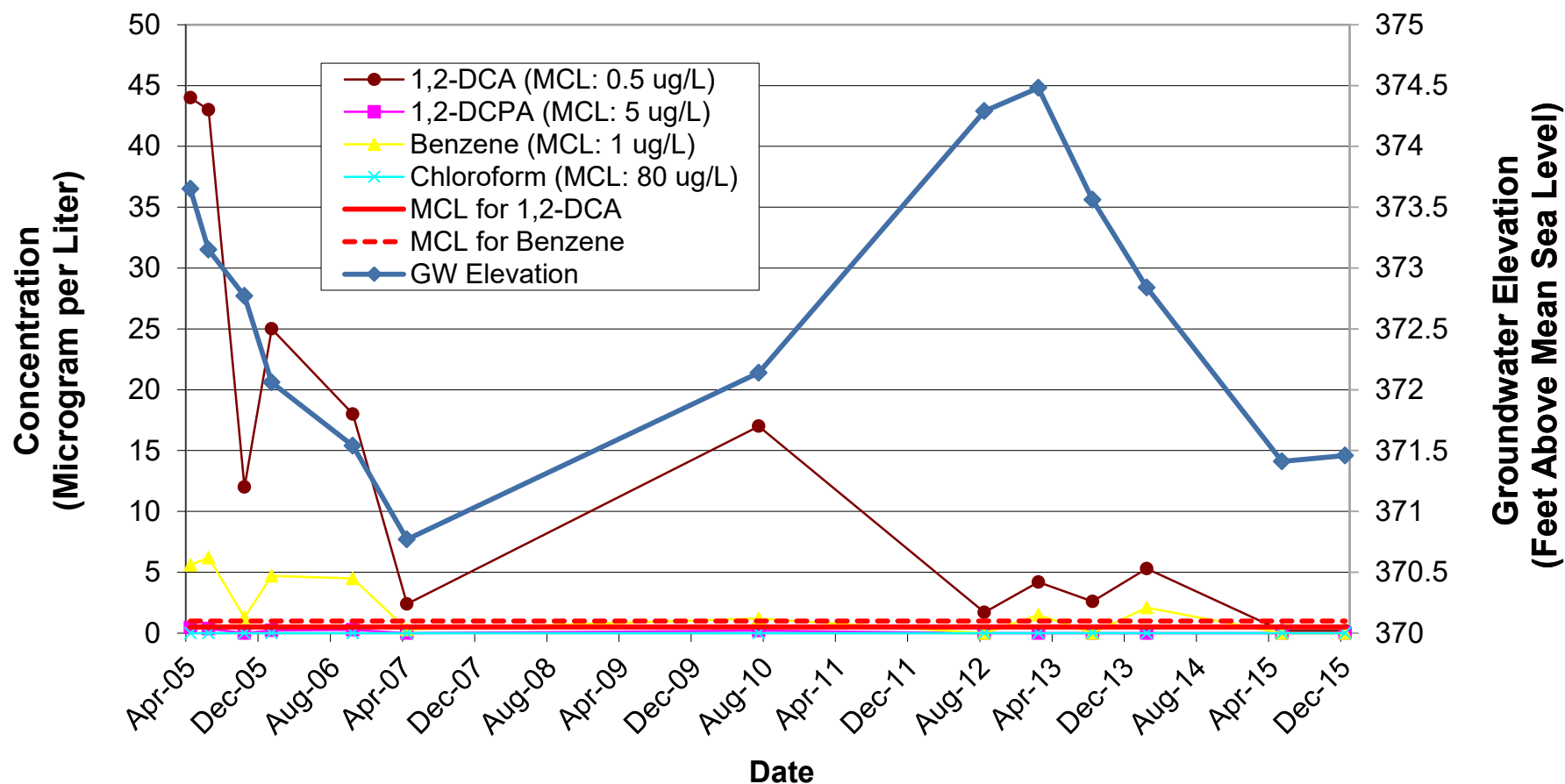
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW02

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



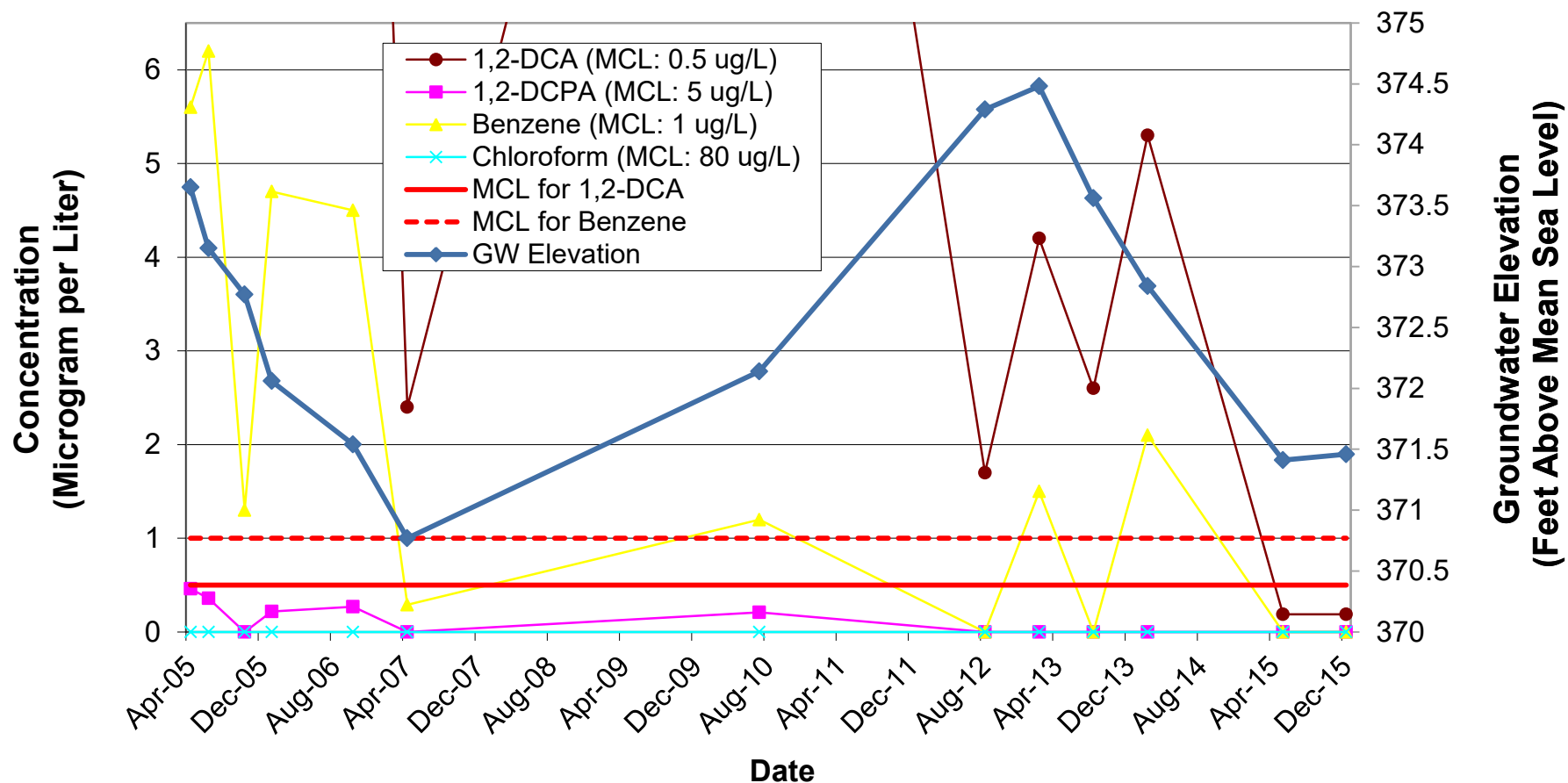
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW02 (Rescaled)

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



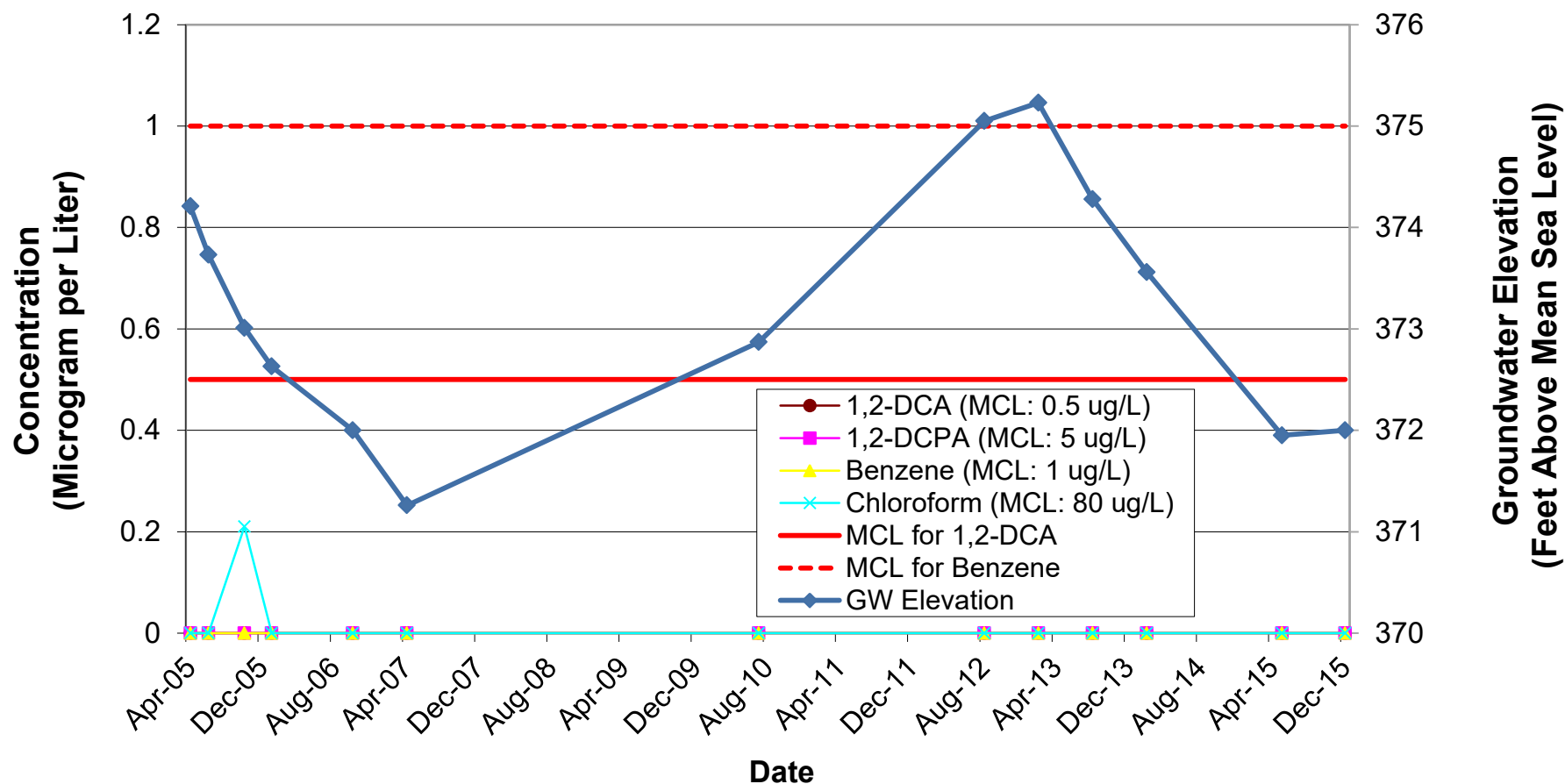
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW03

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



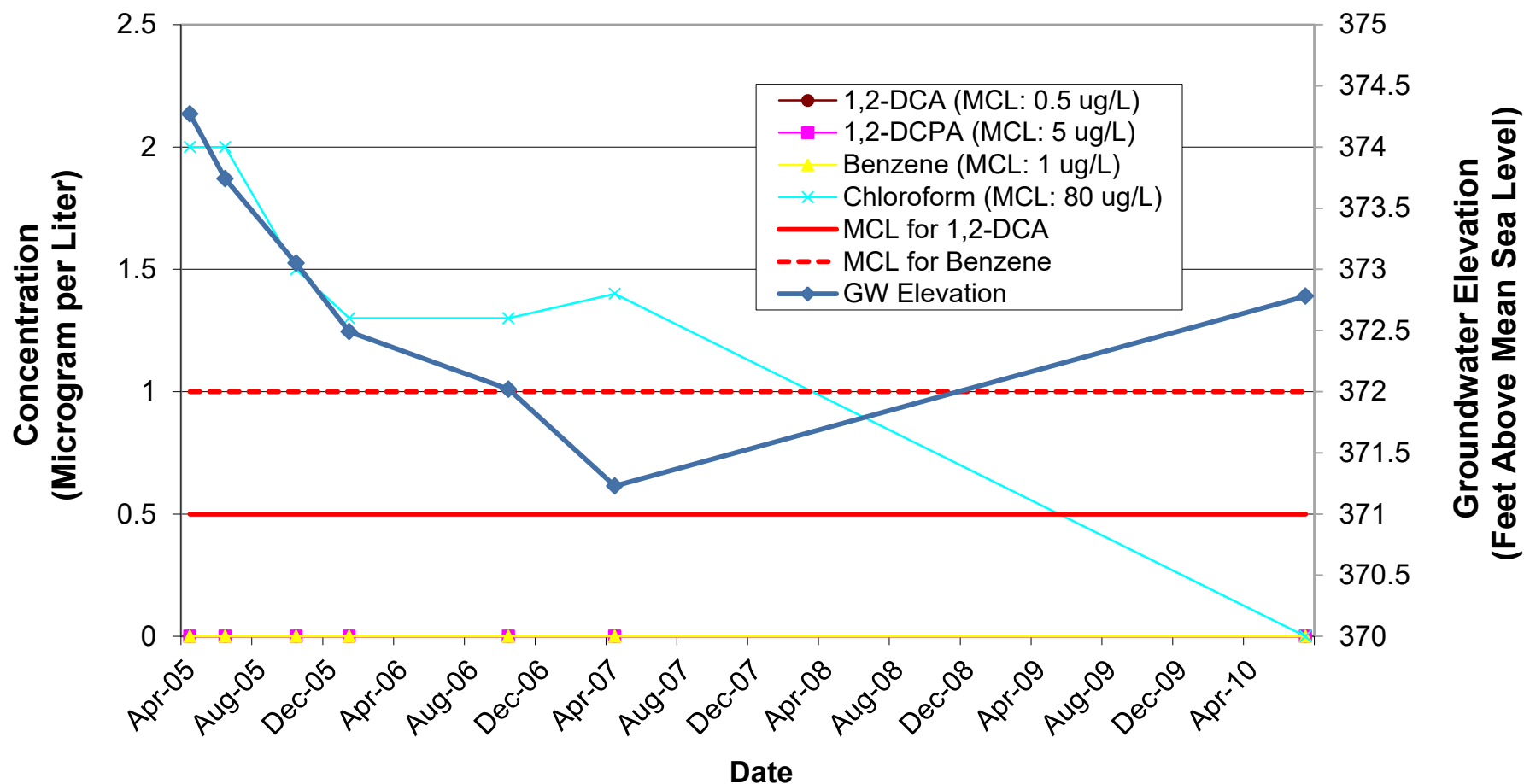
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW04B (Abandoned)

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



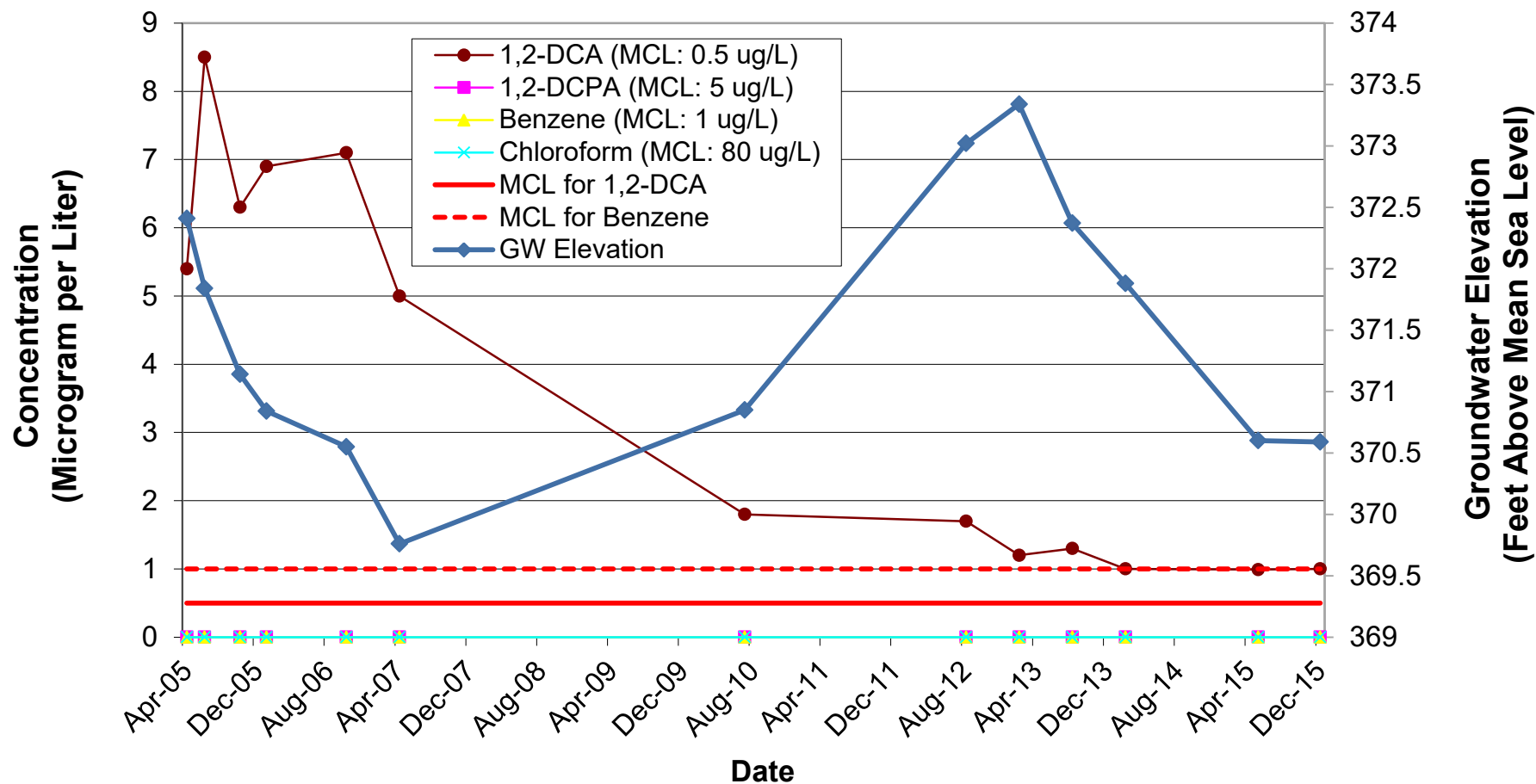
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW05

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



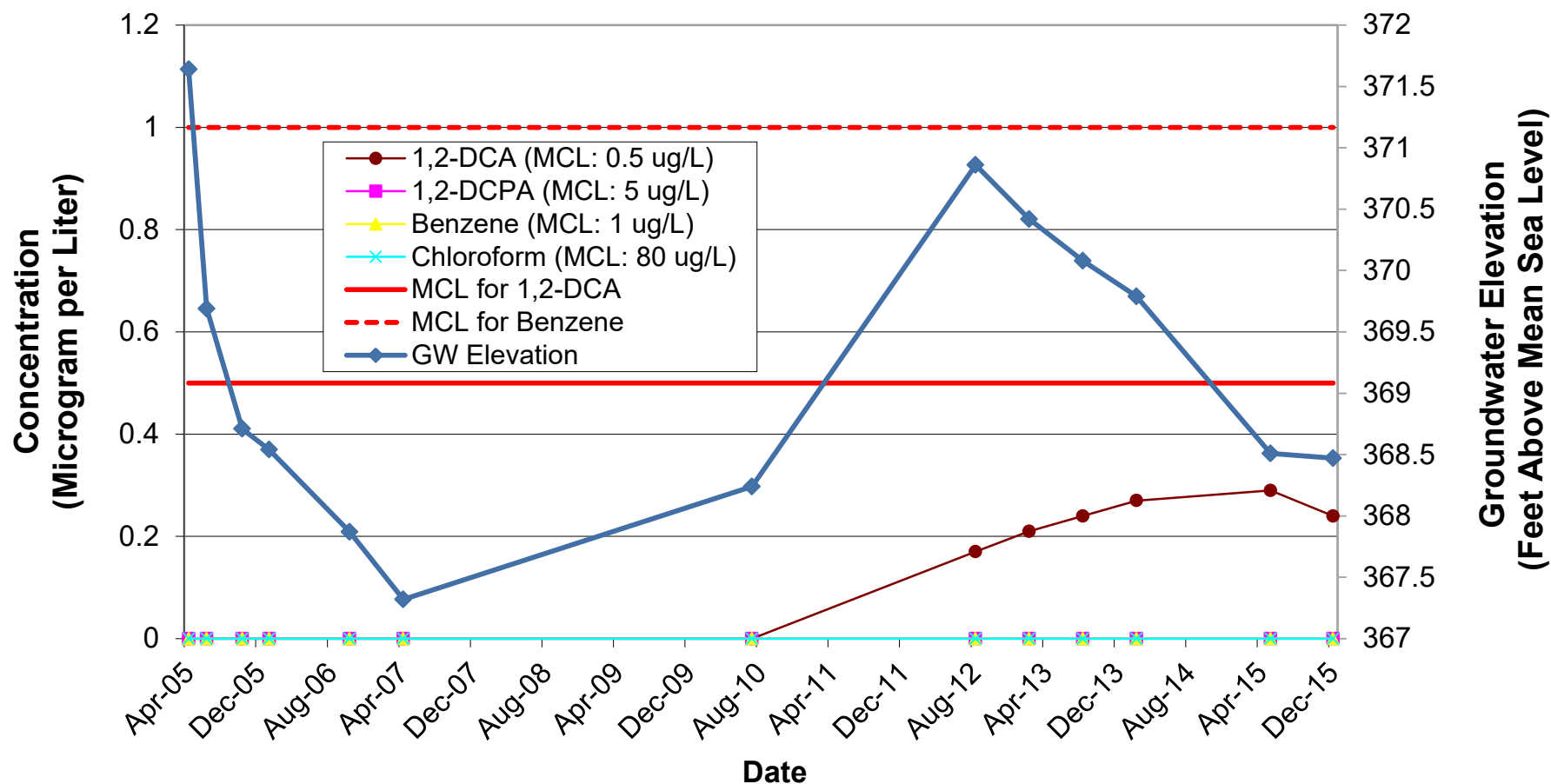
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW06

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



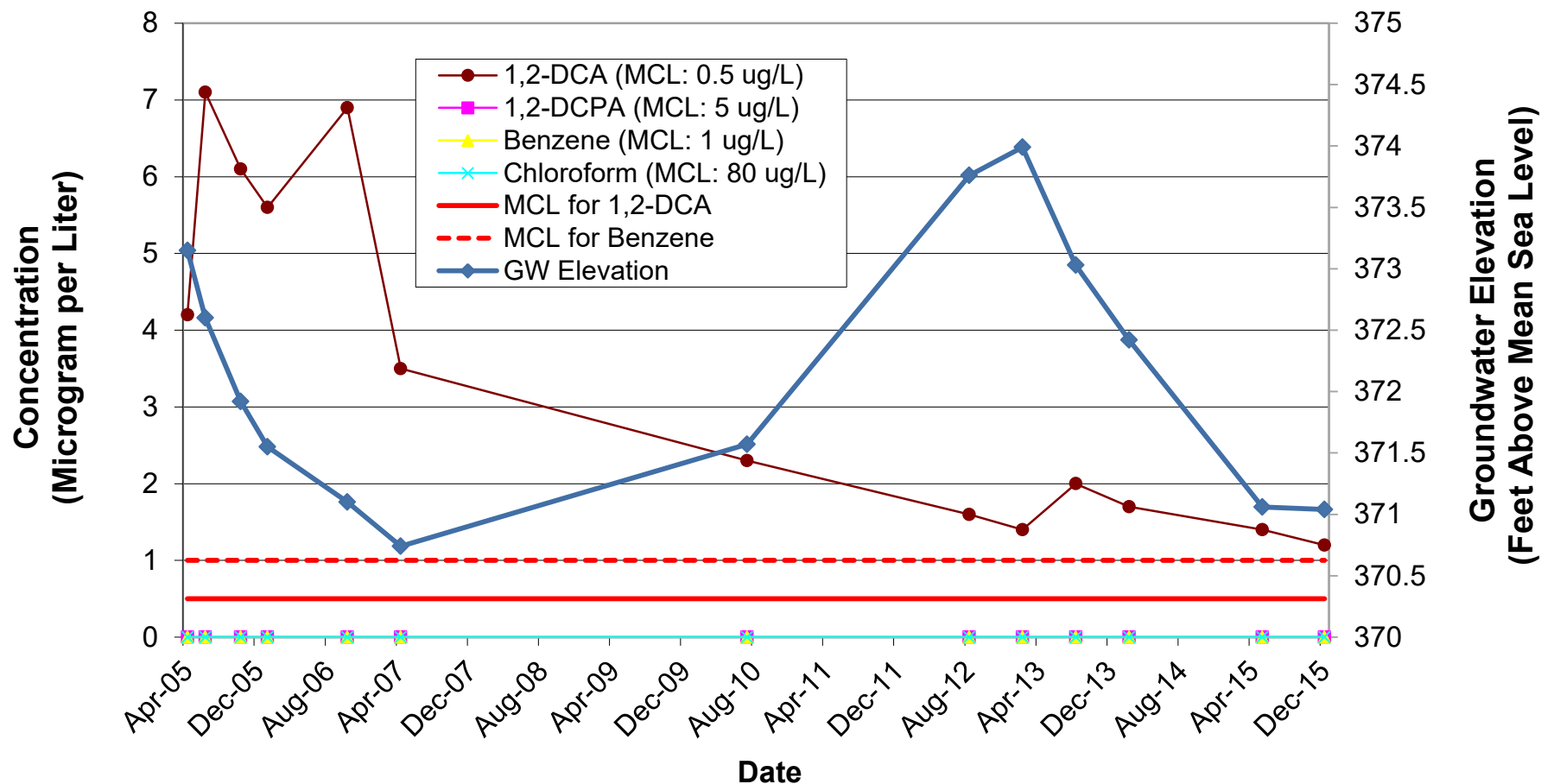
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW07

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



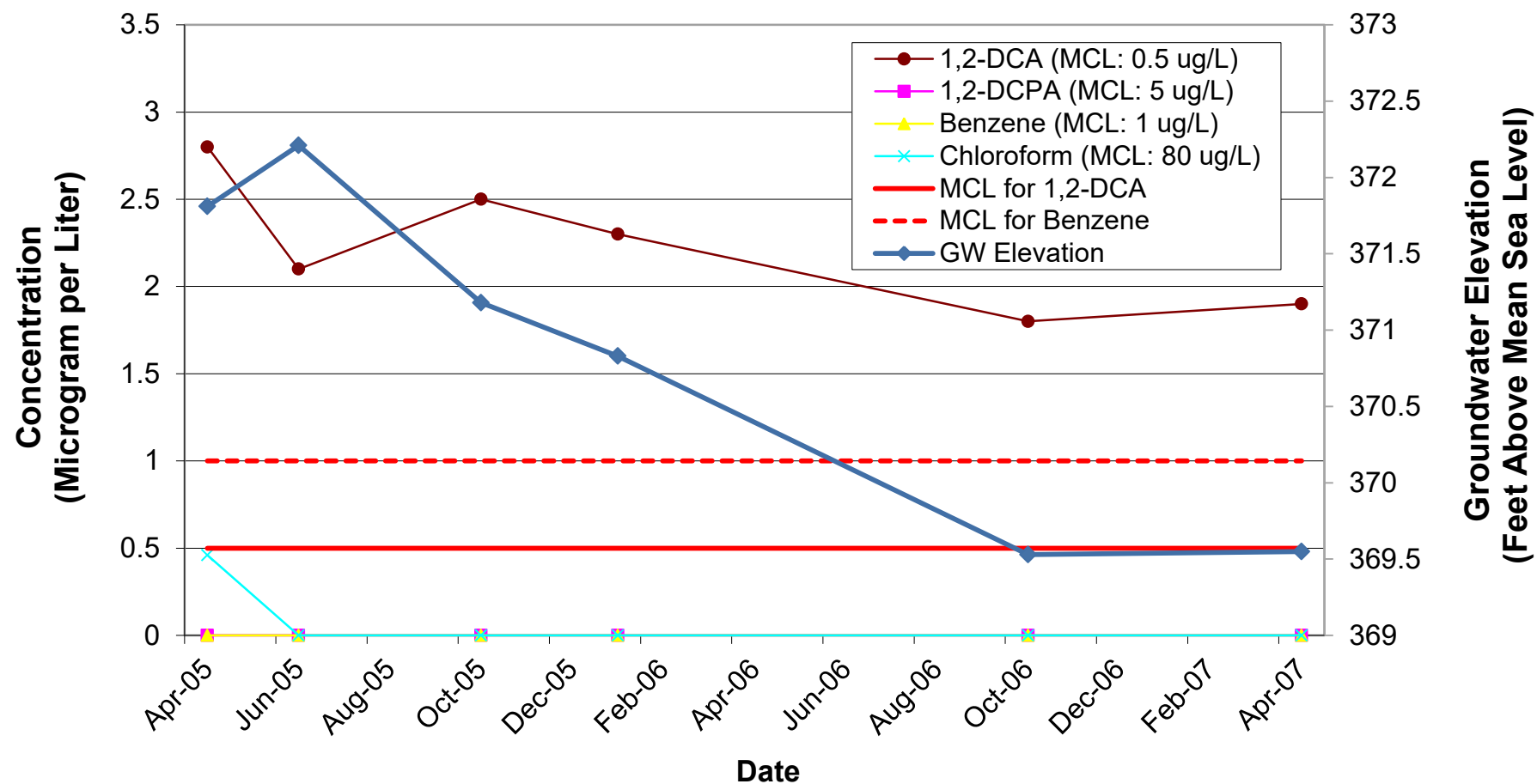
1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

MW08

1,2-DCA, 1,2-DCPA, Benzene, and Chloroform



1. 1,2-dichloroethane (1,2-DCA). 1,2-dichloropropane (1,2-DCPA).

2. For the purpose of graphing analytical results, non-detect results are shown as "zeroes"

3. Because of exceedance above the maximum contaminant levels (MCLs), 1,2-DCA and benzene MCLs are provided as a reference.

Appendix C. Mann-Kendall Statistical Worksheets

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Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

Data Entry and Error Messages: When there are less than four rounds of data entered, instead of getting an "**ERROR**" message, only "**n<4**" is displayed. But, if **text**, a **zero** or a **negative number** is inadvertently entered, the "**ERROR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error. Note that the **date must be entered before sample results collected on that date are entered** to avoid an error message.

To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	IRP Site 1, Naval and Marine Corps Reserve Center LA	Site ID No. =	IRP Site 1	Well Number =	MW01

	Compound ->	TPH-d	TPH-g	1,2-DCA	1,2-DCPA	Benzene	Chloroform
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1/1/2006	0.235	0.05	15	0.5	1.7	2.5
2	10/1/2006	0.235	0.05	49	0.5	5.7	2.5
3	4/1/2007	0.235	0.023	30	0.56	1.3	2.5
4	7/1/2010	0.235	0.05	11	0.5	0.46	0.5
5	8/12/2012	0.025	0.0065	3	0.1	0.1	0.1
6	2/26/2013	0.025	0.05	4.9	0.1	0.72	0.1
7	8/15/2013	0.0235	0.0094	2.9	0.1	0.19	0.1
8	2/12/2014	0.0235	0.0029	2.6	0.1	0.45	0.1
9	12/11/2014	0.037	0.00325	3.1	0.1	1.3	0.065
10	5/19/2015	0.056	0.0027	2.6	0.1	2.1	0.1

Mann Kendall Statistic (S) =	-19	-29	-32	-23	-6	-30
Number of Rounds (n) =	10	10	10	10	10	10
Average =	0.11	0.02	12.41	0.27	1.40	0.86
Standard Deviation =	0.105	0.022	15.533	0.215	1.650	1.141
Coefficient of Variation(CV)=	0.933	0.907	1.252	0.808	1.177	1.332

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	No Trend	DECREASING
Trend = 90% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	No Trend	DECREASING

Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	NA	CV>1 NON-STABLE	NA

Data Entry By =	Rice Xiao	Date =	7/20/2015	Checked By =	Qihai Chen

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

Data Entry and Error Messages: When there are less than four rounds of data entered, instead of getting an "**ERROR**" message, only "**n<4**" is displayed. But, if **text**, a **zero** or a **negative number** is inadvertently entered, the "**ERROR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error. Note that the **date must be entered before sample results collected on that date are entered** to avoid an error message.

To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	IRP Site 1, Naval and Marine Corps Reserve Center LA	Site ID No. =	IRP Site 1	Well Number =	MW02

	Compound ->	TPH-d	TPH-g	1,2-DCA	1,2-DCPA	Benzene	Chloroform
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1/1/2006	0.235	0.029	25	0.22	4.7	2.5
2	10/1/2006	0.26	0.05	18	0.27	4.5	2.5
3	4/1/2007	0.1	0.05	2.4	0.5	0.29	2.5
4	7/1/2010	0.12	0.05	17	0.21	1.2	0.5
5	8/12/2012	0.04	0.005	1.7	0.1	0.1	0.1
6	2/26/2013	0.055	0.005	4.2	0.1	1.5	0.1
7	8/15/2013	0.0235	0.0053	2.6	0.1	0.1	0.1
8	2/12/2014	0.1	0.0029	5.3	0.1	2.1	0.1
9	12/11/2014	0.0245	0.00325	0.19	0.1	0.1	0.065
10	5/19/2015	0.0235	0.0027	0.19	0.1	0.1	0.1

Mann Kendall Statistic (S) =	-29	-29	-26	-24	-21	-30
Number of Rounds (n) =	10	10	10	10	10	10
Average =	0.10	0.02	7.66	0.18	1.47	0.86
Standard Deviation =	0.086	0.022	8.899	0.130	1.795	1.141
Coefficient of Variation(CV)=	0.881	1.078	1.162	0.721	1.222	1.332

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Trend = 90% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	NA	NA	NA

Data Entry By =	Rice Xiao	Date =	7/20/2015	Checked By =	Qihai Chen

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Site Name =	IRP Site 1, Naval and Marine Corps Reserve Center LA	Site ID No. =	IRP Site 1	Well Number =	MW03

	Compound ->	TPH-d	TPH-g	1,2-DCA	1,2-DCPA	Benzene	Chloroform
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1/1/2006	0.235	0.05	0.25	0.5	0.25	2.5
2	10/1/2006	0.235	0.05	0.25	0.5	0.25	2.5
3	4/1/2007	0.235	0.05	0.25	0.5	0.25	2.5
4	7/1/2010	0.235	0.05	0.5	0.5	0.5	0.5
5	8/12/2012	0.0245	0.005	0.1	0.1	0.1	0.1
6	2/26/2013	0.0235	0.005	0.1	0.1	0.1	0.1
7	8/15/2013	0.0235	0.0093	0.1	0.1	0.1	0.1
8	2/12/2014	0.0235	0.0029	0.1	0.1	0.1	0.1
9	12/11/2014	0.0245	0.00325	0.1	0.1	0.1	0.065
10	5/19/2015	0.0235	0.0027	0.1	0.1	0.1	0.1

Mann Kendall Statistic (S) =	-26	-32	-21	-24	-21	-30
Number of Rounds (n) =	10	10	10	10	10	10
Average =	0.11	0.02	0.19	0.26	0.19	0.86
Standard Deviation =	0.109	0.023	0.131	0.207	0.131	1.141
Coefficient of Variation(CV)=	1.007	1.029	0.710	0.794	0.710	1.332

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Trend = 90% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	NA	NA	NA

Data Entry By =	Rice Xiao	Date =	7/20/2015	Checked By =	Qihai Chen

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Site Name =	IRP Site 1, Naval and Marine Corps Reserve Center LA	Site ID No. =	IRP Site 1	Well Number =	MW04B

	Compound ->	TPH-d	TPH-g	1,2-DCA	1,2-DCPA	Benzene	Chloroform
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	4/1/2005	0.235	0.05	0.25	0.5	0.25	2
2	6/1/2005	0.235	0.05	0.25	0.5	0.25	2
3	10/1/2005	0.235	0.05	0.25	0.5	0.25	1.5
4	1/1/2006	0.235	0.05	0.25	0.5	0.25	1.3
5	10/1/2006	0.235	0.05	0.25	0.5	0.25	1.3
6	4/1/2007	0.235	0.05	0.25	0.5	0.25	1.4
7	7/1/2010	0.235	0.05	0.5	0.5	0.5	0.5
8							
9							
10							

Mann Kendall Statistic (S) =	0	0	6	0	6	-15
Number of Rounds (n) =	7	7	7	7	7	7
Average =	0.24	0.05	0.29	0.50	0.29	1.43
Standard Deviation =	0.000	0.000	0.094	0.000	0.094	0.509
Coefficient of Variation(CV)=	0.000	0.000	0.331	0.000	0.331	0.356

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	DECREASING
Trend = 90% Confidence Level	No Trend	No Trend	No Trend	No Trend	No Trend	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	CV<=1 STABLE	CV<=1 STABLE	CV<=1 STABLE	CV<=1 STABLE	CV<=1 STABLE	NA

Data Entry By =	Rice Xiao	Date =	7/20/2015	Checked By =	Qihai Chen

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Site Name =	IRP Site 1, Naval and Marine Corps Reserve Center LA	Site ID No. =	IRP Site 1	Well Number =	MW05

	Compound ->	TPH-d	TPH-g	1,2-DCA	1,2-DCPA	Benzene	Chloroform
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1/1/2006	0.235	0.05	6.9	0.5	0.25	2.5
2	10/1/2006	0.235	0.05	7.1	0.5	0.25	2.5
3	4/1/2007	0.235	0.05	5	0.5	0.25	2.5
4	7/1/2010	0.235	0.05	1.8	0.5	0.5	0.5
5	8/12/2012	0.049	0.005	1.7	0.1	0.1	0.1
6	2/26/2013	0.037	0.005	1.2	0.1	0.1	0.1
7	8/15/2013	0.036	0.0086	1.3	0.1	0.1	0.1
8	2/12/2014	0.044	0.0029	1	0.1	0.1	0.1
9	12/11/2014	0.051	0.00325	1	0.1	0.1	0.065
10	5/19/2015	0.036	0.0027	0.99	0.1	0.1	0.1

Mann Kendall Statistic (S) =	-26	-32	-40	-24	-21	-30
Number of Rounds (n) =	10	10	10	10	10	10
Average =	0.12	0.02	2.80	0.26	0.19	0.86
Standard Deviation =	0.100	0.024	2.515	0.207	0.131	1.141
Coefficient of Variation(CV)=	0.836	1.034	0.898	0.794	0.710	1.332

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Trend = 90% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	NA	NA	NA

Data Entry By =	Rice Xiao	Date =	7/20/2015	Checked By =	Qihai Chen

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

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Site Name =	IRP Site 1, Naval and Marine Corps Reserve Center LA	Site ID No. =	IRP Site 1	Well Number =	MW06

	Compound ->	TPH-d	TPH-g	1,2-DCA	1,2-DCPA	Benzene	Chloroform
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1/1/2006	0.235	0.05	0.25	0.5	0.25	2.5
2	10/1/2006	0.235	0.05	0.25	0.5	0.25	2.5
3	4/1/2007	0.235	0.05	0.25	0.5	0.25	2.5
4	7/1/2010	0.235	0.05	0.5	0.5	0.5	0.5
5	8/12/2012	0.027	0.005	0.17	0.1	0.1	0.1
6	2/26/2013	0.029	0.005	0.21	0.1	0.1	0.1
7	8/15/2013	0.031	0.0063	0.24	0.1	0.1	0.1
8	2/12/2014	0.036	0.0029	0.27	0.1	0.1	0.1
9	12/11/2014	0.057	0.00325	0.24	0.1	0.1	0.065
10	5/19/2015	0.042	0.0027	0.29	0.1	0.1	0.1

Mann Kendall Statistic (S) =	-11	-32	3	-24	-21	-30
Number of Rounds (n) =	10	10	10	10	10	10
Average =	0.12	0.02	0.27	0.26	0.19	0.86
Standard Deviation =	0.103	0.024	0.088	0.207	0.131	1.141
Coefficient of Variation(CV)=	0.883	1.052	0.330	0.794	0.710	1.332

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	DECREASING	DECREASING	No Trend	DECREASING	DECREASING	DECREASING
Trend = 90% Confidence Level	No Trend	DECREASING	No Trend	DECREASING	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	CV<=1 STABLE	NA	NA	NA

Data Entry By =	Rice Xiao	Date =	7/20/2015	Checked By =	Qihai Chen

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

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Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

Data Entry and Error Messages: When there are less than four rounds of data entered, instead of getting an "**ERROR**" message, only "**n<4**" is displayed. But, if **text**, a **zero** or a **negative number** is inadvertently entered, the "**ERROR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error. Note that the **date must be entered before sample results collected on that date are entered** to avoid an error message.

To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	IRP Site 1, Naval and Marine Corps Reserve Center LA	Site ID No. =	IRP Site 1	Well Number =	MW07

	Compound ->	TPH-d	TPH-g	1,2-DCA	1,2-DCPA	Benzene	Chloroform
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	1/1/2006	0.235	0.05	5.6	0.5	0.25	2.5
2	10/1/2006	0.235	0.05	6.9	0.5	0.25	2.5
3	4/1/2007	0.235	0.05	3.5	0.5	0.25	2.5
4	7/1/2010	0.235	0.05	2.3	0.5	0.5	0.5
5	8/12/2012	0.0245	0.005	1.6	0.1	0.1	0.1
6	2/26/2013	0.031	0.005	1.4	0.1	0.1	0.1
7	8/15/2013	0.0235	0.0069	2	0.1	0.1	0.1
8	2/12/2014	0.047	0.0029	1.7	0.1	0.1	0.1
9	12/11/2014	0.15	0.00325	1.2	0.1	0.1	0.065
10	5/19/2015	0.0235	0.0027	1.4	0.1	0.1	0.1

Mann Kendall Statistic (S) =	-22	-32	-32	-24	-21	-30
Number of Rounds (n) =	10	10	10	10	10	10
Average =	0.12	0.02	2.76	0.26	0.19	0.86
Standard Deviation =	0.103	0.024	1.976	0.207	0.131	1.141
Coefficient of Variation(CV)=	0.827	1.047	0.716	0.794	0.710	1.332

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Trend = 90% Confidence Level	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING	DECREASING
Stability Test, If No Trend Exists at 80% Confidence Level	NA	NA	NA	NA	NA	NA

Data Entry By =	Rice Xiao	Date =	7/20/2015	Checked By =	Qihai Chen

Mann-Kendall Statistical Test

(For Groundwater Sampling Trend Analysis)

Instructions: Do not change formulas or other information in cells with a blue background, only cells with a yellow background are used for data entry. To use the spreadsheet, **provide at least four rounds** and **not more than ten rounds of data** that is **not seasonally affected**. Use consistent units. The spreadsheet contains several error checks, and a data entry error may cause "**DATA ERR**" or "**DATE ERR**" to be displayed. Dates that are not consecutive will show an error message and will not display the test results. The spreadsheet tests the data for both increasing and decreasing trends at both 80 percent and 90 percent confidence levels. If an increasing or decreasing trend is not present, an additional coefficient of variation test is used to test for stability, as proposed by Wiedemeier et al, 1999. For additional information, refer to the Interim Guidance on Natural Attenuation from the governing regulatory agencies for the site and applicable guidance for recommendations on data entry for non-detect values (**See protocol at bottom of worksheet**).

Error Messages: There is a section below the data entry screen that describes data entry errors in more detail and which cell has that error. Thus a user can determine what and where their error is very quickly. Note that a space is seen as text in Excel formulae.

Data Entry and Error Messages: When there are less than four rounds of data entered, instead of getting an "**ERROR**" message, only "**n<4**" is displayed. But, if **text**, a **zero** or a **negative number** is inadvertently entered, the "**ERROR**" message is displayed. Thus, during data entry, an "ERROR" message is only displayed when there actually is an error. Note that the **date must be entered before sample results collected on that date are entered** to avoid an error message.

To avoid biasing the Mann-Kendall test, **the same value for all ND results must be entered** in the spreadsheet for a given compound. This is to make sure that any identified trends are data trends and not trends of laboratory detection limits. **SEE PROTOCOL AT BOTTOM OF WORKSHEET !**

Site Name =	IRP Site 1, Naval and Marine Corps Reserve Center LA	Site ID No. =	IRP Site 1	Well Number =	MW08

	Compound ->	TPH-d	TPH-g	1,2-DCA	1,2-DCPA	Benzene	Chloroform
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	8/12/2012	0.027	0.005	2.8	0.1	0.1	0.46
2	2/26/2013	0.025	0.005	2.1	0.1	0.1	0.1
3	8/15/2013	0.0235	0.005	2.5	0.1	0.1	0.1
4	2/12/2014	0.056	0.0029	2.3	0.1	0.1	0.1
5	12/11/2014	0.59	0.00325	1.8	0.1	0.1	0.065
6	5/19/2015	0.0235	0.0027	1.9	0.1	0.1	0.1
7							
8							
9							
10							

Mann Kendall Statistic (S) =	0	-10	-9	0	0	-7
Number of Rounds (n) =	6	6	6	6	6	6
Average =	0.12	0.00	2.23	0.10	0.10	0.15
Standard Deviation =	0.229	0.001	0.378	0.000	0.000	0.150
Coefficient of Variation(CV)=	1.841	0.286	0.169	0.000	0.000	0.976

Error Check, Blank if No Errors Detected						
Trend = 80% Confidence Level	No Trend	DECREASING	DECREASING	No Trend	No Trend	DECREASING
Trend = 90% Confidence Level	No Trend	DECREASING	DECREASING	No Trend	No Trend	No Trend
Stability Test, If No Trend Exists at 80% Confidence Level	CV>1 NON-STABLE	NA	NA	CV<=1 STABLE	CV<=1 STABLE	NA

Data Entry By =	Rice Xiao	Date =	7/20/2015	Checked By =	Qihai Chen

Appendix D. Investigation-Derived Waste Disposal Information

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NO. 715209

NON-HAZARDOUS WASTE DATA FORM

BEST #

250216

GENERATOR

Generator's Name and Mailing Address

U.S. NAVY (NAVFAC SW)
BRENDA REESE
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132

Generator's Site Address (if different than mailing address)

NAVAL & MARINE CORPS RESERVE CENTER IRP
SITE 1
1700 STADIUM WAY
LOS ANGELES, CA 90012

Generator's Phone: 619-532-4209

Container type removed from site:

☒ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other

Quantity

01

Container type transported to receiving facility:

☐ Drums ☒ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck
☐ Other

Quantity

1

Volume

55 gallons

WASTE DESCRIPTION NON-HAZARDOUS WATER

GENERATING PROCESS WELL FURGING / DECON WATER

COMPONENTS OF WASTE

PPM

%

COMPONENTS OF WASTE

PPM

%

1. WATER

99-100%

2. TPH

<1%

Waste Profile

 PROPERTIES: pH 7-10 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER

HANDLING INSTRUCTIONS: WEAR ALL APPROPRIATE PERSONAL PROTECTIVE CLOTHING

Generator Printed/Typed Name

Brenda Reese

Signature

Brenda Reese

Month Day Year

11 30 15

The Generator certifies that the waste as described is 100% non-hazardous

TRANSPORTER

Transporter 1 Company Name

BELSHIRE

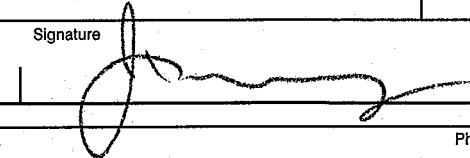
Phone#

949-480-5200

Transporter 1 Printed/Typed Name

Jose Ferrer

Signature



Month Day Year

02 03 15

Transporter Acknowledgment of Receipt of Materials

Transporter 2 Company Name

NIETO & SONS TRUCKING, INC.

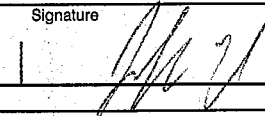
Phone#

714-990-6855

Transporter 2 Printed/Typed Name

Jeff Wyrick

Signature



Month Day Year

12 16 15

Transporter Acknowledgment of Receipt of Materials

RECEIVING FACILITY

Designated Facility Name and Site Address

DEMENNO KERDOON
2000 N. ALAMEDA ST.
COMPTON, CA 90222

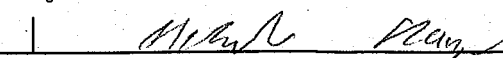
Phone#

310-537-7100

Printed/Typed Name

Alvin Ray

Signature



Month Day Year

02 16 15

Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.

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29
NO. 717178

NON-HAZARDOUS WASTE DATA FORM

GENERATOR										
Generator's Name and Mailing Address U.S. NAVY (NAVFAC SW) BRENDA REESE 1220 PACIFIC HIGHWAY SAN DIEGO, CA 92132										
Generator's Site Address (if different than mailing address) NAVAL & MARINE CORPS RESERVE CENTER IRP SITE 1 1700 STADIUM WAY LOS ANGELES, CA 90012										
Generator's Phone: 619-632-4200										
Container type removed from site: ☒ Drums ☐ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck ☐ Other _____										
Container type transported to receiving facility: ☐ Drums ☒ Vacuum Truck ☐ Roll-off Truck ☐ Dump Truck ☐ Other _____										
Quantity 001										
Quantity 001 Volume 55 gallons										
WASTE DESCRIPTION NON-HAZARDOUS WATER										
GENERATING PROCESS WELL PURGING / DECON WATER										
<table border="1"><thead><tr><th>COMPONENTS OF WASTE</th><th>PPM</th><th>%</th></tr></thead><tbody><tr><td>1. WATER</td><td></td><td>99-100%</td></tr><tr><td>2. TPH</td><td></td><td><1%</td></tr></tbody></table>		COMPONENTS OF WASTE	PPM	%	1. WATER		99-100%	2. TPH		<1%
COMPONENTS OF WASTE	PPM	%								
1. WATER		99-100%								
2. TPH		<1%								
<table border="1"><thead><tr><th>COMPONENTS OF WASTE</th><th>PPM</th><th>%</th></tr></thead><tbody><tr><td>3. _____</td><td></td><td></td></tr><tr><td>4. _____</td><td></td><td></td></tr></tbody></table>		COMPONENTS OF WASTE	PPM	%	3. _____			4. _____		
COMPONENTS OF WASTE	PPM	%								
3. _____										
4. _____										
Waste Profile _____ PROPERTIES: pH 7-10 ☐ SOLID ☒ LIQUID ☐ SLUDGE ☐ SLURRY ☐ OTHER _____										
HANDLING INSTRUCTIONS: _____										
Generator Printed/Typed Name Signature Month Day Year Brenda Reese Brenda Reese 16 29 15										
The Generator certifies that the waste as described is 100% non-hazardous										
TRANSPORTER										
Transporter 1 Company Name Phone# BELSHIRE 949-460-8200										
Transporter 1 Printed/Typed Name Signature Month Day Year STEVEN E. MENDOZA S. E. Mendoza 07 07 15										
Transporter Acknowledgment of Receipt of Materials										
Transporter 2 Company Name Phone# NIETO & SONS TRUCKING, INC. 714-890-8855										
Transporter 2 Printed/Typed Name Signature Month Day Year PAFACEL VIRENA Pafacel Virena 17 14 15										
Transporter Acknowledgment of Receipt of Materials										
RECEIVING FACILITY										
Designated Facility Name and Site Address Phone# DEMENNO KERDOON 310-637-7100 2000 N. ALAMEDA ST. COMPTON, CA 90222										
Printed/Typed Name Signature Month Day Year Arlene R. Kerdoon Arlene R. Kerdoon 02 14 15										
Designated Facility Owner or Operator: Certification of receipt of materials covered by this data form.										

1700stad
1190867

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Appendix E. Interim Guidance on Required Cleanup at Low-Risk Fuel Sites

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

2101 WEBSTER STREET, Suite 500

OAKLAND, CA 94612

Tel: (510) 286-1255

FAX: (510) 286-1380

BBS: (510) 286-0404



January 5, 1996

**To: San Francisco Bay Area Agencies Overseeing UST Cleanup
(see distribution list)**

**Subject: Supplemental Instructions to State Water Board December 8, 1995,
Interim Guidance on Required Cleanup at Low Risk Fuel Sites**

As you know, Lawrence Livermore National Laboratory (LLNL) issued its "Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks" (October 16, 1995). In response to this report, State Water Resources Control Board Executive Director Walt Pettit issued an interim guidance letter (attached) dated December 8, 1995, which discussed the regulatory implications of the conclusions and recommendations of the LLNL report. This letter is intended to further amplify the guidance contained in the State Board letter for fuel cleanup sites within the San Francisco Bay Region.

Two documents are enclosed. One we call "Supplemental Instructions", which we recommend for your use in regulating low-risk sites. The other is a fact sheet in question and answer format intended for the interested tank owner or the general public.

In general, we concur with the findings and conclusions of the LLNL study. The LLNL study is consistent with the language approved by the Regional Board in its "non-attainment zone" policy for groundwater cleanup. For both the LLNL study and the Regional Board "non-attainment zone" policy, it is recommended that fuel sites be treated differently and less stringently than solvent sites. In this region we believe that most fuel sites fall into the low-risk category, for which source removal and passive remediation are adequate. At the same time we believe that great care should be used to see that sites which are *not* low-risk receive more aggressive treatment. These judgements will always have to be made on a site-by-site basis.

Note that this guidance, like that provided in the State Board's December 8 letter, is only interim. The recommendations of the SB 1764 Scientific Advisory Committee are due this month, and these will presumably be reflected in the pending changes the State Board is considering in its update to its cleanup policy this spring.

If you have questions on the guidance or the supplemental instructions, please call Steve Morse (510-286-0304) or Kevin Graves (510-286-0435) of my staff.

Sincerely,

for
Loretta K. Barsamian
Executive Officer

Attachment (2)

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

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2101 WEBSTER STREET, Suite 500

OAKLAND, CA 94612

Tel: (510) 286-1255

FAX: (510) 286-1380

BBS: (510) 286-0404



January 5, 1996

MEMORANDUM**To: San Francisco Bay Area Agencies Overseeing UST Cleanup and Other Interested Parties****Subject: Regional Board Supplemental Instructions to State Water Board December 8, 1995,
Interim Guidance on Required Cleanup at Low-Risk Fuel Sites**

These supplemental instructions are intended for the regulatory and technical audience¹ to expand on the interim guidance provided in the December 8, 1995, letter from Walt Pettit, Executive Director of the State Water Resources Control Board regarding the findings of the report entitled "Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks (LUFTs)" issued by the Lawrence Livermore National Laboratory (LLNL). Mr. Pettit's letter urges cleanup agencies to proceed aggressively to close low risk soil only cases and not to require active remediation of low risk groundwater cases.

The LLNL report indicates that bioremediation of petroleum is an important factor in stabilizing plumes and may be the only remedial activity necessary in the absence of free product. After a review of existing literature, white papers submitted to the SB1764 committee, and an extensive study of leak cases statewide, the LLNL report found that petroleum plumes tend to stabilize close to the source, generally occur in shallow groundwater and rarely impact drinking water wells in the state.

It is in light of these findings and the "lessons learned" over the past ten years in San Francisco Bay Region that these supplemental instructions are written. Strategies are presented for closing low risk soil only cases and managing low risk groundwater impact cases utilizing natural bioremediation as the preferred remedial alternative.

These two classes of sites, low risk soils and low risk groundwater, are not intended to include the whole universe of petroleum leaks. There are higher risk sites that may require immediate action and remediation to protect human health and the environment. The responsibility still lies with the discharger for investigation of the subsurface to gather the data necessary to make these decisions. It is the responsibility of the regulator to only request that information which is required to make the necessary regulatory decisions regarding the site.

It is the responsibility of everyone in the process, particularly consultants and regulators, to keep up with current research on site investigation, fate and transport of contaminants, analytical methods, and other topics that affect the decision making process. Training and education should be a high priority for all parties participating in the site cleanup process. The State and Regional Boards will be providing training to the local agencies and others affected. In addition, consulting by the Regional Board's toxicologist, Dr. Ravi Arulanantham, is available on a limited basis to local agencies.

¹ Additional supplemental information is also provided from the Regional Board in the form of a Fact Sheet in a "Question and Answer" format.

LOW RISK SOILS CASE

Definition:

1) The leak has been stopped and ongoing sources, including free product, removed or remediated.

The tank or appurtenant structure that leaked must be repaired or permanently closed per Chapter 7, Section 2672 of the UST regulations. Free product shall be removed to the extent practicable per Chapter 5, Section 2655 of the UST regulations.

Free product or soil which contains sufficient mobile constituents (leachate, vapors, or gravity flow) to degrade groundwater quality above water quality objectives or result in a significant threat to human health or the environment should be considered a source.

For old releases, the absence of current groundwater impact is often a good indication that residual concentrations present in the soil are not a source of pollution. In general, if impacted soil is not in contact, or expected to come in contact, with or very close to the groundwater, it is unlikely that it is a significant source of pollution.

2) The site has been adequately characterized.

The extent of the subsurface impact should be defined to the degree that is necessary to determine if the site poses a threat to human health, the environment, or other sensitive nearby receptors. The level of detail required at a given site will depend upon the presence or absence of potential receptors and exposure pathways. Delineating plumes to non-detect levels is not required at all sites.

It is assumed that subsurface conditions are highly variable and that there is always some uncertainty associated with evaluating data at a site. However, the cost of obtaining additional data must be weighed against the benefit of obtaining that data and the effect the data may have on the certainty of decisions to be made at the site.

3) Little or no groundwater impact currently exists and no contaminants are found at levels above established MCLs or other applicable water quality objectives.

By definition, soils only cases do not have significant groundwater impacts.

4) No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted.

5) The site presents no significant risk to human health.

The American Society of Testing and Materials' (ASTM) standard for Risked Based Corrective Action (RBCA), ASTM E-1739-95, details a framework and provides a methodology to perform a tiered risk analysis at petroleum release sites. This methodology incorporates EPA risk assessment practices to determine non-site specific (tier 1 look up table which provides generic risk based screening levels) and site specific (tier 2 and tier 3) clean up levels that are protective of public health and environmental resources.

In addition to the various methods of contaminant transport described in the ASTM standard, other methods may also be acceptable in determining health and environmental protective levels.

When using the ASTM lookup table risk based screening levels (RBSLs) one has to multiply the RBSL value for benzene by a factor of 0.29 to obtain the corrected value for California (CAL EPA has a higher toxicity value of 0.1 as compared to the USEPA value of 0.029 for benzene). All other values in the table remain the same.

6) The site presents no significant risk to the environment.

RBCA has no specific guidance for evaluating environmental risk although the basic framework is appropriate if site specific exposure pathways and ecological receptors are included. If the site has a potential to significantly impact surface water, wetlands, other sensitive receptors, it should not be considered low risk.

Management Strategy

Low risk soils cases should be closed when it is determined that site conditions conform to the above criteria. Further remediation or monitoring is not required. If the highest permitted use (e.g., residential) is not protected by the chosen cleanup levels, then land use restrictions or notifications for the site may be appropriate.

LOW RISK GROUNDWATER CASE

Definition

- 1) The leak has been stopped and ongoing sources, including free product, have been removed or remediated (see Low Risk Soils Case Definition #1).**
- 2) The site has been adequately characterized (see Low Risk Soils Case Definition #2).**

The presence or absence of horizontal and vertical conduits which could act as preferential pathways for the dissolved plume should be evaluated as a part of the site characterization process.

- 3) The dissolved hydrocarbon plume is not migrating.**

The LLNL report found that petroleum plumes in the subsurface tend to stabilize once the source is removed. Natural biodegradation of hydrocarbons is the main reason why this stability occurs.

Chemical concentrations of hydrocarbons in groundwater that decrease or do not change with time are the best indicators of a stable plume. Comparison of background and hydrocarbon plume concentrations of inorganic ions such as oxygen, iron, nitrate, sulfate, and others, can provide evidence of biodegradation at a given site. These data may not be required to determine plume stability but can supplement other lines of evidence.

Stable or decreasing plumes often display short term variability in groundwater concentrations. These effects are due to changes in groundwater flow, degradation rates, sampling procedures, and other factors which are inherently variable. This behavior should not necessarily be construed as evidence of an unstable plume but may be the natural variations of a stable plume in the environment.

- 4) No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted.**
- 5) The site presents no significant risk to human health.**

For this analysis, the groundwater ingestion pathway need not be considered if the groundwater is not currently used as a source of drinking water or projected to be used within the life of the plume. (See Low Risk Soils Case Definition #5)

- 6) The site presents no significant risk to the environment.**

RBCA has no specific guidance for evaluating environmental risk although the basic framework is appropriate if site specific exposure pathways and ecological receptors are included. If the site has a potential to significantly impact surface water, wetlands, other sensitive receptors, it should not be considered low risk. (See Low Risk Soils Case Definition #6)

Management Strategy

- 1) **Passive bioremediation should be the preferred remedial alternative unless there is a compelling reason to do otherwise.**

A partial list of reasons that may justify active remediation are listed below:

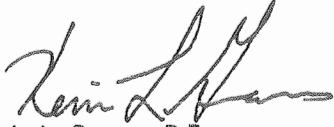
- Groundwater within the plume is likely to be used before natural biodegradation is projected to complete the cleanup.
- Sensitive receptors have been identified and are projected to be adversely impacted.
- The plume is migrating significantly.
- Another remedial alternative is shown to be more cost effective.

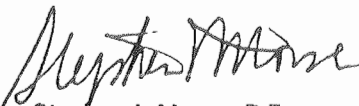
Generally, if any of these conditions or others deemed to be compelling are met, a more aggressive remedial approach may be appropriate.

- 2) **Monitor the site to determine plume stability and the effectiveness of the remedial strategy.**

Monitoring is necessary to determine if site conditions will remain stable or improve over time. One hydrologic cycle (four quarters) of monitoring data is usually considered to be the minimum necessary to determine site conditions. This assumes depth to groundwater has significant seasonal variation and that no longer term variation occurs. If little seasonal fluctuation is expected, then one year of monitoring may not be required. Conversely, if depth to groundwater is expected to change significantly from year to year due to droughts, adjacent pumping, or other factors, then one year of monitoring may not be adequate.

Data from adjacent or nearby sites may be useful in determining groundwater fluctuations and other regional aquifer characteristics. Frequency of monitoring and the number of monitoring points may be adjusted after site characterization is completed. At many existing sites, these data may already have been collected.

Coordinated & 
Prepared by: Kevin L. Graves, P.E.
Associate Water Resources Control Engineer
January 5, 1996


Concur: Stephen I. Morse, P.E.
Chief, Toxics Cleanup Division
January 5, 1996

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

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BBS: (510) 286-0404



Fact Sheet Questions and Answers on the

"Interim Guidance on Low-Risk Petroleum Hydrocarbon Cleanups"

Lawrence Livermore National Laboratory (LLNL) issued its "Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks" (October 16, 1995). In response to this report, State Water Resources Control Board Executive Director Walt Pettit issued an interim guidance letter dated December 8, 1995, which discussed the regulatory implications of the conclusions and recommendations of the LLNL report.

From the December 8, 1995, letter:

"In the interim and in light of the findings and recommendations in the LLNL report, we believe cleanup oversight agencies should proceed aggressively to close low risk soil only cases. For cases affecting low risk groundwater (for instance, shallow groundwater

with maximum depth to water less than 50 feet and no drinking water wells screened in the shallow groundwater zone within 250 feet of the leak) we recommend that active remediation be replaced with monitoring to determine if the fuel leak plume is stable. Obviously good judgment is required in all of these decisions. However, that judgment should now include knowledge provided by the LLNL report."

This Fact Sheet is intended to further amplify the guidance contained in the State Board letter for fuel cleanup sites within the San Francisco Bay Region through the form of "Answers" to frequently asked questions regarding implementation of the new petroleum cleanup interim guidance.

Q What is considered a "source" when completing source removal?

A Leaking tanks and appurtenant structures must be removed or repaired. Free product or soil which contains sufficient mobile constituents (leachate, vapors, or gravity flow) to degrade groundwater quality above water quality objectives or provide a significant threat to human health or the environment should be considered a source.

Gasoline or diesel free product fits this definition at virtually all sites. Oil and grease, degraded crude oil, and degraded diesel may not be soluble enough to be considered a significant source and often do not degrade water quality or present a significant risk to human health or the environment.

Many factors need to be considered when determining if a given petroleum release constitutes a source.

- Depth of the affected soil below ground surface
- Depth to groundwater below ground surface
- Soil type and physical properties
- Presence of preferential pathways (ie. old wells, utility trenches, etc.)
- Type of petroleum released
- Infiltration rate
- Spatial distribution of petroleum concentrations
- Total mass of petroleum released
- Trends in monitoring data
- Chemical and physical properties of any residual hydrocarbons

Good judgment must be used when weighing these and other factors. For old releases, the absence of current groundwater degradation often is a good indication that residual concentrations present in the soil are not a source of pollution. In general, if impacted soil is not in contact or

expected to come in contact with the groundwater, it is unlikely that it is a significant source of pollution.

Q What is meant by "low risk groundwater sites"?

A An example of a low risk groundwater site is described in the State Board letter as a site with maximum depth to groundwater less than 50 feet and no drinking water wells screened in the shallow groundwater zone within 250 feet of the leak. In addition, there should be no surface water or other sensitive habitat that may be adversely impacted by the release.

These criteria are not hard and fast rules. They are meant to recognize that shallow groundwater is rarely used as a drinking water source, that biodegradation in most cases will stabilize a plume within 250 feet of the leak, and that the plume will likely remediate itself due to natural biodegradation. However, if the plume is not stable, preferential pathways exist at the site, or sensitive receptors are near the end of the plume, then the site should not be considered low risk.

Q How do we determine if there is a significant risk to human health at a site?

A The American Society of Testing and Materials (ASTM) standard for Risk Based Corrective Action, ASTM E-1739-95, (RBCA) provides look up tables for various exposure pathways that contains conservative screening levels (when modified for California's benzene standard) for comparison with values existing at the site. The standard also contains a methodology for determining site specific levels that are protective of public health and the environment. The SWRCB/RWQCB is now offering two day classes for all interested parties in risk-based decision making at soil and groundwater impacted sites. Please contact the UC

Riverside Extension at 909-787-4105 to obtain further information on upcoming classes.

Q What is a sensitive receptor?

A Water wells, deeper drinking water aquifers, surface water bodies, sensitive habitats such as wetlands, marshes, or mudflats, human beings, aquatic plants and animals, and other wildlife are all sensitive receptors. Property lines and other political or administrative boundaries are not considered to be sensitive receptors for the purposes of this guidance.

Q How do we determine if there is significant ecological risk at the site?

A There is not currently a standard method for determining potential threats to the environment or aquatic receptors. When appropriate, ASTM RBCA would identify this as a potential exposure pathway that is not included in the current "look up tables" and will therefore require a higher tier analysis. This analysis may require additional evaluation of migration pathways such as storm drains and other manmade conduits. Currently, evaluation protocols are being developed, and look up tables for ecological receptors may be added to ASTM RBCA in the future. The lack of a standard protocol or look up table does not eliminate the requirement to evaluate this pathway, especially in nearshore or Bay front locations.

Q The State Board letter states that active remediation should be replaced with monitoring at low risk sites. What technologies are considered "active remediation"?

A Active remediation refers to remediation of dissolved groundwater plumes. Mechanical systems that inject or remove material from the dissolved phase plume are considered active remediation. Examples of active remediation include groundwater extraction systems, air sparging systems, and hydrogen peroxide injection systems. Vapor extraction, bioslurping and other source removal systems are not considered active remediation if they are removing a source of pollution as defined in Question 1 above.

Q What technologies for free product removal are currently considered practicable?

A Appropriate excavation of the impacted material surrounding the leak is one of the best source removal technologies available. Manual bailing, passive skimming, and pumping of groundwater are only marginally effective at removing free product. Vacuum enhanced free product recovery (ie. vapor extraction, bioslurping, etc.) has been shown to be a highly effective method for removing mobile free product. Each site needs a determination of the cost-effectiveness of the various techniques taking into account the soil type, amount of free product present, potential for the free product to act as a source, preferential pathways, and other factors that affect hydrocarbon movement at the site.

Q What 'reasonable justification' would be compelling enough to use active remediation on the dissolved hydrocarbon plume?

A A partial list of reasons that may be compelling are listed below:

- Groundwater within the plume is likely to be used before natural biodegradation is projected to complete the cleanup.
- Sensitive receptors have been identified and are projected to be adversely impacted.
- The plume is migrating significantly.
- Another remedial alternative is shown to be more cost effective.

Generally, if any of these conditions or others deemed to be reasonable justification are met, a more aggressive remedial approach may be appropriate.

Q What criteria are used to determine plume stability?

A The LLNL report found that petroleum plumes in the subsurface tend to stabilize once the source is removed. Natural biodegradation of hydrocarbons is the main reason this stability occurs.

Many factors influence plume stability including hydrogeology and those listed in Question 1. However, chemical concentrations of hydrocarbons in groundwater that decrease or do not change with time are the best indicator of a stable plume. Comparison of background and hydrocarbon plume concentrations of inorganic ions such as oxygen, iron, nitrate, sulfate, and others, can provide evidence of biodegradation at a given site. These data may not be required to determine plume stability, but can supplement other lines of evidence.

Stable or decreasing plumes often display short term variability in groundwater concentrations. These effects are due to changes in groundwater flow, degradation rates, sampling procedures, and other factors which are inherently variable. This behavior should not necessarily be construed as evidence of an unstable plume but may be the natural variability of a stable plume in the environment.

Q What should the monitoring frequency be?

A The frequency of monitoring should be commensurate with the need for data to make required decisions at the site. Quarterly monitoring may be appropriate in the early stages of investigation when extent of contamination, seasonal groundwater fluctuations, and other site specific factors are being evaluated. After these have been determined, monitoring frequency may be reduced to perhaps annually and number of monitoring points reduced to selected wells only. Long term monitoring should be limited to collecting only the minimum data needed to verify that site conditions are stable or improving. Much of this information has already been collected at many existing sites.

Q Can existing active remediation systems at low risk sites be turned off even though established remedial goals have not been reached?

A Yes. If the site is evaluated using the new guidance and active remediation is not indicated, then active treatment at the site should be terminated. If the extraction system is necessary to provide hydraulic control of the plume which prevents contaminants from reaching a sensitive receptor, then continued pumping may be warranted.

Q When can adjacent site data be used in lieu of site specific data?

A Local hydrogeologic data can often be inferred from data collected at adjacent sites. Depth to groundwater, depth to regional aquifer, groundwater gradient, soil types that may be present, and chemical concentrations may all be of value in directing an investigation. A conceptual model of the site may be formed using local or adjacent site data. Data collected during a site investigation should clarify the conceptual model and help to guide any further work at the site.

Q If a site is only monitoring and no active remediation is anticipated, can the site be closed?

A Regulatory agencies have broad discretion to determine whether or not regulatory action is necessary and appropriate at a given site. Under current policies, the monitoring period could be many years depending upon the magnitude of the release, remedial actions taken, and biodegradation rates at the site. Closure of low risk UST sites would be appropriate as soon as enough data supported the conclusion that the source had been removed, the plume had stabilized, and bioremediation was expected to achieve water quality objectives (e.g. MCLs) in a reasonable time.

The State Board has indicated that policies regarding petroleum cleanup standards will be reviewed in 1996 pursuant to SB1764 requirements. Changes in closure policy regarding low risk groundwater cases may be a result of that review.

Q What action should be taken if a responsible party refuses to take any action at a site and cites this guidance as the reason for inaction?

A Responsible parties are required to comply with all regulatory requirements. If they disagree with a directive or think it is in violation of current regulatory practice, they have the opportunity to appeal that directive through the proper channels. Responsible parties may face enforcement actions if they disregard regulatory requirements and do not appeal using the appropriate procedures.

Q If a responsible party wants to pursue a more aggressive remedial strategy than stated in the State Board letter, will the Cleanup Fund pay for the additional remediation?

A The Cleanup Fund manager has indicated that the Fund will only reimburse costs for those activities that are required by regulatory agencies. For low risk cases, regulatory agencies should not approve work plans for active remediation unless adequate justification is provided. Article 11, section 2727f of the Underground Storage Tank Regulations requires that responsible parties propose the most cost-effective corrective action. This will be monitoring, without active remediation, in many cases.

Q What public notification is required when implementing this guidance?

A The implementation of the LLNL recommendations suggested by the State Board letter does not change the public notification requirements already stated in the UST regulations in Chapter 11, Section 2728. That section requires that the public must be informed of the proposed activities contained in a site's corrective action plan. If a site's corrective action plan is modified to the extent that it is essentially a new corrective action plan, then it may be appropriate for the public to be notified of the new plan.

Q Will future use of an impacted property be restricted by implementation of State Boards' recommendations?

A No change in current practice is expected. Generally, sites are remediated to either residential or commercial/industrial requirements based on current and projected future land uses. If a site is cleaned up to commercial/industrial standards and the land use changes to residential, then further risk assessment and possibly mitigation or remediation may be required.

The current UST "no further action" letter requires that the implementing agency be notified if a change in land use occurs.

Q How does this guidance fit with existing and future policy?

A From the December 8, 1995 letter, "What I propose to you is not in any way inconsistent with existing policies or regulations. However, it does represent a major departure from how we have viewed the threat from leak USTs." Under the requirements of SB 1764 the legislature expects the State Water Resources Control Board to propose and make further permanent changes to the interim guidance, perhaps as early this spring. Meanwhile, the Regional Board and the local regulating agencies will be implementing the interim guidance.

For further information or questions, please contact the Regional Board. Initial contact should be Wil Bruhns, the Regional Board's Ombudsman at 510-286-0838. He can give you further general information and direct your questions to the appropriate staff persons. It should be noted that most fuel cleanup sites in the Bay Area are regulated by local agencies.

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All Regional Water Board Chairpersons
All Regional Water Board Executive Officers
All LOP Agency Directors

DEC - 8 1995

LAWRENCE LIVERMORE NATIONAL LABORATORY (LLNL) REPORT ON LEAKING
UNDERGROUND STORAGE TANK (UST) CLEANUP

In October 1995, the LLNL presented to the State Water Resources Control Board (SWRCB) its final report, Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks. The LLNL team found that the impacts to the environment from leaking USTs were not as severe as we once thought. The report also presents a convincing argument that passive bioremediation should be considered as the primary remediation tool in most cases once the fuel leak source has been removed.

The LLNL report has also been presented to the SWRCB's SB 1764 Advisory Committee which will, in turn, provide recommendations to the SWRCB by the end of January 1996. The SWRCB may choose to implement recommendations from the LLNL report and the SB 1764 Advisory Committee through revisions to SWRCB Resolution 92-49 in early 1996.

In the interim and in light of the findings and recommendations in the LLNL report, we believe cleanup oversight agencies should proceed aggressively to close low risk soil only cases. For cases affecting low risk groundwater (for instance, shallow groundwater with maximum depth to water less than 50 feet and no drinking water wells screened in the shallow groundwater zone within 250 feet of the leak) we recommend that active remediation be replaced with monitoring to determine if the fuel leak plume is stable. Obviously good judgment is required in all of these decisions. However, that judgment should now include knowledge provided by the LLNL report.

What I propose to you is not in any way inconsistent with existing policies or regulations. However, it does represent a major departure from how we have viewed the threat from leaking USTs. This guidance is consistent with the results of a discussion of this subject among the State Board Chair and Regional Board Chairs on December 5, 1995. If you have any questions on this matter please call Mr. James Giannopoulos, our manager of the underground storage tank program, at (916) 227-4320.

Sincerely,

Walt Pettit
Walt Pettit
Executive Director

cc: All Regional Water Board/LOP UST Program Managers

Appendix F. Human Health Risk Assessment Report

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**Appendix F
Human Health Risk Assessment Report
Installation Restoration Site 1
Naval and Marine Corps Reserve Center, Los Angeles
1700 Stadium Way
Los Angeles, California**

Prepared For:



**U.S. Department of the Navy
Naval Facilities Engineering Command Southwest
San Diego, California**

Prepared By:



Amec Foster Wheeler Environment & Infrastructure, Inc.

September 9, 2015

Amec Foster Wheeler Project 5012-11-8011

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ATTACHMENTS

Attachment A Johnson and Ettinger Vapor Intrusion Models

ABBREVIATIONS AND ACRONYMS

1,2-DCA	1,2-dichloroethane
µg/m ³	microgram per cubic meter
AM8AJV	Accord MACTEC 8A Joint Venture
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
bgs	below ground surface
CalEPA	California Environmental Protection Agency
CHHSL	California Human Health Screening Level
cm	centimeters
COPC	chemical of potential concern
DTSC	Department of Toxic Substances Control
ELCR	excess lifetime cancer risk
HHRA	human health risk assessment
HI	hazard index
HQ	hazard quotient
IRP	Installation Restoration Program
IUR	inhalation unit risk
J&E	Johnson & Ettinger
LOAEL	lowest observed adverse effect level
LUFT	leaking underground fuel tank
MARRS	MARRS Services, Inc.
NMCRCLA	Naval and Marine Corps Reserve Center, Los Angeles
NOAEL	no observed adverse effect level
OEHHA	Office of Environmental Health Hazard Assessment
PPRTV	preliminary peer-reviewed toxicity value
PWC	Navy Public Works Center
REL	reference exposure level
RfC	reference concentration
RME	reasonable maximum exposure
RWQCB	California Regional Water Quality Control Board, Los Angeles Region
SCM	site conceptual model
SWRCB	State Water Resources Control Board
U.S. EPA	United States Environmental Protection Agency
UCL	upper confidence limit
UST	underground storage tank
VOC	volatile organic compound

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1.0 INTRODUCTION

Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler)¹ prepared this Human Health Risk Assessment (HHRA) Report to assess the potential for adverse health effects associated with exposures to residual volatile organic compounds (VOCs) detected in soil-gas at Installation Restoration Program (IRP) Site 1 of the Naval and Marine Corps Reserve Center, Los Angeles (NMCRCCLA). Except for Figure F-1, figures referenced herein are contained in the *2014-2015 Annual Groundwater and Soil-Gas Monitoring Report* ("Monitoring Report") to which this HHRA is appended.

The HHRA evaluated potential noncancer hazards and cancer risks for current onsite commercial/industrial workers and current offsite residents. Indoor air concentrations were derived using measured soil-gas data and the Johnson & Ettinger (J&E) vapor transport model and conservative default soil and building input parameters. This work was completed in accordance with the *Final Work Plan for Groundwater and Soil-Gas Monitoring and Basewide Installation Restoration Support at Installation Restoration Program Site 1, Naval and Marine Corps Reserve Center, Los Angeles, California*, prepared by Accord MACTEC 8A JV (AM8AJV, 2012) and the Final Work Plan Addendum (AM8AJV, 2014).

2.0 BACKGROUND

Sections 2.1 through 2.4 provide a brief site description along with summaries of previous and recent environmental activities conducted at IRP Site 1. A more complete site description and a summary of environmental activities conducted at IRP Site 1 are in Section 2 of the *2014-2015 Annual Groundwater and Soil-Gas Monitoring Report*.

2.1 SITE SETTING

NMCRCCLA IRP Site 1 is located at 1700 Stadium Way, Los Angeles, California, on approximately 6 acres of land, approximately 1 mile northeast of downtown Los Angeles. Elysian Park bounds NMCRCCLA to the north, Dodger Stadium is to the northeast, and residential housing exists along the west, south, and southeast perimeter areas (Figure 3 of the Monitoring Report). Specifically, residential housing is immediately adjacent to the property line on the southeast border.

The current land use onsite consists of a vehicle maintenance building located over the main area of the plume (Figure 5 of the Monitoring Report). The building contains a small office and a break room, both of which are separated by doors from the larger portion of the building, which is utilized for maintenance activities. The office is located at the opposite end of the building from the location of the former gasoline underground storage tank (UST). The maintenance area of the building is open-aired and typically occupied during regular business hours. The current tenant is the Los Angeles Fire Department. The existing building is surrounded by paved

¹ Formerly, AMEC Environment & Infrastructure, Inc.

parking areas. The planned future use is expected to remain the same as the current use. As of June 2015, the property was permanently transferred by the DON to the City of Los Angeles Fire Department. Land use controls restricting the site to commercial/industrial use have been placed on the property.

2.2 PREVIOUS INVESTIGATIONS

Previous investigations were performed for (1) potential leakage from a UST that contained gasoline at a former vehicle service station and (2) potential leakage of contents from hazardous waste drums stored at a vehicle lube rack that drained to a former waste-oil UST. The waste-oil UST was a 2,000-gallon, double-walled steel tank used for storage of used oil from preventative maintenance performed on vehicles (Navy Public Works Center [PWC], 1996). This waste-oil UST was located approximately 10 feet southeast of the vehicle lube rack. The waste-oil UST was closed and removed on November 9, 1994, under the supervision of the Los Angeles Fire Department. These investigations included soil and groundwater sampling as well as soil-gas sampling and identified petroleum and chlorinated related constituents. A previous screening-level HHRA conducted in July 2010 evaluated soil-gas results collected from temporary borings for potential vapor intrusion to indoor air. Although the sampling indicated the presence of VOCs in all the samples, the conclusions were that the VOCs posed no unacceptable human health risks to current onsite receptors based on the *Upward Vapor Risk Assessment Report* presented as Appendix D of the *Final Groundwater and Soil-Gas Monitoring Report, July 2010 Sampling Event* (MARRS Services, Inc. [MARRS], 2010). Following the 2010 groundwater and soil-gas monitoring event, the U.S. Department of the Navy requested regulatory agency concurrence for site closure and no further action at IRP Site 1. However, the California Regional Water Quality Control Board, Los Angeles Region (LARWQCB) requested additional groundwater and soil-gas monitoring. Subsequent to its request, five rounds of soil-gas sampling of semi-permanent probes have been performed as described in Section 2.3.

2.3 RECENT SOIL-GAS INVESTIGATION

Installation of the soil-gas probes and initial soil-gas sampling were conducted in August 2012. Subsequent sampling was conducted in February 2013, August 2013, February 2014, December 2015, and May 2015. Soil-gas probe installation and sampling procedures utilized in August 2012 were performed in general accordance with the *Advisory—Active Soil Gas Investigations*, published jointly in January 2003 by the Department of Toxic Substances Control (DTSC), LARWQCB, and California Regional Water Quality Control Board, San Francisco Bay Region (2003). In addition, elements of the *Advisory—Active Soil Gas Investigations* (DTSC et al., 2012), which supersedes the 2003 Advisory, and the *Final Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air* (DTSC, 2011) were incorporated into the sampling protocols.

Soil-gas probes were installed at the seven planned locations and three planned depths. Soil-gas probes (SG08 through SG14) were installed at 5, 10, and 15 feet below ground surface (bgs). Final soil-gas sampling locations are illustrated on Figure 6 of the Monitoring Report.

2.4 LABORATORY ANALYSES

Soil-gas samples collected from all seven locations (SG08 through SG14) during the investigation were analyzed for VOCs using United States Environmental Protection Agency (U.S. EPA) Method TO-15. A known additive to leaded gasoline, 1,2-dichloroethane (1,2-DCA), was also analyzed separately using a DTSC-approved method. Section 4 of the *2014–2015 Annual Groundwater and Soil-Gas Monitoring Report* provides further information on sampling and analyses.

3.0 DATA EVALUATION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

This section describes the HHRA data sets and the chemicals of potential concern (COPCs) selected for the HHRA. The analytical results for soil-gas samples considered for use in the HHRA are presented in Table F-1. Analytical results collected during the previous investigations (July 2010, August 2012, February 2013, August 2013, and February 2014) were not evaluated in this HHRA. Information on the past soil-gas sampling events is contained in the *Final Groundwater and Soil-Gas Monitoring Report, July 2010 Sampling Event* (MARRS, 2010), the *Final 2012–2013 Annual Groundwater and Soil-Gas Monitoring Report* (AM8AJV, 2013), and the *Final 2013–2014 Annual Groundwater and Soil-Gas Monitoring Report* (AM8AJV, 2014).

3.1 DATA USED IN THE RISK EVALUATION

An evaluation of the recent (December 2014 and May 2015) soil-gas data was conducted to identify data applicable to the HHRA. As described in Section 2.4, soil-gas samples were analyzed for VOCs. The following factors were used to select appropriate and representative data for inclusion in the various exposure scenarios evaluated in this HHRA:

- Sample location and depth,
- Duplicate samples; and
- Data validation and assigned qualifiers.

Results of this evaluation are as follows.

Sample Location and Depth: Soil-gas samples were collected at seven locations (SG08 through SG14) throughout IRP Site 1 at depths of 5, 10, and 15 feet bgs. Soil-gas sample results collected from soil-gas probes installed near building foundations at shallow depths (5 feet bgs) are more likely to indicate whether indoor air quality has been compromised. However, soil-gas concentrations collected from all depths (5, 10, and 15 feet bgs) from SG08 through SG14 were

evaluated in this HHRA for a current onsite indoor commercial/industrial worker's potential inhalation exposure.

Similarly, for offsite residential exposures, all three depths collected from soil-gas locations sampled closest to the residences (SG09 and SG10) were used for an indoor resident's potential inhalation exposures.

Duplicate Samples: Duplicate sample results for soil-gas were compared against the primary sample results to select a single value to represent the sample in the HHRA. The higher of the detected concentrations was used to represent the chemical concentration for that sample in the HHRA.

Data Validation and Assigned Qualifiers: The data collected by AM8AJV were reviewed consistent with *National Functional Guidelines* (U.S. EPA, 2014) to assess the quality and usability of the data for risk assessment. For some analytical results, quality control criteria were not met and U.S. EPA data qualifiers were appended to the data records to indicate limitations and/or bias in the data. The definitions for the data qualifiers or data validation flags used during validation are provided in the data tables (Tables 5 and 7 of the *2014–2015 Annual Groundwater and Soil-Gas Monitoring Report*) and are consistent with those defined in U.S. EPA guidelines. The analytical results were not independently verified by Amec Foster Wheeler, but based on the review performed in Appendix H of the Monitoring Report, all data are considered acceptable for decision-making purposes.

3.2 SELECTION OF CHEMICALS OF POTENTIAL CONCERN

Not all chemicals detected at a site warrant a quantitative evaluation. In many cases, chemicals detected at low concentrations and/or low frequencies that pose a negligible risk may be eliminated from further consideration. However, in this HHRA, all detected constituents in soil-gas were included as COPCs. A total of 28 VOCs were detected in soil-gas at IRP Site 1. The majority of the detected constituents consisted of petroleum-related VOCs; however, a few chlorinated VOCs (1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,2-DCA, 1,2-dichloropropane, chloromethane, cis-1,3-dichloropropene, methylene chloride, tetrachloroethene, trichloroethene, and trichlorofluoromethane) and other non-petroleum-related VOCs (1,4-dioxane) were also detected.

Fourteen of the 28 reported chemicals onsite were not detected in the two offsite soil-gas locations (SG09 and SG10) at any depth interval. However, they were conservatively included in the offsite risk evaluation since they were detected at other locations onsite during the 2014–2015 annual monitoring. These chemicals were 1,2,4-trichlorobenzene, 1,2-dichloropropane, 1,3,5-trimethylbenzene, 1,4-dioxane, carbon disulfide, chloromethane, cis-1,3-dichloropropene, ethyl acetate, ethylbenzene, methylene chloride, naphthalene, tetrahydrofuran, trichloroethene, and trichlorofluoromethane.

4.0 EXPOSURE ASSESSMENT

Exposure assessment is the process of describing, measuring, or estimating the intensity, frequency, and duration of potential human exposure to COPCs in environmental media (e.g., soil, water, and air) at a site. Conditions at the site were used to develop a site conceptual model (SCM) (Figure F-1). The site is currently paved, but the SCM presents potentially complete exposure scenarios with direct contact with soil if the property were to be redeveloped. These potentially complete exposure pathways were evaluated in the *Final Report for Site Inspection* (CDM Federal Programs Corporation, 2002). Only potentially complete indoor air pathways from the vapor intrusion of soil-gas are considered herein.

As described in Section 2.0, IRP Site 1 contains one commercial building that is currently occupied. The building is primarily used as a maintenance building, but also contains an office and a break room. Therefore, a current onsite commercial/industrial worker was considered a relevant receptor and was evaluated for full-time potential exposure to vapors in indoor air. The evaluation of the current onsite commercial/industrial receptor should also be protective of potential indoor air exposure for future commercial/industrial use. As previously noted, residences are currently located adjacent to the southeast property line of IRP Site 1. Therefore, current offsite residential indoor air exposures were also evaluated. This scenario assumes that constituents detected in onsite soil-gas on the southeastern edge of the property are potentially representative of potential vapor intrusion offsite. Although this assumption is conservative, the footprints of the adjacent residences are within the 100-foot zone of influence (DTSC, 2011) and therefore soil-gas collected at SG09 and SG10 is used in the HHRA.

Relative to future site use, IRP Site 1 is likely to remain commercial/industrial per recent deed restrictions limiting site use that have been placed on the property. Since the deed restricts residential development, hypothetical future onsite residential land use was not evaluated.

4.1 INDOOR AIR EXPOSURE POINT CONCENTRATIONS

In this HHRA, analytical results from soil-gas were used to estimate the volatilization from the subsurface to indoor air using the J&E vapor transport model, as parameterized by U.S. EPA (2004) and adopted by DTSC with appropriate updates for California toxicity criteria. The J&E model incorporates both convective and diffusive mechanisms for estimating the transport of chemical vapors emanating from the subsurface into indoor spaces located directly above or in close proximity to a source of chemicals. The model is a one-dimensional analytical solution to convective and diffusive vapor transport into indoor spaces and provides an estimated attenuation factor that relates the vapor concentration in the indoor space to the vapor concentration at the source. As parameterized by U.S. EPA, the J&E model spreadsheets have two levels: screening and advanced. Screening spreadsheets have most model parameters set equal to central tendency or upper bound values; values for the most sensitive parameters may be user defined. In the advanced spreadsheets, site-specific data may be input for all model

parameters. To reduce the number of model spreadsheets necessary, the advanced soil vapor model spreadsheets were modified by Amec Foster Wheeler to evaluate multiple chemicals and used to estimate the attenuation factors for the potential current and future receptors evaluated in this HHRA.

The modeling was performed for the three soil-gas sampling depths measured: 5, 10, and 15 feet bgs. The input parameters to the model are presented in Attachment A. The parameters used are consistent with the California Environmental Protection Agency's (CalEPA's) California Human Health Screening Levels (CHHSLs) methodology published by the Office of Environmental Health Hazard Assessment (OEHHA, 2010) and DTSC (2011, 2014) guidance for existing buildings without engineered fill (current onsite commercial/industrial and offsite residential scenarios). For the existing building scenarios, the native lithology for IRP Site 1 is used below the default sand and gravel layers recommended by OEHHA for the first 19 centimeters (cm) below the slab. In contrast, the future buildings scenario assumes that a low-permeability "engineered fill" of 30 cm is used underneath the sand/gravel layers during construction. For native soil, sandy clay was selected as the soil type in the model for both onsite building scenarios. Sandy clay was selected because analytical measurements of grain-size distribution were performed by CDM Federal Programs Corporation (2002) and four of the five vadose zone samples analyzed indicated sandy clay with the percent fines ranging from 54% to 63%. Boring logs indicated that clayey sand layers are present on the southeastern edge of the property (in addition to sandy clay). However, sand was conservatively used as the native soil type for the adjacent offsite resident evaluation because one sample analyzed from MW06 at the edge of the site contained 89% sand.

Because soil-gas measurements were evaluated on a sample-by-sample basis, each sample was not modeled independently; instead, unit concentrations of vapor (1 microgram per cubic meter [$\mu\text{g}/\text{m}^3$]) were input into the model and depth-specific attenuation factors were calculated for 5, 10, and 15 feet bgs. An attenuation factor relates the chemical concentration in soil-gas to the resulting concentration in indoor air and is dependent on chemical properties, soil characteristics, and building conditions. Multiplying these attenuation factors to measured soil-gas concentrations predicts indoor air concentrations for each chemical in each soil-gas sample. The attenuation factors incorporate a default building size of 30 by 30 feet for both the residential and commercial/industrial evaluations and default air exchange rates recommended by OEHHA (2010) and DTSC (2011 and 2014). The soil-gas concentrations used to calculate indoor air concentrations are presented in Table F-1, and the calculated indoor air concentrations and air attenuation factors are presented in Tables F-2A and F-2B for the commercial/industrial worker and offsite resident, respectively. The J&E models are provided in Attachment A.

4.2 ESTIMATION OF EXPOSURE CONCENTRATIONS

The predicted indoor air concentrations are then adjusted for receptor-specific exposure. The exposure assumptions used for the commercial/industrial worker are provided in Tables F-3A and F-4A. The commercial/industrial worker was assumed to work a standard work schedule of 8 hours per day, 250 days per year, for an exposure duration of 25 years. The exposure assumptions used for the current offsite resident are provided in Tables F-3B and F-4B. Residents are conservatively assumed to be in their homes breathing indoor air for 24 hours per day, 350 days per year, for an exposure duration of 26 years per the most recent DTSC HHRA Note 1 (DTSC, 2014).

A daily exposure concentration represents an estimate of a chemical dose that a receptor might receive on a daily basis. A daily air concentration was calculated for each COPC. The chronic daily air concentration for indoor air was calculated according to the following equation:

$$EC = \frac{C_{air} \times ET \times EF \times ED}{AT}$$

Where:

EC	=	Daily exposure concentration (µg/m ³)
C _{air}	=	Predicted concentration of COPC in indoor air (µg/m ³)
ET	=	Exposure time (hours/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
AT	=	Averaging time (hours; toxic effect assessment-determined variable, ED x 365 x 24 hours per day for noncarcinogens; 70 years x 365 x 24 hours per day for carcinogens)

5.0 TOXICITY ASSESSMENT

Toxicity assessment is the process of using the existing toxicity information from human and/or animal studies to identify potential health risks at various dose levels in exposure populations (U.S. EPA, 1989). To estimate these potential health risks, the relationship between exposure to a chemical (in terms of chronic daily intake for individuals) and an adverse effect (in terms of bodily response to a specific intake dose level) must be quantified. The methodologies used to develop toxicity factors differ, depending on whether the COPC is a potential carcinogen (i.e., has the potential to cause cancer) and/or has noncancer adverse effects.

Both California- and U.S. EPA-derived toxicity values were compiled for the evaluation of COPCs detected in soil-gas. Consistent with DTSC (2015) guidance, the most conservative toxicity value between OEHHA and U.S. EPA was selected for use in the HHRA. For California, CalEPA's OEHHA (2015) online toxicity database was consulted. U.S. EPA values were compiled from U.S. EPA's (2015a) Regional Screening Levels tables, which include values from U.S. EPA's (2015b) Integrated Risk Information System (an online database), the Agency for Toxic Substances and Disease Registry, U.S. EPA Health Effects Assessment Summary

Tables, and U.S. EPA Preliminary Peer Reviewed Toxicity Values (PPRTVs). These sources are updated regularly based on toxicity and exposure studies. The toxicity values for the soil-gas COPCs are discussed below.

5.1 TOXICITY CRITERIA FOR NONCANCER HEALTH RISKS

In deriving dose-response criteria for assessing the potential for noncancer health effects from exposure to chemicals, it is assumed by regulatory agencies that noncancer health effects occur only after a threshold dose is reached. This threshold dose is usually estimated by regulatory agencies from the no observed adverse effect level (NOAEL) or the lowest observed adverse effect level (LOAEL) determined from chronic (i.e., long-term) animal studies or human epidemiological studies. The NOAEL is defined as the highest dose at which no adverse effects are observed, while the LOAEL is defined as the lowest dose at which adverse effects are observed.

Uncertainty factors or safety factors are applied to the NOAEL or LOAEL observed in animal studies or human epidemiologic studies to establish inhalation “reference exposure levels” (RELs; term used by OEHHA) or reference concentrations (RfCs; term used by U.S. EPA) expressed in units of $\mu\text{g}/\text{m}^3$. Chronic RELs/RfCs are an estimate of an exposure level that is not expected to result in adverse health effects in persons exposed for a lifetime, even among the most sensitive members of the population (e.g., children and the aged). Use of these uncertainty and modifying factors adds conservatism into the derivation of the REL or RfC.

5.2 TOXICITY CRITERIA FOR CANCER HEALTH RISKS

Regulatory guidance assumes that chemicals that are carcinogenic should be treated as if they do not have thresholds (U.S. EPA, 1989). This approach assumes that the dose-response curve for carcinogens only allows for zero risk at zero dose (i.e., for all doses, some risk is assumed to be present). To estimate theoretically plausible responses at these low doses, various mathematical models are used. The accuracy of the projected risk depends on how well the model predicts the true relationship between dose and risk at dose levels where the relationship cannot be feasibly measured. The accuracy of these models is currently unknown, but they are believed not to underestimate the true risk.

Health risks for exposure to carcinogens are defined in terms of probabilities that quantify the likelihood of a carcinogenic response in an individual receiving a given dose of a particular compound. The inhalation unit risk (IUR), which is applied to inhalation exposures, is represented in risk-per-concentration units of $(\mu\text{g}/\text{m}^3)^{-1}$. The IUR values are defined as the 95% upper confidence limit (UCL) of the probability of a carcinogenic response per unit daily intake of a chemical over 70 years. By using the 95% UCL, the estimate of carcinogenic response will be conservative and will purposefully overestimate the actual risk posed by the chemical.

6.0 RISK CHARACTERIZATION

The risk characterization integrates the COPC selection, exposure assessment, and toxicity assessment to describe the risks to individuals in terms of the nature and likelihood of potential adverse health risks. The risk characterization process involved integrating the estimated daily air concentration and toxicity values to estimate both noncancer hazards and cancer risks to potential commercial/industrial workers and offsite residents from exposure to COPCs in indoor air at IRP Site 1. Because cancer risks and noncancer effects are quantified differently, separate methods were used to evaluate these effects, as described in Sections 6.1 and 6.2.

6.1 NONCANCER EFFECTS

For the indoor commercial/industrial worker and offsite resident, the potential for noncancer health effects was evaluated by comparing the average exposure air concentration with the chronic REL/RfC to arrive at a ratio called the hazard quotient (HQ). For a given COPC and data set, the HQ associated with exposure to the COPC in indoor air was estimated by dividing the daily air concentration by the REL, according to the following equation (U.S. EPA, 1989):

$$HQ = \frac{EC}{REL}$$

Where:

HQ	=	hazard quotient (unitless)
EC	=	daily exposure concentration ($\mu\text{g}/\text{m}^3$)
REL	=	chronic reference exposure level ($\mu\text{g}/\text{m}^3$)

The HQ approach assumes that there is a level of exposure at which it is unlikely that even sensitive populations would experience adverse health effects. If the exposure level exceeds the threshold (i.e., if HQ exceeds 1 or unity), there may be concern for potential noncancer effects. California Leaking Underground Fuel Tank (LUFT) policy guidance (State Water Resources Control Board [SWRCB], 2012) recommends the same risk management level of 1. Health risks less than or equal to 1 require no further action, while values exceeding 1 require further evaluation or a risk management decision.

The potential additivity of noncancer hazard due to exposure to multiple substances is quantified as a screening hazard index (HI), which is the sum of chemical-specific HQs for the data set (U.S. EPA, 1989). Usually, if the total screening HI is greater than 1, a potential for adverse noncancer health effects may exist. If the HI is equal to or less than 1, exposures to the COPCs are not expected to result in a systemic toxic response.

Current Onsite Commercial/Industrial Worker

The chemical-specific HQs and total noncancer HIs are calculated in Table F-3A and summarized in Table F-5. The total HIs for samples collected within IRP Site 1 in December

2014 and May 2015 range between 0.0002 and 0.04, which are all below the target noncancer HI of 1. The results indicate that exposure to chemicals in soil-gas at the site should not result in unacceptable noncarcinogenic health effects under the conditions evaluated.

Current Offsite Resident

The chemical-specific HQs and total noncancer HIs are calculated in Table F-3B and summarized in Table F-5. The total HIs for the samples collected closest to the adjacent residences to the southeast (SG09 and SG10) in December 2014 and May 2015 range between 0.007 and 0.02, which are all below the target noncancer hazard index of 1. The results indicate that exposure to chemicals in soil-gas off site should not result in unacceptable noncarcinogenic health effects under the conditions evaluated.

6.2 CANCER RISKS

Cancer risk is expressed as an increased probability of developing cancer as a result of exposure. The U.S. EPA cancer risk characterization methodology has historically assumed, for most carcinogens, that cancer induction does not have a threshold, and any dose, no matter how small, is associated with some incremental or excess cancer risk.

For the indoor commercial/industrial worker and offsite resident, the excess lifetime cancer risk (ELCR) associated with exposure to a COPC in indoor air was estimated by multiplying the daily exposure concentration by the IUR, according to the following equation (U.S. EPA, 1989):

$$\text{ELCR} = \text{EC} \times \text{IUR}$$

Where:

ELCR	=	excess lifetime cancer risk (unitless)
EC	=	daily exposure concentration ($\mu\text{g}/\text{m}^3$)
IUR	=	inhalation unit risk ($\mu\text{g}/\text{m}^3$) ⁻¹

The ELCR values are expressed in terms such as one-in-ten-thousand (1×10^{-4}) or one-in-one-million (1×10^{-6}). An excess cancer risk of 1×10^{-6} means that an exposed individual may have an added one-in-one million chance of developing cancer as a result of the exposure under evaluation.

To address exposure to multiple chemicals and exposure pathways for each receptor, chemical-specific and pathway-specific risks were summed to provide a total receptor ELCR. CalEPA's and U.S. EPA's cancer risk management range is 1×10^{-6} to 1×10^{-4} . California LUFT policy guidance (SWRCB, 2012) recommends the same risk management range. Health risks less than or equal to 1×10^{-6} require no further action. According to U.S. EPA, where the cumulative carcinogenic site risk to an individual is less than 1×10^{-4} , remedial action is generally not warranted unless there are other adverse environmental impacts or an applicable or relevant and appropriate requirement is exceeded. If the risk exceeds 1×10^{-6} , CalEPA typically requires

further evaluation or discussion of the risk so that appropriate risk management decisions can be made.

Current Onsite Commercial/Industrial Worker

The chemical-specific cancer risks and cumulative cancer risks are calculated for each sample in Table F-4A and summarized in Table F-5. The cumulative cancer risks range from 4×10^{-9} to 4×10^{-6} for the December 2014 and May 2015 sampling events, which are within or below the California LUFT cancer risk management range of 1×10^{-6} to 1×10^{-4} . It should be noted that only one depth (15 feet) at one of seven sample locations (SG14) exceeded a 1×10^{-6} cancer risk. Single detections of 1,4-dioxane and 1,3-dichloropropene contributed to 90 percent of the cancer risk at this depth. The May 2015 estimates are all below the target for no further action (1×10^{-6}) using conservative exposure assumptions in the indoor air modeling. The results indicate that commercial/industrial exposure to chemicals in soil-gas at the site should not result in unacceptable cancer risks under the conditions evaluated. The cancer risk estimates represent conservative building conditions (default 30-by-30-foot building) and full-time exposure for 25 years. The vehicle maintenance building is approximately 100 by 45 feet in size.

Current Offsite Resident

The chemical-specific cancer risks and cumulative cancer risks are calculated in Table F-4B and summarized in Table F-5. The estimated cancer risks for the current offsite resident's exposure to COPCs in soil-gas ranges from 2×10^{-7} to 8×10^{-7} for the December 2014 and May 2015 sampling events, which are below the California LUFT cancer risk management range of 1×10^{-6} to 1×10^{-4} . These estimates are below the target for no further action (1×10^{-6}) using conservative exposure assumptions in the indoor air modeling. Therefore, the results indicate that exposure to chemicals in soil-gas off site should not result in unacceptable cancer risks under the conditions evaluated for the offsite residents.

6.3 UNCERTAINTY ANALYSIS

Uncertainty is inherent in many aspects of the risk assessment process and generally arises from a lack of knowledge of (1) site conditions, (2) toxicity and dose-response of the COPCs, and (3) the extent to which an individual will be exposed to those chemicals. This lack of knowledge means that assumptions must be made based on information presented in the scientific literature or on professional judgment. While some assumptions have significant scientific basis, others have much less. The assumptions that introduce the greatest amount of uncertainty and their effect on the noncarcinogenic and carcinogenic risk estimates are discussed in Sections 6.3.1 through 6.3.3. This discussion is generally qualitative in nature, reflecting the difficulty in quantifying the uncertainty in specific assumptions. In general,

assumptions were selected in a manner that purposefully biases the process toward health conservatism.

6.3.1 Data Evaluation and Selection of Chemicals of Potential Concern

The selection of site-related COPCs was based upon the results of the sampling and analytical program established for IRP Site 1. The factors that contribute to the uncertainties associated with the identification of COPCs are inherent in the data collection and data evaluation processes, including appropriate sample locations, adequate sample quantities, laboratory analyses, and data validation.

For the purposes of this HHRA, all detected organic chemicals, regardless of their frequency of detection, were considered COPCs. Eleven chemicals were detected at low concentrations only once or twice during the current annual sampling events from seven soil-gas probe locations analyzed at three depths (a total of 21 samples and 3 duplicates). These chemicals (1,1,2,2-tetrachloroethane, 1,2,4-trichlorobenzene, 1,2-dichloropropane, 1,3,5-trimethylbenzene, 1,4-dioxane, chloromethane, ethyl acetate, naphthalene, trichloroethene, trichlorofluoromethane, and vinyl acetate) were still selected as COPCs, potentially overestimating the potential health risks posed by the site. Similarly, fourteen chemicals (carbon disulfide, chloromethane, 1,2-dichloropropane, cis-1,3-dichloropropene, 1,4-dioxane, ethyl acetate, ethylbenzene, methylene chloride, naphthalene, tetrahydrofuran, 1,2,4-trichlorobenzene, trichloroethene, 1,3,5-trimethylbenzene, and trichlorofluoromethane) were not detected in offsite soil-gas locations during this sampling event, but were included in the risk estimates for the offsite resident as a conservative measure, thus contributing to an overestimation of potential risk at this site. Specifically, although not detected offsite and only detected at one depth in one sample onsite (SG-14 at 15 ft bgs), 1,2,4-trichlorobenzene contributed to approximately 40 to 50 percent of the offsite resident's total noncancer HI.

6.3.2 Exposure Assessment

As is typical with HHRA, no factor was used to account for the likely changes in concentrations of COPCs in soil-gas at the site over time. Over the exposure periods evaluated in this HHRA, concentrations of COPCs in soil-gas likely will decrease as a result of degradation, volatilization, or other mechanisms. In particular, petroleum-related VOCs are known to biodegrade in the unsaturated zone under aerobic conditions (U.S. EPA, 2011).

Fate and transport models were used to estimate indoor air concentrations of COPCs volatilized from soil-gas. Very limited site-specific conditions were incorporated into the analysis and the models are screening-level models that typically are conservative and predict concentrations that overestimate risk. For example, default assumptions about existing and future building design have been incorporated into the indoor air model. The conclusions of the risk

assessment are therefore dependent on actual existing and future building conditions being consistent with those included in the model.

DTSC vapor intrusion guidance suggests that shallow soil-gas at many sites will have attenuation factors of between 0.002 and 0.0002 as indicated by the empirical data in U.S. EPA's attenuation factor database (DTSC, 2011). It should also be noted that the U.S. EPA attenuation factor database primarily describes residential buildings above coarser-grained soil in other states. Therefore, it may not be very representative of California's weather and building design. However, depending on the chemical and exposure scenario evaluated herein for IRP Site 1, the modeled attenuation factors for the shallow soil-gas sampling depth of 5 feet bgs were generally estimated within the range suggested by DTSC. Site-specific attenuation factors modeled were estimated between 0.0009 and 0.002 for residential exposure, which are within the DTSC-recommended range and are appropriate for the soil types modeled: sandy clay (on site) to sand (off site).

The exposure assessment includes a reasonable maximum exposure (RME) scenario, which is defined by U.S. EPA (1989) as the highest exposure that could reasonably be expected to occur for a given exposure pathway at a site. To achieve this goal, the RME is based on highly conservative exposure assumptions. For example, the evaluation assumes that a commercial worker will be present on site for 250 days per year for 25 years and that a nearby resident is present in his/her house 24 hours per day for 350 days per year for 26 years. This and other upper-bound estimates of exposure most likely overestimate the potential health risks associated with exposure to the COPCs in indoor air.

6.3.3 Toxicity Assessment

One of the largest sources of uncertainty in any risk assessment is associated with the scientific community's limited understanding of the toxicity of most chemicals in humans following exposure to the low concentrations generally encountered in the environment. The majority of available toxicity data are from animal studies, which are then extrapolated using mathematical models or multiple uncertainty factors to generate toxicity criteria used to predict possible responses in humans. Sources of conservatism in the toxicity criteria used in this evaluation include:

- The use of conservative methods and assumptions to extrapolate from high-dose animal studies to predict the possible response in humans at exposure levels far below those administered to animals;
- The assumption that chemicals considered to be carcinogens do not have thresholds (i.e., for all doses greater than zero, some risk is assumed to be present); and
- The fact that epidemiological studies (i.e., human exposure studies) are limited and are not generally considered in a quantitative manner in deriving toxicity values.

The toxicity criteria used in the HHRA are based on an evaluation of noncarcinogenic and carcinogenic health risks using different methods. The noncarcinogenic criteria (i.e., inhalation RELs) incorporate multiple uncertainty factors to account for limitations in the quality or quantity of available data (e.g., animal data in lieu of human data). These uncertainty factors are applied without regard to available data on the true likelihood of a variation in human response. Therefore, RELs may be hundreds of times smaller than doses that would actually cause adverse health effects. This purposeful bias in the development of RELs overestimates the actual potential for noncarcinogenic health risks for these chemicals.

The carcinogenic toxicity criteria (i.e., inhalation IURs) also are developed using techniques that purposefully bias the criteria toward health conservatism. For example, most IURs are based on the premise that cancer data from high-dose animal studies will predict cancer response in humans at dose levels thousands of times lower. The process also assumes that the carcinogenicity of a chemical in an animal model is representative of the response in humans. Finally, the statistical techniques used by regulatory agencies to extrapolate data from animals to human exposures generally assume that the dose-response curve is linear and that the 95% UCL of the slope is representative of the chemical's carcinogenic potency. In aggregate, these assumptions overestimate the actual risk estimates such that they are unlikely to be higher, but could be considerably lower and, in fact, could be non-existent.

7.0 CONCLUSIONS

The HHRA evaluated potential noncancer and cancer health risks from potential vapor intrusion for current onsite commercial/industrial workers and current offsite residents. The HHRA was based on measured soil-gas concentrations collected during the recent monitoring events (December 2014 and May 2015). The HHRA results for these monitoring events are similar to results from the previous two monitoring events (August 2013 and February 2014).

Relative to current site conditions, cumulative potential health risks from vapors migrating from soil-gas to indoor air were evaluated for an onsite commercial/industrial worker and an offsite resident (residences are located adjacent to the site on the southeast boundary). Soil-gas analytical results collected from 5, 10, and 15 feet bgs during the December 2014 and May 2015 field investigations were used to evaluate potential exposure in the HHRA. The corresponding potential health risks are summarized in Table F-5 and as follows:

- **Current Onsite Commercial/Industrial Worker:** The total noncancer HIs for current commercial/industrial indoor air exposure are below the California LUFT risk management threshold of 1 for all soil-gas samples collected on site. The range of total cancer risk predicted for commercial/industrial indoor air exposure is below the California LUFT cancer risk management range of 1×10^{-6} to 1×10^{-4} except for the maximum estimated cancer risk from the 15 feet bgs sample collected in December 2014 nearest the suspected gasoline UST location (SG14). The single detection of 1,2-dichloropropane and 1,4-dioxane in soil-gas probe SG14 contributes to

approximately 90 percent of the estimated cancer risk. 1,2-Dichloropropane has not been previously detected and 1,4-dioxane has not been detected since August 2012. The more shallow soil-gas samples collected (5 and 10 feet bgs) from this location are significantly (two to three orders of magnitude) below 1×10^{-6} for both seasonal sampling events. The results indicate that exposure to chemicals in soil-gas should not result in unacceptable cancer risks or noncancer hazards under the conditions evaluated for commercial/industrial exposure. Although the current onsite vehicle maintenance building is approximately 100 by 45 feet in size, the cancer risk estimates represent conservative building conditions (default 30-by-30-foot building) and full-time exposure for 25 years. Therefore, the onsite worker evaluation should be protective of future commercial/industrial workers.

- **Current Offsite Resident:** The total noncancer HIs for current offsite residential indoor air exposure are below the California LUFT risk management threshold of 1 for all soil-gas samples collected on site. The range of total cancer risks predicted for offsite residential indoor air is below the California LUFT cancer risk management range of 1×10^{-6} to 1×10^{-4} . The results indicate that exposure to chemicals in soil-gas should not result in unacceptable cancer risks or noncancer hazards under the conditions evaluated for the offsite residents.

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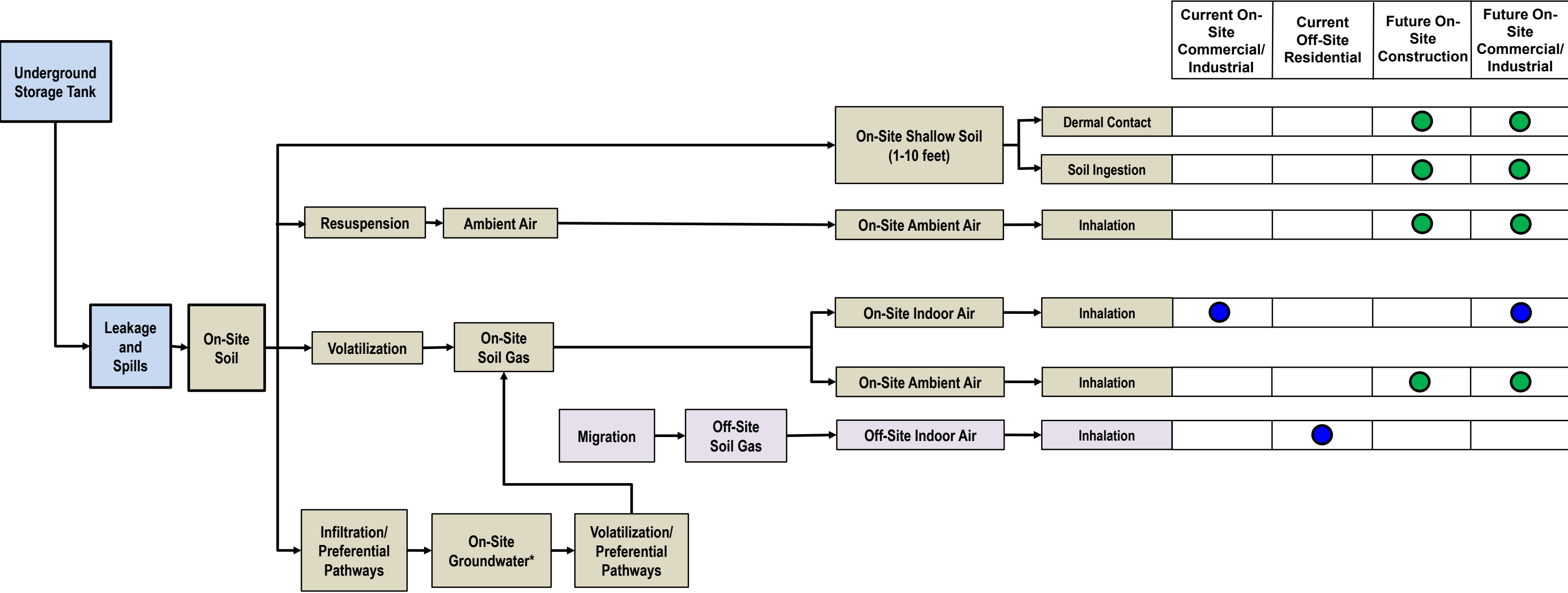
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Figures

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Potential Primary Source	Potential Release	Potential Source	Potential Release	Potential Source	Potential Release	Potential Source	Potential Release	Exposure Medium	Exposure Pathway	Potential Receptors			



EXPLANATION

- Evaluated in Human Health Risk Assessment Report (Amec Foster Wheeler, 2015)
- Evaluated in the Final Report for Site Inspection (CDM Federal Programs Corporation, 2002)

*Note: No drinking water wells exist on the property

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TABLE F-1
SOIL-GAS CONCENTRATIONS USED IN THE HUMAN HEALTH RISK EVALUATION
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth: (ft bgs)	1,1,2,2-TETRACHLOROETHANE		1,2,4-TRICHLOROBENZENE		1,2,4-TRIMETHYLBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,3,5-TRIMETHYLBENZENE		1,4-DIOXANE		2,2,4-TRIMETHYLPENTANE		ACETONE		BENZENE		CARBON DISULFIDE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG08-05	5	3.5	3.5	19	19	7.9	8.4	2.05	2.05	4.7	4.7	2.5	2.5	3.65	3.65	8.8	17	100	12	5.7	1.6	3.15	3.15
SG08-10	10	3.5	3.5	19	19	5.5	7.8	2.05	2.05	4.7	4.7	2.5	2.5	3.65	3.65	24	2.35	35	12	6.4	1.6	3.15	3.15
SG08-15	15	3.5	3.5	19	19	2.5	9.5	2.05	4.3	4.7	4.7	2.5	2.5	3.65	3.65	30	5.2	27	27	5.9	5.1	3.15	3.15
SG09-05	5	3.5	12	19	19	2.5	2.5	2.05	14	4.7	4.7	2.5	2.5	3.65	3.65	4.7	7.3	12	12	1.6	1.6	3.15	3.15
SG09-10	10	3.5	3.5	19	19	2.5	5.9	2.05	25	4.7	4.7	2.5	2.5	3.65	3.65	2.35	510	12	39	1.6	4.5	3.15	3.15
SG09-15	15	3.5	3.5	19	19	2.5	2.5	2.05	5.9	4.7	4.7	2.5	2.5	3.65	3.65	2.35	140	120	12	1.6	1.6	3.15	3.15
SG10-05	5	3.5	3.5	19	19	2.5	2.5	2.05	2.05	4.7	4.7	2.5	2.5	3.65	3.65	2.35	10	12	12	1.6	1.6	3.15	3.15
SG10-10	10	3.5	3.5	19	19	2.5	2.5	2.05	2.05	4.7	4.7	2.5	2.5	3.65	3.65	2.35	20	34	12	1.6	1.6	3.15	3.15
SG10-15	15	3.5	3.5	19	19	2.5	2.5	2.05	2.05	4.7	4.7	2.5	2.5	3.65	3.65	2.35	2.35	12	12	1.6	1.6	3.15	3.15
SG11-05	5	3.5	3.5	19	19	2.5	7.9	2.05	2.05	4.7	4.7	2.5	2.5	3.65	20	2.35	12	12	35	1.6	3.3	3.15	3.15
SG11-10	10	3.5	3.5	19	19	2.5	11	2.05	6.3	4.7	4.7	2.5	2.5	3.65	3.65	2.35	2.35	58	57	1.6	6.2	3.15	3.15
SG11-15	15	3.5	3.5	19	19	2.5	9	2.05	12	4.7	4.7	2.5	2.5	3.65	3.65	2.35	290	41	87	3.9	6.4	3.15	3.15
SG12-05	5	17.5	3.5	95	19	12.5	26	45	48	23.5	4.7	12.5	8.7	18	3.65	6600	1900	60	12	42	30	16	3.15
SG12-10	10	85	85	470	470	60	60	1300	1500	115	115	60	60	90	90	19000	660	300	300	220	240	80	210
SG12-15	15	85	85	470	470	60	60	2300	2000	115	115	60	60	90	90	4000	42000	300	300	350	270	80	80
SG13-05	5	3.5	3.5	19	19	8.9	17	16	13	4.7	4.7	2.5	2.5	3.65	3.65	270	150	12	36	4	20	3.15	3.15
SG13-10	10	17.5	3.5	95	19	12.5	12	180	220	23.5	4.7	12.5	2.5	18	3.65	72	7.4	60	110	8	32	16	10
SG13-15	15	3.5	3.5	19	19	5.4	14	180	850	4.7	4.7	2.5	2.5	3.65	3.65	35	2100	12	340	1.6	72	3.15	17
SG14-05	5	3.5	3.5	19	19	2.5	2.5	2.05	2.05	4.7	4.7	2.5	2.5	3.65	3.65	5	10	12	43	1.6	8.6	3.15	3.15
SG14-10	10	3.5	3.5	19	19	2.5	2.5	2.05	2.05	4.7	4.7	2.5	2.5	3.65	12	10	6	12	29	1.6	7.2	3.15	3.15
SG14-15	15	95	85	690	470	95	1100	115	50	740	115	55	790	27000	90	60	26000	1600	300	130	1400	80	80

Abbreviations:

µg/m³ = micrograms per cubic meter

ft bgs = feet below ground surface

Notes:

All compounds detected at least once were evaluated; if compound was not detected in a particular sample, one-half of the reporting limit was used in the risk evaluation.

TABLE F-1
SOIL-GAS CONCENTRATIONS USED IN THE HUMAN HEALTH RISK EVALUATION
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth: (ft bgs)	CHLOROMETHANE		CIS-1,3-DICHLOROPROPENE		CYCLOHEXANE		ETHYL ACETATE		ETHYLBENZENE		HEPTANE		HEXANE		M- AND P-XYLENE		METHYLENE CHLORIDE		NAPHTHALENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG08-05	5	1.05	1.05	2.3	2.3	8.5	18	9	9	18	5.1	2.05	2.05	1.8	8.4	120	26	1.75	1.75	2.65	2.65
SG08-10	10	1.05	1.05	2.3	2.3	8.5	8.5	9	9	13	4.9	2.05	2.05	1.8	21	89	25	1.75	1.75	2.65	2.65
SG08-15	15	1.05	1.05	2.3	2.3	8.5	8.5	9	9	12	7.8	2.05	6.8	4.6	42	80	32	1.75	1.75	2.65	2.65
SG09-05	5	1.05	1.05	2.3	2.3	8.5	22	9	9	2.2	2.2	2.05	8.3	1.8	73	4.4	12	1.75	1.75	2.65	2.65
SG09-10	10	1.05	1.05	2.3	2.3	8.5	140	9	9	2.2	2.2	2.05	55	1.8	380	4.4	12	1.75	1.75	2.65	2.65
SG09-15	15	1.05	1.05	2.3	2.3	8.5	8.5	9	9	2.2	2.2	2.05	14	1.8	96	4.4	10	1.75	1.75	2.65	2.65
SG10-05	5	1.05	1.05	2.3	2.3	8.5	8.5	9	9	2.2	2.2	2.05	2.05	1.8	6.7	4.4	4.4	1.75	1.75	2.65	2.65
SG10-10	10	1.05	1.05	2.3	2.3	8.5	21	9	9	2.2	2.2	2.05	2.05	1.8	11	4.4	9.5	1.75	1.75	2.65	2.65
SG10-15	15	1.05	1.05	2.3	2.3	8.5	8.5	9	9	2.2	2.2	2.05	2.05	1.8	1.8	4.4	4.4	1.75	1.75	2.65	2.65
SG11-05	5	1.05	1.05	2.3	2.3	8.5	8.5	9	9	2.2	2.2	2.05	2.05	1.8	3.8	4.4	15	1.75	1.75	2.65	2.65
SG11-10	10	1.05	1.05	2.3	2.3	8.5	46	9	9	2.2	6.5	2.05	6	1.8	39	4.4	21	1.75	1.75	2.65	2.65
SG11-15	15	1.05	1.05	2.3	2.3	8.5	88	9	9	2.2	15	2.05	22	1.8	160	4.4	19	1.75	1.75	2.65	2.65
SG12-05	5	5	1.05	11.5	2.3	43.5	60	45.5	9	11	9.5	10.5	21	27	200	77	39	9	1.75	13.5	2.65
SG12-10	10	26	26	60	60	810	2100	230	230	55	55	290	1100	2500	9300	110	110	44	44	65	65
SG12-15	15	26	26	60	60	10000	12000	230	230	55	120	4600	5600	32000	42000	110	110	44	89	65	65
SG13-05	5	1.05	1.05	2.3	2.3	30	35	9	9	7.3	9.1	17	23	45	59	4.4	37	1.75	1.75	2.65	6.7
SG13-10	10	5	2.9	11.5	2.3	43.5	25	45.5	9	11	5.9	10.5	12	21	49	22	24	9	5.9	13.5	2.65
SG13-15	15	1.05	3	2.3	2.3	8.5	21	9	9	2.2	26	2.05	11	9	75	12	32	1.75	4.5	2.65	2.65
SG14-05	5	1.05	1.05	2.3	2.3	8.5	8.5	9	9	2.2	2.2	2.05	2.05	1.8	3.7	4.4	4.4	1.75	1.75	2.65	2.65
SG14-10	10	1.05	1.05	2.3	2.3	8.5	8.5	9	9	6.7	2.2	2.05	2.05	1.8	1.8	4.4	4.4	1.75	1.75	2.65	2.65
SG14-15	15	50	26	14000	60	110	12000	210	230	15000	55	12000	13000	6300	12000	45.5	5400	65	44	290	65

TABLE F-1
SOIL-GAS CONCENTRATIONS USED IN THE HUMAN HEALTH RISK EVALUATION
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth: (ft bgs)	O-XYLENE		TETRACHLOROETHENE		TETRAHYDROFURAN		TOLUENE		TRICHLOROETHENE		TRICHLORO- FLUOROMETHANE		VINYL ACETATE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG08-05	5	33	12	7.5	3.45	15	15	120	14	2.75	2.75	7.7	8.2	1.8	1.8
SG08-10	10	22	12	15	14	41	36	110	14	2.75	2.75	2.8	2.8	1.8	1.8
SG08-15	15	18	15	24	21	48	37	110	18	2.75	2.75	2.8	2.8	1.8	1.8
SG09-05	5	2.2	5.3	95	74	15	15	9.5	8.5	2.75	2.75	2.8	2.8	1.8	1.8
SG09-10	10	2.2	9.9	78	66	15	15	5.8	12	2.75	2.75	2.8	2.8	1.8	1.8
SG09-15	15	2.2	2.2	65	64	15	15	6.4	7.8	2.75	2.75	2.8	2.8	1.8	1.8
SG10-05	5	2.2	2.2	210	260	15	15	4.1	6.2	2.75	2.75	2.8	2.8	1.8	11
SG10-10	10	2.2	2.2	200	160	15	15	4.9	7.7	2.75	2.75	2.8	2.8	1.8	1.8
SG10-15	15	2.2	2.2	120	110	15	15	1.9	7.5	2.75	2.75	2.8	2.8	1.8	1.8
SG11-05	5	2.2	5.6	110	140	15	15	4.8	15	2.75	2.75	2.8	2.8	1.8	1.8
SG11-10	10	2.2	9.5	97	80	15	15	4.9	15	2.75	2.75	2.8	2.8	1.8	1.8
SG11-15	15	2.2	8	48	57	15	15	9.2	15	2.75	2.75	2.8	2.8	1.8	1.8
SG12-05	5	24	23	49	49	75	15	45	31	13.5	2.75	14	2.8	9	1.8
SG12-10	10	55	55	85	85	375	375	140	130	70	70	70	70	44.5	44.5
SG12-15	15	55	110	85	85	375	375	430	260	70	70	70	70	44.5	44.5
SG13-05	5	2.2	16	3.45	16	15	15	10	16	2.75	9.8	2.8	2.8	1.8	1.8
SG13-10	10	11	11	17	3.45	75	15	9.5	22	13.5	2.75	14	6	9	1.8
SG13-15	15	5.9	14	3.45	3.45	15	15	7.2	26	2.75	40	2.8	2.8	1.8	1.8
SG14-05	5	2.2	2.2	3.45	3.45	15	15	4.2	4.4	2.75	2.75	2.8	2.8	1.8	1.8
SG14-10	10	2.2	2.2	7.5	3.45	15	15	5.3	6.4	2.75	2.75	2.8	2.8	1.8	1.8
SG14-15	15	55	120	375	85	100	375	100	130	70	70	44.5	70	32.5	44.5

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TABLE F-2A

ESTIMATED INDOOR AIR CONCENTRATIONS - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	1,1,2,2-TETRACHLOROETHANE		1,2,4-TRICHLOROETHANE		1,2,4-TRIMETHYLBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,3,5-TRIMETHYLBENZENE		1,4-DIOXANE		2,2,4-TRIMETHYLPENTANE		ACETONE		BENZENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG08-05	5	4.41E-04	4.41E-04	1.96E-03	1.96E-03	1.19E-03	1.26E-03	4.16E-04	4.16E-04	8.34E-04	8.34E-04	3.73E-04	3.73E-04	1.20E-03	1.20E-03	--	--	2.59E-02	3.11E-03	1.20E-03	3.36E-04
SG08-10	10	2.19E-04	2.19E-04	9.61E-04	9.61E-04	4.16E-04	5.89E-04	2.14E-04	2.14E-04	4.24E-04	4.24E-04	1.88E-04	1.88E-04	6.57E-04	6.57E-04	--	--	4.80E-03	1.65E-03	6.93E-04	1.73E-04
SG08-15	15	1.46E-04	1.46E-04	6.37E-04	6.37E-04	1.26E-04	4.79E-04	1.44E-04	3.02E-04	2.84E-04	2.84E-04	1.25E-04	1.25E-04	4.53E-04	4.53E-04	--	--	2.52E-03	2.52E-03	4.31E-04	3.72E-04
SG09-05	5	4.41E-04	1.51E-03	1.96E-03	1.96E-03	3.76E-04	3.76E-04	4.16E-04	2.84E-03	8.34E-04	8.34E-04	3.73E-04	3.73E-04	1.20E-03	1.20E-03	--	--	3.11E-03	3.11E-03	3.36E-04	3.36E-04
SG09-10	10	2.19E-04	2.19E-04	9.61E-04	9.61E-04	1.89E-04	4.46E-04	2.14E-04	2.61E-03	4.24E-04	4.24E-04	1.88E-04	1.88E-04	6.57E-04	6.57E-04	--	--	1.65E-03	5.35E-03	1.73E-04	4.87E-04
SG09-15	15	1.46E-04	1.46E-04	6.37E-04	6.37E-04	1.26E-04	1.26E-04	1.44E-04	4.15E-04	2.84E-04	2.84E-04	1.25E-04	1.25E-04	4.53E-04	4.53E-04	--	--	1.12E-02	1.12E-03	1.17E-04	1.17E-04
SG10-05	5	4.41E-04	4.41E-04	1.96E-03	1.96E-03	3.76E-04	3.76E-04	4.16E-04	4.16E-04	8.34E-04	8.34E-04	3.73E-04	3.73E-04	1.20E-03	1.20E-03	--	--	3.11E-03	3.11E-03	3.36E-04	3.36E-04
SG10-10	10	2.19E-04	2.19E-04	9.61E-04	9.61E-04	1.89E-04	1.89E-04	2.14E-04	2.14E-04	4.24E-04	4.24E-04	1.88E-04	1.88E-04	6.57E-04	6.57E-04	--	--	4.66E-03	1.65E-03	1.73E-04	1.73E-04
SG10-15	15	1.46E-04	1.46E-04	6.37E-04	6.37E-04	1.26E-04	1.26E-04	1.44E-04	1.44E-04	2.84E-04	2.84E-04	1.25E-04	1.25E-04	4.53E-04	4.53E-04	--	--	1.12E-03	1.12E-03	1.17E-04	1.17E-04
SG11-05	5	4.41E-04	4.41E-04	1.96E-03	1.96E-03	3.76E-04	1.19E-03	4.16E-04	4.16E-04	8.34E-04	8.34E-04	3.73E-04	3.73E-04	1.20E-03	6.55E-03	--	--	3.11E-03	9.07E-03	3.36E-04	6.92E-04
SG11-10	10	2.19E-04	2.19E-04	9.61E-04	9.61E-04	1.89E-04	8.31E-04	2.14E-04	6.58E-04	4.24E-04	4.24E-04	1.88E-04	1.88E-04	6.57E-04	6.57E-04	--	--	7.95E-03	7.82E-03	1.73E-04	6.72E-04
SG11-15	15	1.46E-04	1.46E-04	6.37E-04	6.37E-04	1.26E-04	4.54E-04	1.44E-04	8.43E-04	2.84E-04	2.84E-04	1.25E-04	1.25E-04	4.53E-04	4.53E-04	--	--	3.82E-03	8.11E-03	2.85E-04	4.67E-04
SG12-05	5	2.21E-03	4.41E-04	9.78E-03	1.96E-03	1.88E-03	3.91E-03	9.12E-03	9.73E-03	4.17E-03	8.34E-04	1.87E-03	1.30E-03	5.90E-03	1.20E-03	--	--	1.55E-02	3.11E-03	8.81E-03	6.29E-03
SG12-10	10	5.32E-03	5.32E-03	2.38E-02	2.38E-02	4.53E-03	4.53E-03	1.36E-01	1.57E-01	1.04E-02	1.04E-02	4.50E-03	4.50E-03	1.62E-02	1.62E-02	--	--	4.11E-02	4.11E-02	2.38E-02	2.60E-02
SG12-15	15	3.54E-03	3.54E-03	1.58E-02	1.58E-02	3.03E-03	3.03E-03	1.62E-01	1.41E-01	6.96E-03	6.96E-03	3.00E-03	3.00E-03	1.12E-02	1.12E-02	--	--	2.80E-02	2.80E-02	2.56E-02	1.97E-02
SG13-05	5	4.41E-04	4.41E-04	1.96E-03	1.96E-03	1.34E-03	2.56E-03	3.24E-03	2.64E-03	8.34E-04	8.34E-04	3.73E-04	3.73E-04	1.20E-03	1.20E-03	--	--	3.11E-03	9.33E-03	8.39E-04	4.19E-03
SG13-10	10	1.10E-03	2.19E-04	4.81E-03	9.61E-04	9.44E-04	9.07E-04	1.88E-02	2.30E-02	2.12E-03	4.24E-04	9.38E-04	1.88E-04	3.24E-03	6.57E-04	--	--	8.23E-03	1.51E-02	8.67E-04	3.47E-03
SG13-15	15	1.46E-04	1.46E-04	6.37E-04	6.37E-04	2.72E-04	7.06E-04	1.26E-02	5.97E-02	2.84E-04	2.84E-04	1.25E-04	1.25E-04	4.53E-04	4.53E-04	--	--	1.12E-03	3.17E-02	1.17E-04	5.26E-03
SG14-05	5	4.41E-04	4.41E-04	1.96E-03	1.96E-03	3.76E-04	3.76E-04	4.16E-04	4.16E-04	8.34E-04	8.34E-04	3.73E-04	3.73E-04	1.20E-03	1.20E-03	--	--	3.11E-03	1.11E-02	3.36E-04	1.80E-03
SG14-10	10	2.19E-04	2.19E-04	9.61E-04	9.61E-04	1.89E-04	1.89E-04	2.14E-04	2.14E-04	4.24E-04	4.24E-04	1.88E-04	1.88E-04	6.57E-04	2.16E-03	--	--	1.65E-03	3.98E-03	1.73E-04	7.80E-04
SG14-15	15	3.96E-03	3.54E-03	2.31E-02	1.58E-02	4.79E-03	5.55E-02	8.08E-03	3.51E-03	4.48E-02	6.96E-03	2.75E-03	3.96E-02	3.35E+00	1.12E-02	--	--	1.49E-01	2.80E-02	9.49E-03	1.02E-01
Commercial/Industrial Attenuation Factors (AF) ¹	5	1.26E-04		1.03E-04		1.50E-04		2.03E-04		1.77E-04		1.49E-04		3.28E-04		--		2.59E-04		2.10E-04	
	10	6.26E-05		5.06E-05		7.56E-05		1.04E-04		9.02E-05		7.50E-05		1.80E-04		--		1.37E-04		1.08E-04	
	15	4.17E-05		3.35E-05		5.04E-05		7.03E-05		6.05E-05		5.01E-05		1.24E-04		--		9.32E-05		7.30E-05	

TABLE F-2A

ESTIMATED INDOOR AIR CONCENTRATIONS - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	CARBON DISULFIDE		CHLOROMETHANE		CIS-1,3-DICHLOROPROPENE		CYCLOHEXANE		ETHYL ACETATE		ETHYLBENZENE		HEPTANE		HEXANE		M- AND P-XYLENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG08-05	5	7.61E-04	7.61E-04	2.86E-04	2.86E-04	4.22E-04	4.22E-04	1.62E-03	3.43E-03	1.80E-03	1.80E-03	3.01E-03	8.52E-04	4.24E-04	4.24E-04	3.18E-04	1.48E-03	2.00E-02	4.34E-03
SG08-10	10	3.99E-04	3.99E-04	1.52E-04	1.52E-04	2.15E-04	2.15E-04	8.30E-04	8.30E-04	9.26E-04	9.26E-04	1.10E-03	4.14E-04	2.18E-04	2.18E-04	1.62E-04	1.89E-03	7.52E-03	2.11E-03
SG08-15	15	2.70E-04	2.70E-04	1.04E-04	1.04E-04	1.44E-04	1.44E-04	5.58E-04	5.58E-04	6.23E-04	6.23E-04	6.79E-04	4.42E-04	1.47E-04	4.88E-04	2.77E-04	2.53E-03	4.52E-03	1.81E-03
SG09-05	5	7.61E-04	7.61E-04	2.86E-04	2.86E-04	4.22E-04	4.22E-04	1.62E-03	4.20E-03	1.80E-03	1.80E-03	3.68E-04	3.68E-04	4.24E-04	1.72E-03	3.18E-04	1.29E-02	7.34E-04	2.00E-03
SG09-10	10	3.99E-04	3.99E-04	1.52E-04	1.52E-04	2.15E-04	2.15E-04	8.30E-04	1.37E-02	9.26E-04	9.26E-04	1.86E-04	1.86E-04	2.18E-04	5.86E-03	1.62E-04	3.41E-02	3.72E-04	1.01E-03
SG09-15	15	2.70E-04	2.70E-04	1.04E-04	1.04E-04	1.44E-04	1.44E-04	5.58E-04	5.58E-04	6.23E-04	6.23E-04	1.25E-04	1.25E-04	1.47E-04	1.01E-03	1.08E-04	5.78E-03	2.49E-04	5.65E-04
SG10-05	5	7.61E-04	7.61E-04	2.86E-04	2.86E-04	4.22E-04	4.22E-04	1.62E-03	1.62E-03	1.80E-03	1.80E-03	3.68E-04	3.68E-04	4.24E-04	4.24E-04	3.18E-04	1.18E-03	7.34E-04	7.34E-04
SG10-10	10	3.99E-04	3.99E-04	1.52E-04	1.52E-04	2.15E-04	2.15E-04	8.30E-04	2.05E-03	9.26E-04	9.26E-04	1.86E-04	1.86E-04	2.18E-04	2.18E-04	1.62E-04	9.88E-04	3.72E-04	8.02E-04
SG10-15	15	2.70E-04	2.70E-04	1.04E-04	1.04E-04	1.44E-04	1.44E-04	5.58E-04	5.58E-04	6.23E-04	6.23E-04	1.25E-04	1.25E-04	1.47E-04	1.47E-04	1.08E-04	1.08E-04	2.49E-04	2.49E-04
SG11-05	5	7.61E-04	7.61E-04	2.86E-04	2.86E-04	4.22E-04	4.22E-04	1.62E-03	1.62E-03	1.80E-03	1.80E-03	3.68E-04	3.68E-04	4.24E-04	4.24E-04	3.18E-04	6.71E-04	7.34E-04	2.50E-03
SG11-10	10	3.99E-04	3.99E-04	1.52E-04	1.52E-04	2.15E-04	2.15E-04	8.30E-04	4.49E-03	9.26E-04	9.26E-04	1.86E-04	5.50E-04	2.18E-04	6.39E-04	1.62E-04	3.50E-03	3.72E-04	1.77E-03
SG11-15	15	2.70E-04	2.70E-04	1.04E-04	1.04E-04	1.44E-04	1.44E-04	5.58E-04	5.77E-03	6.23E-04	6.23E-04	1.25E-04	8.49E-04	1.47E-04	1.58E-03	1.08E-04	9.64E-03	2.49E-04	1.07E-03
SG12-05	5	3.86E-03	7.61E-04	1.36E-03	2.86E-04	2.11E-03	4.22E-04	8.30E-03	1.14E-02	9.10E-03	1.80E-03	1.84E-03	1.59E-03	2.17E-03	4.34E-03	4.77E-03	3.53E-02	1.28E-02	6.51E-03
SG12-10	10	1.01E-02	2.66E-02	3.77E-03	3.77E-03	5.61E-03	5.61E-03	7.91E-02	2.05E-01	2.37E-02	2.37E-02	4.65E-03	4.65E-03	3.09E-02	1.17E-01	2.25E-01	8.35E-01	9.29E-03	9.29E-03
SG12-15	15	6.86E-03	6.86E-03	2.57E-03	2.57E-03	3.77E-03	3.77E-03	6.56E-01	7.87E-01	1.59E-02	1.59E-02	3.11E-03	6.79E-03	3.30E-01	4.02E-01	1.93E+00	2.53E+00	6.22E-03	6.22E-03
SG13-05	5	7.61E-04	7.61E-04	2.86E-04	2.86E-04	4.22E-04	4.22E-04	5.72E-03	6.67E-03	1.80E-03	1.80E-03	1.22E-03	1.52E-03	3.51E-03	4.75E-03	7.95E-03	1.04E-02	7.34E-04	6.17E-03
SG13-10	10	2.03E-03	1.27E-03	7.25E-04	4.21E-04	1.08E-03	2.15E-04	4.25E-03	2.44E-03	4.68E-03	9.26E-04	9.30E-04	4.99E-04	1.12E-03	1.28E-03	1.89E-03	4.40E-03	1.86E-03	2.03E-03
SG13-15	15	2.70E-04	1.46E-03	1.04E-04	2.96E-04	1.44E-04	1.44E-04	5.58E-04	1.38E-03	6.23E-04	6.23E-04	1.25E-04	1.47E-03	1.47E-04	7.90E-04	5.42E-04	4.52E-03	6.78E-04	1.81E-03
SG14-05	5	7.61E-04	7.61E-04	2.86E-04	2.86E-04	4.22E-04	4.22E-04	1.62E-03	1.62E-03	1.80E-03	1.80E-03	3.68E-04	3.68E-04	4.24E-04	4.24E-04	3.18E-04	6.54E-04	7.34E-04	7.34E-04
SG14-10	10	3.99E-04	3.99E-04	1.52E-04	1.52E-04	2.15E-04	2.15E-04	8.30E-04	8.30E-04	9.26E-04	9.26E-04	5.67E-04	1.86E-04	2.18E-04	2.18E-04	1.62E-04	1.62E-04	3.72E-04	3.72E-04
SG14-15	15	6.86E-03	6.86E-03	4.94E-03	2.57E-03	8.79E-01	3.77E-03	7.21E-03	7.87E-01	1.45E-02	1.59E-02	8.49E-01	3.11E-03	8.61E-01	9.33E-01	3.79E-01	7.23E-01	2.57E-03	3.05E-01
Commercial/Industrial Attenuation Factors (AF) ¹	5	2.41E-04		2.72E-04		1.83E-04		1.91E-04		2.00E-04		1.67E-04		2.07E-04		1.77E-04		1.67E-04	
	10	1.27E-04		1.45E-04		9.35E-05		9.76E-05		1.03E-04		8.46E-05		1.07E-04		8.98E-05		8.45E-05	
	15	8.58E-05		9.88E-05		6.28E-05		6.56E-05		6.92E-05		5.66E-05		7.18E-05		6.02E-05		5.65E-05	

TABLE F-2A

ESTIMATED INDOOR AIR CONCENTRATIONS - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	METHYLENE CHLORIDE		NAPHTHALENE		O-XYLENE		TETRACHLOROETHENE		TETRAHYDROFURAN		TOLUENE		TRICHLOROETHENE		TRICHLORO-FLUOROMETHANE		VINYL ACETATE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG08-05	5	4.02E-04	4.02E-04	4.01E-04	4.01E-04	5.55E-03	2.02E-03	9.58E-04	4.41E-04	3.45E-03	3.45E-03	2.24E-02	2.61E-03	4.61E-04	4.61E-04	1.24E-03	1.32E-03	3.63E-04	3.63E-04
SG08-10	10	2.10E-04	2.10E-04	2.02E-04	2.02E-04	1.87E-03	1.02E-03	9.52E-04	8.89E-04	4.92E-03	4.32E-03	1.05E-02	1.33E-03	2.33E-04	2.33E-04	2.27E-04	2.27E-04	1.87E-04	1.87E-04
SG08-15	15	1.42E-04	1.42E-04	1.35E-04	1.35E-04	1.03E-03	8.55E-04	1.01E-03	8.87E-04	3.90E-03	3.00E-03	7.03E-03	1.15E-03	1.56E-04	1.56E-04	1.52E-04	1.52E-04	1.26E-04	1.26E-04
SG09-05	5	4.02E-04	4.02E-04	4.01E-04	4.01E-04	3.70E-04	8.91E-04	1.21E-02	9.45E-03	3.45E-03	3.45E-03	1.77E-03	1.58E-03	4.61E-04	4.61E-04	4.49E-04	4.49E-04	3.63E-04	3.63E-04
SG09-10	10	2.10E-04	2.10E-04	2.02E-04	2.02E-04	1.87E-04	8.43E-04	4.95E-03	4.19E-03	1.80E-03	1.80E-03	5.52E-04	1.14E-03	2.33E-04	2.33E-04	2.27E-04	2.27E-04	1.87E-04	1.87E-04
SG09-15	15	1.42E-04	1.42E-04	1.35E-04	1.35E-04	1.25E-04	1.25E-04	2.75E-03	2.70E-03	1.22E-03	1.22E-03	4.09E-04	4.99E-04	1.56E-04	1.56E-04	1.52E-04	1.52E-04	1.26E-04	1.26E-04
SG10-05	5	4.02E-04	4.02E-04	4.01E-04	4.01E-04	3.70E-04	3.70E-04	2.68E-02	3.32E-02	3.45E-03	3.45E-03	7.64E-04	1.16E-03	4.61E-04	4.61E-04	4.49E-04	4.49E-04	3.63E-04	2.22E-03
SG10-10	10	2.10E-04	2.10E-04	2.02E-04	2.02E-04	1.87E-04	1.87E-04	1.27E-02	1.02E-02	1.80E-03	1.80E-03	4.67E-04	7.33E-04	2.33E-04	2.33E-04	2.27E-04	2.27E-04	1.87E-04	1.87E-04
SG10-15	15	1.42E-04	1.42E-04	1.35E-04	1.35E-04	1.25E-04	1.25E-04	5.07E-03	4.65E-03	1.22E-03	1.22E-03	1.21E-04	4.80E-04	1.56E-04	1.56E-04	1.52E-04	1.52E-04	1.26E-04	1.26E-04
SG11-05	5	4.02E-04	4.02E-04	4.01E-04	4.01E-04	3.70E-04	9.41E-04	1.40E-02	1.79E-02	3.45E-03	3.45E-03	8.95E-04	2.80E-03	4.61E-04	4.61E-04	4.49E-04	4.49E-04	3.63E-04	3.63E-04
SG11-10	10	2.10E-04	2.10E-04	2.02E-04	2.02E-04	1.87E-04	8.09E-04	6.16E-03	5.08E-03	1.80E-03	1.80E-03	4.67E-04	1.43E-03	2.33E-04	2.33E-04	2.27E-04	2.27E-04	1.87E-04	1.87E-04
SG11-15	15	1.42E-04	1.42E-04	1.35E-04	1.35E-04	1.25E-04	4.56E-04	2.03E-03	2.41E-03	1.22E-03	1.22E-03	5.88E-04	9.59E-04	1.56E-04	1.56E-04	1.52E-04	1.52E-04	1.26E-04	1.26E-04
SG12-05	5	2.07E-03	4.02E-04	2.04E-03	4.01E-04	4.03E-03	3.87E-03	6.26E-03	6.26E-03	1.73E-02	3.45E-03	8.39E-03	5.78E-03	2.26E-03	4.61E-04	2.25E-03	4.49E-04	1.82E-03	3.63E-04
SG12-10	10	5.27E-03	5.27E-03	4.94E-03	4.94E-03	4.68E-03	4.68E-03	5.40E-03	5.40E-03	4.50E-02	4.50E-02	1.33E-02	1.24E-02	5.94E-03	5.94E-03	5.67E-03	5.67E-03	4.62E-03	4.62E-03
SG12-15	15	3.56E-03	7.21E-03	3.30E-03	3.30E-03	3.13E-03	6.27E-03	3.59E-03	3.59E-03	3.04E-02	3.04E-02	2.75E-02	1.66E-02	3.97E-03	3.97E-03	3.79E-03	3.79E-03	3.11E-03	3.11E-03
SG13-05	5	4.02E-04	4.02E-04	4.01E-04	1.01E-03	3.70E-04	2.69E-03	4.41E-04	2.04E-03	3.45E-03	3.45E-03	1.86E-03	2.98E-03	4.61E-04	1.64E-03	4.49E-04	4.49E-04	3.63E-04	3.63E-04
SG13-10	10	1.08E-03	7.06E-04	1.03E-03	2.02E-04	9.36E-04	9.36E-04	1.08E-03	2.19E-04	9.00E-03	1.80E-03	9.05E-04	2.09E-03	1.14E-03	2.33E-04	1.13E-03	4.86E-04	9.34E-04	1.87E-04
SG13-15	15	1.42E-04	3.64E-04	1.35E-04	1.35E-04	3.36E-04	7.98E-04	1.46E-04	1.46E-04	1.22E-03	1.22E-03	4.60E-04	1.66E-03	1.56E-04	2.27E-03	1.52E-04	1.52E-04	1.26E-04	1.26E-04
SG14-05	5	4.02E-04	4.02E-04	4.01E-04	4.01E-04	3.70E-04	3.70E-04	4.41E-04	4.41E-04	3.45E-03	3.45E-03	7.83E-04	8.20E-04	4.61E-04	4.61E-04	4.49E-04	4.49E-04	3.63E-04	3.63E-04
SG14-10	10	2.10E-04	2.10E-04	2.02E-04	2.02E-04	1.87E-04	1.87E-04	4.76E-04	2.19E-04	1.80E-03	1.80E-03	5.05E-04	6.09E-04	2.33E-04	2.33E-04	2.27E-04	2.27E-04	1.87E-04	1.87E-04
SG14-15	15	5.26E-03	3.56E-03	1.47E-02	3.30E-03	3.13E-03	6.84E-03	1.58E-02	3.59E-03	8.12E-03	3.04E-02	6.39E-03	8.31E-03	3.97E-03	3.97E-03	2.41E-03	3.79E-03	2.27E-03	3.11E-03
Commercial/Industrial Attenuation Factors (AF) ¹	5	2.30E-04		1.51E-04		1.68E-04		1.28E-04		2.30E-04		1.86E-04		1.67E-04		1.60E-04		2.02E-04	
	10	1.20E-04		7.61E-05		8.51E-05		6.35E-05		1.20E-04		9.52E-05		8.48E-05		8.09E-05		1.04E-04	
	15	8.10E-05		5.08E-05		5.70E-05		4.22E-05		8.12E-05		6.39E-05		5.68E-05		5.41E-05		6.99E-05	

TABLE F-2A

ESTIMATED INDOOR AIR CONCENTRATIONS - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Notes:
1. Chemical and depth-specific attenuation factors (AFs) are calculated using the Johnson and Ettinger Model and the parameters specified in Attachment A-1. The Johnson and Ettinger model is also provided in Attachment A.

Abbreviations:
-- = not available/applicable
 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
 C_{sg} = Soil-Gas Concentration

Equation
Predicted Concentration in Indoor Air (C_{air}) ($\mu\text{g}/\text{m}^3$) = C_{sg} x AF

TABLE F-2B

ESTIMATED INDOOR AIR CONCENTRATIONS - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	1,1,2,2-TETRACHLOROETHANE		1,2,4-TRICHLOROBENZENE		1,2,4-TRIMETHYLBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,3,5-TRIMETHYLBENZENE		1,4-DIOXANE		2,2,4-TRIMETHYLPENTANE		ACETONE		BENZENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG09-05	5	3.43E-03	1.18E-02	1.63E-02	1.63E-02	2.77E-03	2.77E-03	2.71E-03	1.85E-02	5.76E-03	5.76E-03	2.76E-03	2.76E-03	4.87E-03	4.87E-03	--	--	1.74E-02	1.74E-02	2.16E-03	2.16E-03
SG09-10	10	2.09E-03	2.09E-03	9.63E-03	9.63E-03	1.75E-03	4.13E-03	1.81E-03	2.21E-02	3.75E-03	3.75E-03	1.74E-03	1.74E-03	3.27E-03	3.27E-03	--	--	1.21E-02	3.93E-02	1.46E-03	4.09E-03
SG09-15	15	1.50E-03	1.50E-03	6.84E-03	6.84E-03	1.28E-03	1.28E-03	1.36E-03	3.93E-03	2.78E-03	2.78E-03	1.27E-03	1.27E-03	2.47E-03	2.47E-03	--	--	9.28E-02	9.28E-03	1.10E-03	1.10E-03
SG10-05	5	3.43E-03	3.43E-03	1.63E-02	1.63E-02	2.77E-03	2.77E-03	2.71E-03	2.71E-03	5.76E-03	5.76E-03	2.76E-03	2.76E-03	4.87E-03	4.87E-03	--	--	1.74E-02	1.74E-02	2.16E-03	2.16E-03
SG10-10	10	2.09E-03	2.09E-03	9.63E-03	9.63E-03	1.75E-03	1.75E-03	1.81E-03	1.81E-03	3.75E-03	3.75E-03	1.74E-03	1.74E-03	3.27E-03	3.27E-03	--	--	3.43E-02	1.21E-02	1.46E-03	1.46E-03
SG10-15	15	1.50E-03	1.50E-03	6.84E-03	6.84E-03	1.28E-03	1.28E-03	1.36E-03	1.36E-03	2.78E-03	2.78E-03	1.27E-03	1.27E-03	2.47E-03	2.47E-03	--	--	9.28E-03	9.28E-03	1.10E-03	1.10E-03
Off-Site Residential Attenuation Factors (AF) ¹	5	9.79E-04		8.58E-04		1.11E-03		1.32E-03		1.22E-03		1.10E-03		1.33E-03		--		1.45E-03		1.35E-03	
	10	5.97E-04		5.07E-04		7.00E-04		8.85E-04		7.99E-04		6.96E-04		8.97E-04		--		1.01E-03		9.10E-04	
	15	4.30E-04		3.60E-04		5.11E-04		6.65E-04		5.92E-04		5.08E-04		6.76E-04		--		7.73E-04		6.87E-04	

TABLE F-2B

ESTIMATED INDOOR AIR CONCENTRATIONS - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	CARBON DISULFIDE		CHLOROMETHANE		CIS-1,3-DICHLOROPROPENE		CYCLOHEXANE		ETHYL ACETATE		ETHYLBENZENE		HEPTANE		HEXANE		M- AND P-XYLENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG09-05	5	4.57E-03	4.57E-03	1.62E-03	1.62E-03	2.87E-03	2.87E-03	1.09E-02	2.81E-02	1.17E-02	1.17E-02	2.60E-03	2.60E-03	2.74E-03	1.11E-02	2.20E-03	8.93E-02	5.20E-03	1.42E-02
SG09-10	10	3.18E-03	3.18E-03	1.16E-03	1.16E-03	1.89E-03	1.89E-03	7.19E-03	1.18E-01	7.76E-03	7.76E-03	1.68E-03	1.68E-03	1.84E-03	4.95E-02	1.43E-03	3.03E-01	3.35E-03	9.13E-03
SG09-15	15	2.44E-03	2.44E-03	9.02E-04	9.02E-04	1.40E-03	1.40E-03	5.37E-03	5.37E-03	5.81E-03	5.81E-03	1.24E-03	1.24E-03	1.39E-03	9.50E-03	1.06E-03	5.67E-02	2.47E-03	5.61E-03
SG10-05	5	4.57E-03	4.57E-03	1.62E-03	1.62E-03	2.87E-03	2.87E-03	1.09E-02	1.09E-02	1.17E-02	1.17E-02	2.60E-03	2.60E-03	2.74E-03	2.74E-03	2.20E-03	8.19E-03	5.20E-03	5.20E-03
SG10-10	10	3.18E-03	3.18E-03	1.16E-03	1.16E-03	1.89E-03	1.89E-03	7.19E-03	1.78E-02	7.76E-03	7.76E-03	1.68E-03	1.68E-03	1.84E-03	1.84E-03	1.43E-03	8.77E-03	3.35E-03	7.23E-03
SG10-15	15	2.44E-03	2.44E-03	9.02E-04	9.02E-04	1.40E-03	1.40E-03	5.37E-03	5.37E-03	5.81E-03	5.81E-03	1.24E-03	1.24E-03	1.39E-03	1.39E-03	1.06E-03	1.06E-03	2.47E-03	2.47E-03
Off-Site Residential Attenuation Factors (AF) ¹	5	1.45E-03		1.54E-03		1.25E-03		1.28E-03		1.30E-03		1.18E-03		1.34E-03		1.22E-03		1.18E-03	
	10	1.01E-03		1.10E-03		8.20E-04		8.46E-04		8.62E-04		7.62E-04		9.00E-04		7.97E-04		7.61E-04	
	15	7.76E-04		8.59E-04		6.10E-04		6.32E-04		6.46E-04		5.62E-04		6.78E-04		5.91E-04		5.61E-04	

TABLE F-2B

ESTIMATED INDOOR AIR CONCENTRATIONS - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	METHYLENE CHLORIDE		NAPHTHALENE		O-XYLENE		TETRACHLOROETHENE		TETRAHYDROFURAN		TOLUENE		TRICHLOROETHENE		TRICHLORO-FLUOROMETHANE		VINYL ACETATE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
		µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³	µg/m ³
SG09-05	5	2.47E-03	2.47E-03	2.93E-03	2.93E-03	2.61E-03	6.29E-03	9.48E-02	7.38E-02	2.08E-02	2.08E-02	1.20E-02	1.07E-02	3.26E-03	3.26E-03	3.23E-03	3.23E-03	2.37E-03	2.37E-03
SG09-10	10	1.70E-03	1.70E-03	1.85E-03	1.85E-03	1.68E-03	7.58E-03	4.77E-02	4.04E-02	1.42E-02	1.42E-02	4.82E-03	9.97E-03	2.10E-03	2.10E-03	2.07E-03	2.07E-03	1.58E-03	1.58E-03
SG09-15	15	1.30E-03	1.30E-03	1.35E-03	1.35E-03	1.24E-03	1.24E-03	2.87E-02	2.82E-02	1.08E-02	1.08E-02	3.96E-03	4.83E-03	1.55E-03	1.55E-03	1.52E-03	1.52E-03	1.19E-03	1.19E-03
SG10-05	5	2.47E-03	2.47E-03	2.93E-03	2.93E-03	2.61E-03	2.61E-03	2.10E-01	2.59E-01	2.08E-02	2.08E-02	5.17E-03	7.82E-03	3.26E-03	3.26E-03	3.23E-03	3.23E-03	2.37E-03	1.45E-02
SG10-10	10	1.70E-03	1.70E-03	1.85E-03	1.85E-03	1.68E-03	1.68E-03	1.22E-01	9.78E-02	1.42E-02	1.42E-02	4.07E-03	6.40E-03	2.10E-03	2.10E-03	2.07E-03	2.07E-03	1.58E-03	1.58E-03
SG10-15	15	1.30E-03	1.30E-03	1.35E-03	1.35E-03	1.24E-03	1.24E-03	5.29E-02	4.85E-02	1.08E-02	1.08E-02	1.18E-03	4.65E-03	1.55E-03	1.55E-03	1.52E-03	1.52E-03	1.19E-03	1.19E-03
Off-Site Residential Attenuation Factors (AF) ¹	5	1.41E-03		1.11E-03		1.19E-03		9.98E-04		1.39E-03		1.26E-03		1.18E-03		1.15E-03		1.31E-03	
	10	9.74E-04		6.99E-04		7.65E-04		6.11E-04		9.47E-04		8.31E-04		7.63E-04		7.38E-04		8.79E-04	
	15	7.43E-04		5.10E-04		5.65E-04		4.41E-04		7.19E-04		6.19E-04		5.63E-04		5.42E-04		6.61E-04	

TABLE F-2B

ESTIMATED INDOOR AIR CONCENTRATIONS - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Notes:
1. Chemical and depth-specific attenuation factors (AFs) are calculated using the Johnson and Ettinger Model and the parameters specified in Attachment A-1. The Johnson and Ettinger model is also provided in Attachment A.

Abbreviations:
-- = not available/applicable
 $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter
 C_{sg} = Soil Gas Concentration

Equation
Predicted Concentration in Indoor Air (C_{air}) ($\mu\text{g}/\text{m}^3$) = C_{sg} x AF

TABLE F-3A

CALCULATION OF NONCANCER HAZARD INDEXES - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	1,1,2,2-TETRACHLOROETHANE		1,2,4-TRICHLOROBENZENE		1,2,4-TRIMETHYLBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,3,5-TRIMETHYLBENZENE		1,4-DIOXANE		ACETONE		BENZENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
SG08-05	5	1.3E-06	1.3E-06	2.2E-04	2.2E-04	3.9E-05	4.1E-05	1.4E-05	1.4E-05	4.8E-05	4.8E-05	2.1E-06	2.1E-06	9.1E-06	9.1E-06	1.9E-07	2.3E-08	9.1E-05	2.6E-05
SG08-10	10	6.3E-07	6.3E-07	1.1E-04	1.1E-04	1.4E-05	1.9E-05	7.0E-06	7.0E-06	2.4E-05	2.4E-05	1.1E-06	1.1E-06	5.0E-06	5.0E-06	3.5E-08	1.2E-08	5.3E-05	1.3E-05
SG08-15	15	4.2E-07	4.2E-07	7.3E-05	7.3E-05	4.1E-06	1.6E-05	4.7E-06	9.9E-06	1.6E-05	1.6E-05	7.1E-07	7.1E-07	3.4E-06	3.4E-06	1.9E-08	1.9E-08	3.3E-05	2.8E-05
SG09-05	5	1.3E-06	4.3E-06	2.2E-04	2.2E-04	1.2E-05	1.2E-05	1.4E-05	9.3E-05	4.8E-05	4.8E-05	2.1E-06	2.1E-06	9.1E-06	9.1E-06	2.3E-08	2.3E-08	2.6E-05	2.6E-05
SG09-10	10	6.3E-07	6.3E-07	1.1E-04	1.1E-04	6.2E-06	1.5E-05	7.0E-06	8.5E-05	2.4E-05	2.4E-05	1.1E-06	1.1E-06	5.0E-06	5.0E-06	1.2E-08	3.9E-08	1.3E-05	3.7E-05
SG09-15	15	4.2E-07	4.2E-07	7.3E-05	7.3E-05	4.1E-06	4.1E-06	4.7E-06	1.4E-05	1.6E-05	1.6E-05	7.1E-07	7.1E-07	3.4E-06	3.4E-06	8.2E-08	8.2E-09	8.9E-06	8.9E-06
SG10-05	5	1.3E-06	1.3E-06	2.2E-04	2.2E-04	1.2E-05	1.2E-05	1.4E-05	1.4E-05	4.8E-05	4.8E-05	2.1E-06	2.1E-06	9.1E-06	9.1E-06	2.3E-08	2.3E-08	2.6E-05	2.6E-05
SG10-10	10	6.3E-07	6.3E-07	1.1E-04	1.1E-04	6.2E-06	6.2E-06	7.0E-06	7.0E-06	2.4E-05	2.4E-05	1.1E-06	1.1E-06	5.0E-06	5.0E-06	3.4E-08	1.2E-08	1.3E-05	1.3E-05
SG10-15	15	4.2E-07	4.2E-07	7.3E-05	7.3E-05	4.1E-06	4.1E-06	4.7E-06	4.7E-06	1.6E-05	1.6E-05	7.1E-07	7.1E-07	3.4E-06	3.4E-06	8.2E-09	8.2E-09	8.9E-06	8.9E-06
SG11-05	5	1.3E-06	1.3E-06	2.2E-04	2.2E-04	1.2E-05	3.9E-05	1.4E-05	1.4E-05	4.8E-05	4.8E-05	2.1E-06	2.1E-06	9.1E-06	5.0E-05	2.3E-08	6.7E-08	2.6E-05	5.3E-05
SG11-10	10	6.3E-07	6.3E-07	1.1E-04	1.1E-04	6.2E-06	2.7E-05	7.0E-06	2.1E-05	2.4E-05	2.4E-05	1.1E-06	1.1E-06	5.0E-06	5.0E-06	5.9E-08	5.8E-08	1.3E-05	5.1E-05
SG11-15	15	4.2E-07	4.2E-07	7.3E-05	7.3E-05	4.1E-06	1.5E-05	4.7E-06	2.8E-05	1.6E-05	1.6E-05	7.1E-07	7.1E-07	3.4E-06	3.4E-06	2.8E-08	6.0E-08	2.2E-05	3.6E-05
SG12-05	5	6.3E-06	1.3E-06	1.1E-03	2.2E-04	6.1E-05	1.3E-04	3.0E-04	3.2E-04	2.4E-04	4.8E-05	1.1E-05	7.4E-06	4.5E-05	9.1E-06	1.1E-07	2.3E-08	6.7E-04	4.8E-04
SG12-10	10	1.5E-05	1.5E-05	2.7E-03	2.7E-03	1.5E-04	1.5E-04	4.4E-03	5.1E-03	5.9E-04	5.9E-04	2.6E-05	2.6E-05	1.2E-04	1.2E-04	3.0E-07	3.0E-07	1.8E-03	2.0E-03
SG12-15	15	1.0E-05	1.0E-05	1.8E-03	1.8E-03	9.9E-05	9.9E-05	5.3E-03	4.6E-03	4.0E-04	4.0E-04	1.7E-05	1.7E-05	8.5E-05	8.5E-05	2.1E-07	2.1E-07	1.9E-03	1.5E-03
SG13-05	5	1.3E-06	1.3E-06	2.2E-04	2.2E-04	4.4E-05	8.3E-05	1.1E-04	8.6E-05	4.8E-05	4.8E-05	2.1E-06	2.1E-06	9.1E-06	9.1E-06	2.3E-08	6.9E-08	6.4E-05	3.2E-04
SG13-10	10	3.1E-06	6.3E-07	5.5E-04	1.1E-04	3.1E-05	3.0E-05	6.1E-04	7.5E-04	1.2E-04	2.4E-05	5.4E-06	1.1E-06	2.5E-05	5.0E-06	6.1E-08	1.1E-07	6.6E-05	2.6E-04
SG13-15	15	4.2E-07	4.2E-07	7.3E-05	7.3E-05	8.9E-06	2.3E-05	4.1E-04	1.9E-03	1.6E-05	1.6E-05	7.1E-07	7.1E-07	3.4E-06	3.4E-06	8.2E-09	2.3E-07	8.9E-06	4.0E-04
SG14-05	5	1.3E-06	1.3E-06	2.2E-04	2.2E-04	1.2E-05	1.2E-05	1.4E-05	1.4E-05	4.8E-05	4.8E-05	2.1E-06	2.1E-06	9.1E-06	9.1E-06	2.3E-08	8.2E-08	2.6E-05	1.4E-04
SG14-10	10	6.3E-07	6.3E-07	1.1E-04	1.1E-04	6.2E-06	6.2E-06	7.0E-06	7.0E-06	2.4E-05	2.4E-05	1.1E-06	1.1E-06	5.0E-06	1.6E-05	1.2E-08	2.9E-08	1.3E-05	5.9E-05
SG14-15	15	1.1E-05	1.0E-05	2.6E-03	1.8E-03	1.6E-04	1.8E-03	2.6E-04	1.1E-04	2.6E-03	4.0E-04	1.6E-05	2.3E-04	2.5E-02	8.5E-05	1.1E-06	2.1E-07	7.2E-04	7.8E-03
Inhalation Reference Exposure Level (REL) (µg/m³)		8.00E+01		2.00E+00		7.00E+00		7.00E+00		4.00E+00		4.00E+01		3.00E+01		3.10E+04		3.00E+00	
References		DTSC, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		DTSC, 2015		U.S. EPA, 2015		U.S. EPA, 2015		OEHHA, 2015	

TABLE F-3A

CALCULATION OF NONCANCER HAZARD INDEXES - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	CARBON DISULFIDE		CHLOROMETHANE		CIS-1,3-DICHLOROPROPENE		CYCLOHEXANE		ETHYL ACETATE		ETHYLBENZENE		HEPTANE		HEXANE		M- AND P-XYLENE		METHYLENE CHLORIDE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
SG08-05	5	2.5E-07	2.5E-07	7.3E-07	7.3E-07	4.8E-06	4.8E-06	6.2E-08	1.3E-07	5.9E-06	5.9E-06	6.9E-07	1.9E-07	--	--	1.0E-07	4.8E-07	4.6E-05	9.9E-06	2.3E-07	2.3E-07
SG08-10	10	1.3E-07	1.3E-07	3.9E-07	3.9E-07	2.5E-06	2.5E-06	3.2E-08	3.2E-08	3.0E-06	3.0E-06	2.5E-07	9.5E-08	--	--	5.3E-08	6.2E-07	1.7E-05	4.8E-06	1.2E-07	1.2E-07
SG08-15	15	8.8E-08	8.8E-08	2.6E-07	2.6E-07	1.6E-06	1.6E-06	2.1E-08	2.1E-08	2.0E-06	2.0E-06	1.6E-07	1.0E-07	--	--	9.0E-08	8.3E-07	1.0E-05	4.1E-06	8.1E-08	8.1E-08
SG09-05	5	2.5E-07	2.5E-07	7.3E-07	7.3E-07	4.8E-06	4.8E-06	6.2E-08	1.6E-07	5.9E-06	5.9E-06	8.4E-08	8.4E-08	--	--	1.0E-07	4.2E-06	1.7E-06	4.6E-06	2.3E-07	2.3E-07
SG09-10	10	1.3E-07	1.3E-07	3.9E-07	3.9E-07	2.5E-06	2.5E-06	3.2E-08	5.2E-07	3.0E-06	3.0E-06	4.2E-08	4.2E-08	--	--	5.3E-08	1.1E-05	8.5E-07	2.3E-06	1.2E-07	1.2E-07
SG09-15	15	8.8E-08	8.8E-08	2.6E-07	2.6E-07	1.6E-06	1.6E-06	2.1E-08	2.1E-08	2.0E-06	2.0E-06	2.8E-08	2.8E-08	--	--	3.5E-08	1.9E-06	5.7E-07	1.3E-06	8.1E-08	8.1E-08
SG10-05	5	2.5E-07	2.5E-07	7.3E-07	7.3E-07	4.8E-06	4.8E-06	6.2E-08	6.2E-08	5.9E-06	5.9E-06	8.4E-08	8.4E-08	--	--	1.0E-07	3.9E-07	1.7E-06	1.7E-06	2.3E-07	2.3E-07
SG10-10	10	1.3E-07	1.3E-07	3.9E-07	3.9E-07	2.5E-06	2.5E-06	3.2E-08	7.8E-08	3.0E-06	3.0E-06	4.2E-08	4.2E-08	--	--	5.3E-08	3.2E-07	8.5E-07	1.8E-06	1.2E-07	1.2E-07
SG10-15	15	8.8E-08	8.8E-08	2.6E-07	2.6E-07	1.6E-06	1.6E-06	2.1E-08	2.1E-08	2.0E-06	2.0E-06	2.8E-08	2.8E-08	--	--	3.5E-08	3.5E-08	5.7E-07	5.7E-07	8.1E-08	8.1E-08
SG11-05	5	2.5E-07	2.5E-07	7.3E-07	7.3E-07	4.8E-06	4.8E-06	6.2E-08	6.2E-08	5.9E-06	5.9E-06	8.4E-08	8.4E-08	--	--	1.0E-07	2.2E-07	1.7E-06	5.7E-06	2.3E-07	2.3E-07
SG11-10	10	1.3E-07	1.3E-07	3.9E-07	3.9E-07	2.5E-06	2.5E-06	3.2E-08	1.7E-07	3.0E-06	3.0E-06	4.2E-08	1.3E-07	--	--	5.3E-08	1.1E-06	8.5E-07	4.0E-06	1.2E-07	1.2E-07
SG11-15	15	8.8E-08	8.8E-08	2.6E-07	2.6E-07	1.6E-06	1.6E-06	2.1E-08	2.2E-07	2.0E-06	2.0E-06	2.8E-08	1.9E-07	--	--	3.5E-08	3.1E-06	5.7E-07	2.5E-06	8.1E-08	8.1E-08
SG12-05	5	1.3E-06	2.5E-07	3.5E-06	7.3E-07	2.4E-05	4.8E-06	3.2E-07	4.4E-07	3.0E-05	5.9E-06	4.2E-07	3.6E-07	--	--	1.6E-06	1.2E-05	2.9E-05	1.5E-05	1.2E-06	2.3E-07
SG12-10	10	3.3E-06	8.7E-06	9.6E-06	9.6E-06	6.4E-05	6.4E-05	3.0E-06	7.8E-06	7.7E-05	7.7E-05	1.1E-06	1.1E-06	--	--	7.3E-05	2.7E-04	2.1E-05	2.1E-05	3.0E-06	3.0E-06
SG12-15	15	2.2E-06	2.2E-06	6.5E-06	6.5E-06	4.3E-05	4.3E-05	2.5E-05	3.0E-05	5.2E-05	5.2E-05	7.1E-07	1.6E-06	--	--	6.3E-04	8.3E-04	1.4E-05	1.4E-05	2.0E-06	4.1E-06
SG13-05	5	2.5E-07	2.5E-07	7.3E-07	7.3E-07	4.8E-06	4.8E-06	2.2E-07	2.5E-07	5.9E-06	5.9E-06	2.8E-07	3.5E-07	--	--	2.6E-06	3.4E-06	1.7E-06	1.4E-05	2.3E-07	2.3E-07
SG13-10	10	6.6E-07	4.1E-07	1.8E-06	1.1E-06	1.2E-05	2.5E-06	1.6E-07	9.3E-08	1.5E-05	3.0E-06	2.1E-07	1.1E-07	--	--	6.2E-07	1.4E-06	4.2E-06	4.6E-06	6.2E-07	4.0E-07
SG13-15	15	8.8E-08	4.8E-07	2.6E-07	7.5E-07	1.6E-06	1.6E-06	2.1E-08	5.2E-08	2.0E-06	2.0E-06	2.8E-08	3.4E-07	--	--	1.8E-07	1.5E-06	1.5E-06	4.1E-06	8.1E-08	2.1E-07
SG14-05	5	2.5E-07	2.5E-07	7.3E-07	7.3E-07	4.8E-06	4.8E-06	6.2E-08	6.2E-08	5.9E-06	5.9E-06	8.4E-08	8.4E-08	--	--	1.0E-07	2.1E-07	1.7E-06	1.7E-06	2.3E-07	2.3E-07
SG14-10	10	1.3E-07	1.3E-07	3.9E-07	3.9E-07	2.5E-06	2.5E-06	3.2E-08	3.2E-08	3.0E-06	3.0E-06	1.3E-07	4.2E-08	--	--	5.3E-08	5.3E-08	8.5E-07	8.5E-07	1.2E-07	1.2E-07
SG14-15	15	2.2E-06	2.2E-06	1.3E-05	6.5E-06	1.0E-02	4.3E-05	2.7E-07	3.0E-05	4.7E-05	5.2E-05	1.9E-04	7.1E-07	--	--	1.2E-04	2.4E-04	5.9E-06	7.0E-04	3.0E-06	2.0E-06
Inhalation Reference Exposure Level (REL) (µg/m³)		7.00E+02		9.00E+01		2.00E+01		6.00E+03		7.00E+01		1.00E+03		--		7.00E+02		1.00E+02		4.00E+02	
References		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		--		U.S. EPA, 2015		U.S. EPA, 2015		OEHHA, 2015	

TABLE F-3A

CALCULATION OF NONCANCER HAZARD INDEXES - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	NAPHTHALENE		O-XYLENE		TETRACHLOROETHENE		TETRAHYDROFURAN		TOLUENE		TRICHLOROETHENE		TRICHLORO-FLUOROMETHANE		VINYL ACETATE		Total Hazard Index for 12/11/2014	Total Hazard Index for 5/19/2015
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015		
SG08-05	5	3.1E-05	3.1E-05	1.3E-05	4.6E-06	6.2E-06	2.9E-06	3.9E-07	3.9E-07	1.7E-05	2.0E-06	5.3E-05	5.3E-05	4.0E-07	4.3E-07	4.1E-07	4.1E-07	6E-04	5E-04
SG08-10	10	1.5E-05	1.5E-05	4.3E-06	2.3E-06	6.2E-06	5.8E-06	5.6E-07	4.9E-07	8.0E-06	1.0E-06	2.7E-05	2.7E-05	7.4E-08	7.4E-08	2.1E-07	2.1E-07	3E-04	2E-04
SG08-15	15	1.0E-05	1.0E-05	2.3E-06	2.0E-06	6.6E-06	5.8E-06	4.4E-07	3.4E-07	5.4E-06	8.8E-07	1.8E-05	1.8E-05	4.9E-08	4.9E-08	1.4E-07	1.4E-07	2E-04	2E-04
SG09-05	5	3.1E-05	3.1E-05	8.4E-07	2.0E-06	7.9E-05	6.2E-05	3.9E-07	3.9E-07	1.3E-06	1.2E-06	5.3E-05	5.3E-05	1.5E-07	1.5E-07	4.1E-07	4.1E-07	5E-04	6E-04
SG09-10	10	1.5E-05	1.5E-05	4.3E-07	1.9E-06	3.2E-05	2.7E-05	2.1E-07	2.1E-07	4.2E-07	8.7E-07	2.7E-05	2.7E-05	7.4E-08	7.4E-08	2.1E-07	2.1E-07	2E-04	4E-04
SG09-15	15	1.0E-05	1.0E-05	2.9E-07	2.9E-07	1.8E-05	1.8E-05	1.4E-07	1.4E-07	3.1E-07	3.8E-07	1.8E-05	1.8E-05	4.9E-08	4.9E-08	1.4E-07	1.4E-07	2E-04	2E-04
SG10-05	5	3.1E-05	3.1E-05	8.4E-07	8.4E-07	1.7E-04	2.2E-04	3.9E-07	3.9E-07	5.8E-07	8.8E-07	5.3E-05	5.3E-05	1.5E-07	1.5E-07	4.1E-07	2.5E-06	6E-04	7E-04
SG10-10	10	1.5E-05	1.5E-05	4.3E-07	4.3E-07	8.3E-05	6.6E-05	2.1E-07	2.1E-07	3.6E-07	5.6E-07	2.7E-05	2.7E-05	7.4E-08	7.4E-08	2.1E-07	2.1E-07	3E-04	3E-04
SG10-15	15	1.0E-05	1.0E-05	2.9E-07	2.9E-07	3.3E-05	3.0E-05	1.4E-07	1.4E-07	9.2E-08	3.6E-07	1.8E-05	1.8E-05	4.9E-08	4.9E-08	1.4E-07	1.4E-07	2E-04	2E-04
SG11-05	5	3.1E-05	3.1E-05	8.4E-07	2.1E-06	9.2E-05	1.2E-04	3.9E-07	3.9E-07	6.8E-07	2.1E-06	5.3E-05	5.3E-05	1.5E-07	1.5E-07	4.1E-07	4.1E-07	5E-04	7E-04
SG11-10	10	1.5E-05	1.5E-05	4.3E-07	1.8E-06	4.0E-05	3.3E-05	2.1E-07	2.1E-07	3.6E-07	1.1E-06	2.7E-05	2.7E-05	7.4E-08	7.4E-08	2.1E-07	2.1E-07	3E-04	3E-04
SG11-15	15	1.0E-05	1.0E-05	2.9E-07	1.0E-06	1.3E-05	1.6E-05	1.4E-07	1.4E-07	4.5E-07	7.3E-07	1.8E-05	1.8E-05	4.9E-08	4.9E-08	1.4E-07	1.4E-07	2E-04	2E-04
SG12-05	5	1.6E-04	3.1E-05	9.2E-06	8.8E-06	4.1E-05	4.1E-05	2.0E-06	3.9E-07	6.4E-06	4.4E-06	2.6E-04	5.3E-05	7.3E-07	1.5E-07	2.1E-06	4.1E-07	3E-03	1E-03
SG12-10	10	3.8E-04	3.8E-04	1.1E-05	1.1E-05	3.5E-05	3.5E-05	5.1E-06	5.1E-06	1.0E-05	9.4E-06	6.8E-04	6.8E-04	1.8E-06	1.8E-06	5.3E-06	5.3E-06	1E-02	1E-02
SG12-15	15	2.5E-04	2.5E-04	7.2E-06	1.4E-05	2.3E-05	2.3E-05	3.5E-06	3.5E-06	2.1E-05	1.3E-05	4.5E-04	4.5E-04	1.2E-06	1.2E-06	3.6E-06	3.6E-06	1E-02	1E-02
SG13-05	5	3.1E-05	7.7E-05	8.4E-07	6.1E-06	2.9E-06	1.3E-05	3.9E-07	3.9E-07	1.4E-06	2.3E-06	5.3E-05	1.9E-04	1.5E-07	1.5E-07	4.1E-07	4.1E-07	6E-04	1E-03
SG13-10	10	7.8E-05	1.5E-05	2.1E-06	2.1E-06	7.0E-06	1.4E-06	1.0E-06	2.1E-07	6.9E-07	1.6E-06	1.3E-04	2.7E-05	3.7E-07	1.6E-07	1.1E-06	2.1E-07	2E-03	1E-03
SG13-15	15	1.0E-05	1.0E-05	7.7E-07	1.8E-06	9.5E-07	9.5E-07	1.4E-07	1.4E-07	3.5E-07	1.3E-06	1.8E-05	2.6E-04	4.9E-08	4.9E-08	1.4E-07	1.4E-07	6E-04	3E-03
SG14-05	5	3.1E-05	3.1E-05	8.4E-07	8.4E-07	2.9E-06	2.9E-06	3.9E-07	3.9E-07	6.0E-07	6.2E-07	5.3E-05	5.3E-05	1.5E-07	1.5E-07	4.1E-07	4.1E-07	4E-04	5E-04
SG14-10	10	1.5E-05	1.5E-05	4.3E-07	4.3E-07	3.1E-06	1.4E-06	2.1E-07	2.1E-07	3.8E-07	4.6E-07	2.7E-05	2.7E-05	7.4E-08	7.4E-08	2.1E-07	2.1E-07	2E-04	3E-04
SG14-15	15	1.1E-03	2.5E-04	7.2E-06	1.6E-05	1.0E-04	2.3E-05	9.3E-07	3.5E-06	4.9E-06	6.3E-06	4.5E-04	4.5E-04	7.9E-07	1.2E-06	2.6E-06	3.6E-06	4E-02	1E-02
Inhalation Reference Exposure Level (REL) (µg/m³)		3.00E+00		1.00E+02		3.50E+01		2.00E+03		3.00E+02		2.00E+00		7.00E+02		2.00E+02		--	
References		U.S. EPA, 2015		U.S. EPA, 2015		OEHHA, 2015		U.S. EPA, 2015		OEHHA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		--	

TABLE F-3A

CALCULATION OF NONCANCER HAZARD INDEXES - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Abbreviations:
-- = Not applicable / not available
µg/m³ = micrograms per cubic meter

References:
DTSC, 2014. Human Health Risk Assessment Note Number 1 - Recommended DTSC Default Exposure Factors for Use in Risk Assessment at California Hazardous Waste Sites and Permitted Facilities. Human and Ecological Risk Office, Department of Toxic Substances Control, California Environmental Protection Agency. September 30, 2014. http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA_Note1-2.pdf.
DTSC, 2015. Human Health Risk Assessment Note #3, DTSC-modified Screening Levels (DTSC-SLs), May 2015.
Office of Environmental Health Hazard Assessment (OEHHA), 2015, Toxicity Criteria Database (TCDB). www.oehha.ca.gov/risk/ChemicalDB/index.asp [or DTSC version of J&E (December, 2014)]. Accessed July
U.S Environmental Protection Agency, 2009, Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA-540-R-070-002
U.S Environmental Protection Agency, 2015, Regional Screening Levels. June. <http://www.epa.gov/region9/superfund/prg/>

Parameter Definition	Units	Value	Rationale / Reference
Chemical Concentration (C _{air}) in Air	µg/m ³	Chemical-specific	Table F-2A
Exposure Time (ET)	hour/day	8	DTSC, 2014
Exposure Frequency (EF)	days/year	250	DTSC, 2014
Exposure Duration (ED)	years	25	DTSC, 2014
Averaging time - noncancer (AT _{nc})	hours	219000	U.S. EPA, 2009

Equation
Non-cancer Exposure Concentration (EC) (µg/m ³) = (C _{air} x ET x EF x ED) / AT _{nc} Non-Cancer Hazard = EC (µg/m ³) / REL (µg/m ³)

TABLE F-3B

CALCULATION OF NONCANCER HAZARD INDEXES - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	1,1,2,2-TETRACHLOROETHANE		1,2,4-TRICHLOROBENZENE		1,2,4-TRIMETHYLBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,3,5-TRIMETHYLBENZENE		1,4-DIOXANE		2,2,4-TRIMETHYLPENTANE		ACETONE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
SG09-05	5	4.11E-05	1.41E-04	7.81E-03	7.81E-03	3.80E-04	3.80E-04	3.71E-04	2.53E-03	1.38E-03	1.38E-03	6.62E-05	6.62E-05	1.56E-04	1.56E-04	--	--	5.38E-07	5.38E-07
SG09-10	10	2.51E-05	2.51E-05	4.62E-03	4.62E-03	2.40E-04	5.66E-04	2.49E-04	3.03E-03	9.00E-04	9.00E-04	4.17E-05	4.17E-05	1.05E-04	1.05E-04	--	--	3.74E-07	1.22E-06
SG09-15	15	1.80E-05	1.80E-05	3.28E-03	3.28E-03	1.75E-04	1.75E-04	1.87E-04	5.38E-04	6.68E-04	6.68E-04	3.05E-05	3.05E-05	7.88E-05	7.88E-05	--	--	2.87E-06	2.87E-07
SG10-05	5	4.11E-05	4.11E-05	7.81E-03	7.81E-03	3.80E-04	3.80E-04	3.71E-04	3.71E-04	1.38E-03	1.38E-03	6.62E-05	6.62E-05	1.56E-04	1.56E-04	--	--	5.38E-07	5.38E-07
SG10-10	10	2.51E-05	2.51E-05	4.62E-03	4.62E-03	2.40E-04	2.40E-04	2.49E-04	2.49E-04	9.00E-04	9.00E-04	4.17E-05	4.17E-05	1.05E-04	1.05E-04	--	--	1.06E-06	3.74E-07
SG10-15	15	1.80E-05	1.80E-05	3.28E-03	3.28E-03	1.75E-04	1.75E-04	1.87E-04	1.87E-04	6.68E-04	6.68E-04	3.05E-05	3.05E-05	7.88E-05	7.88E-05	--	--	2.87E-07	2.87E-07
Inhalation Reference Exposure Level (REL) (µg/m³)		8.00E+01		2.00E+00		7.00E+00		7.00E+00		4.00E+00		4.00E+01		3.00E+01		--		3.10E+04	
References		DTSC, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		DTSC, 2015		U.S. EPA, 2015		--		U.S. EPA, 2015	

TABLE F-3B

CALCULATION OF NONCANCER HAZARD INDEXES - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	BENZENE		CARBON DISULFIDE		CHLOROMETHANE		CIS-1,3-DICHLOROPROPENE		CYCLOHEXANE		ETHYL ACETATE		ETHYLBENZENE		HEPTANE		HEXANE		M- AND P-XYLENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
SG09-05	5	6.89E-04	6.89E-04	6.26E-06	6.26E-06	1.72E-05	1.72E-05	1.38E-04	1.38E-04	1.74E-06	4.49E-06	1.60E-04	1.60E-04	2.49E-06	2.49E-06	--	--	3.01E-06	1.22E-04	4.98E-05	1.36E-04
SG09-10	10	4.65E-04	1.31E-03	4.36E-06	4.36E-06	1.23E-05	1.23E-05	9.04E-05	9.04E-05	1.15E-06	1.89E-05	1.06E-04	1.06E-04	1.61E-06	1.61E-06	--	--	1.96E-06	4.15E-04	3.21E-05	8.76E-05
SG09-15	15	3.51E-04	3.51E-04	3.35E-06	3.35E-06	9.61E-06	9.61E-06	6.73E-05	6.73E-05	8.59E-07	8.59E-07	7.96E-05	7.96E-05	1.19E-06	1.19E-06	--	--	1.46E-06	7.77E-05	2.37E-05	5.38E-05
SG10-05	5	6.89E-04	6.89E-04	6.26E-06	6.26E-06	1.72E-05	1.72E-05	1.38E-04	1.38E-04	1.74E-06	1.74E-06	1.60E-04	1.60E-04	2.49E-06	2.49E-06	--	--	3.01E-06	1.12E-05	4.98E-05	4.98E-05
SG10-10	10	4.65E-04	4.65E-04	4.36E-06	4.36E-06	1.23E-05	1.23E-05	9.04E-05	9.04E-05	1.15E-06	2.84E-06	1.06E-04	1.06E-04	1.61E-06	1.61E-06	--	--	1.96E-06	1.20E-05	3.21E-05	6.93E-05
SG10-15	15	3.51E-04	3.51E-04	3.35E-06	3.35E-06	9.61E-06	9.61E-06	6.73E-05	6.73E-05	8.59E-07	8.59E-07	7.96E-05	7.96E-05	1.19E-06	1.19E-06	--	--	1.46E-06	1.46E-06	2.37E-05	2.37E-05
Inhalation Reference Exposure Level (REL) (µg/m ³)		3.00E+00		7.00E+02		9.00E+01		2.00E+01		6.00E+03		7.00E+01		1.00E+03		--		7.00E+02		1.00E+02	
References		OEHHA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		--		U.S. EPA, 2015		U.S. EPA, 2015	

TABLE F-3B

CALCULATION OF NONCANCER HAZARD INDEXES - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	METHYLENE CHLORIDE		NAPHTHALENE		O-XYLENE		TETRACHLOROETHENE		TETRAHYDROFURAN		TOLUENE		TRICHLOROETHENE		TRICHLORO-FLUOROMETHANE		VINYL ACETATE		Total Hazard Index for 12/11/2014	Total Hazard Index for 5/19/2015
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015		
SG09-05	5	5.93E-06	5.93E-06	9.37E-04	9.37E-04	2.50E-05	6.03E-05	2.60E-03	2.02E-03	9.97E-06	9.97E-06	3.83E-05	3.43E-05	1.56E-03	1.56E-03	4.43E-06	4.43E-06	1.13E-05	1.13E-05	2E-02	2E-02
SG09-10	10	4.08E-06	4.08E-06	5.92E-04	5.92E-04	1.61E-05	7.27E-05	1.31E-03	1.11E-03	6.81E-06	6.81E-06	1.54E-05	3.19E-05	1.01E-03	1.01E-03	2.83E-06	2.83E-06	7.59E-06	7.59E-06	1E-02	1E-02
SG09-15	15	3.12E-06	3.12E-06	4.32E-04	4.32E-04	1.19E-05	1.19E-05	7.85E-04	7.73E-04	5.17E-06	5.17E-06	1.27E-05	1.54E-05	7.43E-04	7.43E-04	2.08E-06	2.08E-06	5.70E-06	5.70E-06	7E-03	7E-03
SG10-05	5	5.93E-06	5.93E-06	9.37E-04	9.37E-04	2.50E-05	2.50E-05	5.74E-03	7.11E-03	9.97E-06	9.97E-06	1.65E-05	2.50E-05	1.56E-03	1.56E-03	4.43E-06	4.43E-06	1.13E-05	6.93E-05	2E-02	2E-02
SG10-10	10	4.08E-06	4.08E-06	5.92E-04	5.92E-04	1.61E-05	1.61E-05	3.35E-03	2.68E-03	6.81E-06	6.81E-06	1.30E-05	2.04E-05	1.01E-03	1.01E-03	2.83E-06	2.83E-06	7.59E-06	7.59E-06	1E-02	1E-02
SG10-15	15	3.12E-06	3.12E-06	4.32E-04	4.32E-04	1.19E-05	1.19E-05	1.45E-03	1.33E-03	5.17E-06	5.17E-06	3.76E-06	1.49E-05	7.43E-04	7.43E-04	2.08E-06	2.08E-06	5.70E-06	5.70E-06	8E-03	8E-03
Inhalation Reference Exposure Level (REL) (µg/m³)		4.00E+02		3.00E+00		1.00E+02		3.50E+01		2.00E+03		3.00E+02		2.00E+00		7.00E+02		2.00E+02		--	
References		OEHHA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		OEHHA, 2015		U.S. EPA, 2015		OEHHA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		U.S. EPA, 2015		--	

TABLE F-3B

CALCULATION OF NONCANCER HAZARD INDEXES - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Abbreviations:
-- = Not applicable / not available

References:
DTSC, 2014. Human Health Risk Assessment Note Number 1 - Recommended DTSC Default Exposure Factors for Use in Risk Assessment at California Hazardous Waste Sites and Permitted Facilities. Human and Ecological Risk Office, Department of Toxic Substances Control, California Environmental Protection Agency. September 30, 2014. http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA_Note1-2.pdf.
DTSC, 2015. Human Health Risk Assessment Note #3, DTSC-modified Screening Levels (DTSC-SLs), May 2015.
Office of Environmental Health Hazard Assessment (OEHHA), 2015, Toxicity Criteria Database (TCDB). www.oehha.ca.gov/risk/ChemicalDB/index.asp [or DTSC version of J&E (December, 2014)]. Accessed July
U.S Environmental Protection Agency, 2009, Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA-540-R-070-002.
U.S Environmental Protection Agency, 2015, Regional Screening Levels. June. <http://www.epa.gov/region9/superfund/prg/>

Parameter Definition	Units	Value	Rationale / Reference
Chemical Concentration (C _{air}) in Air	µg/m ³	Chemical-specific	Table F-2B
Exposure Time (ET)	hours/day	24	DTSC, 2014
Exposure Frequency (EF)	days/year	350	DTSC, 2014
Exposure Duration (ED)	years	26	DTSC, 2014
Averaging time - noncancer (AT _{nc})	hours	227760	DTSC, 2014

Equation
Non-cancer Exposure Concentration (EC) (µg/m ³) = (C _{air} x ET x EF x ED) / AT _{nc} Non-Cancer Hazard = EC (ug/m ³) / REL (ug/m ³)

TABLE F-4A

CALCULATION OF EXCESS LIFETIME CANCER RISKS - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	1,1,2,2-TETRACHLOROETHANE		1,2,4-TRICHLOROBENZENE		1,2,4-TRIMETHYLBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,3,5-TRIMETHYLBENZENE		1,4-DIOXANE		2,2,4-TRIMETHYLPENTANE		ACETONE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
SG08-05	5	2.1E-09	2.1E-09	--	--	--	--	8.8E-10	8.8E-10	6.8E-10	6.8E-10	--	--	7.5E-10	7.5E-10	--	--	--	--
SG08-10	10	1.0E-09	1.0E-09	--	--	--	--	4.5E-10	4.5E-10	3.5E-10	3.5E-10	--	--	4.1E-10	4.1E-10	--	--	--	--
SG08-15	15	6.9E-10	6.9E-10	--	--	--	--	3.1E-10	6.4E-10	2.3E-10	2.3E-10	--	--	2.8E-10	2.8E-10	--	--	--	--
SG09-05	5	2.1E-09	7.2E-09	--	--	--	--	8.8E-10	6.0E-09	6.8E-10	6.8E-10	--	--	7.5E-10	7.5E-10	--	--	--	--
SG09-10	10	1.0E-09	1.0E-09	--	--	--	--	4.5E-10	5.5E-09	3.5E-10	3.5E-10	--	--	4.1E-10	4.1E-10	--	--	--	--
SG09-15	15	6.9E-10	6.9E-10	--	--	--	--	3.1E-10	8.8E-10	2.3E-10	2.3E-10	--	--	2.8E-10	2.8E-10	--	--	--	--
SG10-05	5	2.1E-09	2.1E-09	--	--	--	--	8.8E-10	8.8E-10	6.8E-10	6.8E-10	--	--	7.5E-10	7.5E-10	--	--	--	--
SG10-10	10	1.0E-09	1.0E-09	--	--	--	--	4.5E-10	4.5E-10	3.5E-10	3.5E-10	--	--	4.1E-10	4.1E-10	--	--	--	--
SG10-15	15	6.9E-10	6.9E-10	--	--	--	--	3.1E-10	3.1E-10	2.3E-10	2.3E-10	--	--	2.8E-10	2.8E-10	--	--	--	--
SG11-05	5	2.1E-09	2.1E-09	--	--	--	--	8.8E-10	8.8E-10	6.8E-10	6.8E-10	--	--	7.5E-10	4.1E-09	--	--	--	--
SG11-10	10	1.0E-09	1.0E-09	--	--	--	--	4.5E-10	1.4E-09	3.5E-10	3.5E-10	--	--	4.1E-10	4.1E-10	--	--	--	--
SG11-15	15	6.9E-10	6.9E-10	--	--	--	--	3.1E-10	1.8E-09	2.3E-10	2.3E-10	--	--	2.8E-10	2.8E-10	--	--	--	--
SG12-05	5	1.0E-08	2.1E-09	--	--	--	--	1.9E-08	2.1E-08	3.4E-09	6.8E-10	--	--	3.7E-09	7.5E-10	--	--	--	--
SG12-10	10	2.5E-08	2.5E-08	--	--	--	--	2.9E-07	3.3E-07	8.5E-09	8.5E-09	--	--	1.0E-08	1.0E-08	--	--	--	--
SG12-15	15	1.7E-08	1.7E-08	--	--	--	--	3.4E-07	3.0E-07	5.7E-09	5.7E-09	--	--	7.0E-09	7.0E-09	--	--	--	--
SG13-05	5	2.1E-09	2.1E-09	--	--	--	--	6.9E-09	5.6E-09	6.8E-10	6.8E-10	--	--	7.5E-10	7.5E-10	--	--	--	--
SG13-10	10	5.2E-09	1.0E-09	--	--	--	--	4.0E-08	4.9E-08	1.7E-09	3.5E-10	--	--	2.0E-09	4.1E-10	--	--	--	--
SG13-15	15	6.9E-10	6.9E-10	--	--	--	--	2.7E-08	1.3E-07	2.3E-10	2.3E-10	--	--	2.8E-10	2.8E-10	--	--	--	--
SG14-05	5	2.1E-09	2.1E-09	--	--	--	--	8.8E-10	8.8E-10	6.8E-10	6.8E-10	--	--	7.5E-10	7.5E-10	--	--	--	--
SG14-10	10	1.0E-09	1.0E-09	--	--	--	--	4.5E-10	4.5E-10	3.5E-10	3.5E-10	--	--	4.1E-10	1.4E-09	--	--	--	--
SG14-15	15	1.9E-08	1.7E-08	--	--	--	--	1.7E-08	7.4E-09	3.7E-08	5.7E-09	--	--	2.1E-06	7.0E-09	--	--	--	--
Inhalation Unit Risk Factor (IUR) (ug/m ³) ⁻¹		5.80E-05		--		--		2.60E-05		1.00E-05		--		7.70E-06		--		--	
References		U.S. EPA 2015		--		--		U.S. EPA, 2015		U.S. EPA, 2015		--		OEHHA, 2015		--		--	

TABLE F-4A

CALCULATION OF EXCESS LIFETIME CANCER RISKS - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	BENZENE		CARBON DISULFIDE		CHLOROMETHANE		CIS-1,3-DICHLOROPROPENE		CYCLOHEXANE		ETHYL ACETATE		ETHYLBENZENE		HEPTANE		HEXANE		M- AND P-XYLENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
SG08-05	5	2.8E-09	7.9E-10	--	--	--	--	5.5E-10	5.5E-10	--	--	--	--	6.1E-10	1.7E-10	--	--	--	--	--	--
SG08-10	10	1.6E-09	4.1E-10	--	--	--	--	2.8E-10	2.8E-10	--	--	--	--	2.2E-10	8.4E-11	--	--	--	--	--	--
SG08-15	15	1.0E-09	8.8E-10	--	--	--	--	1.9E-10	1.9E-10	--	--	--	--	1.4E-10	9.0E-11	--	--	--	--	--	--
SG09-05	5	7.9E-10	7.9E-10	--	--	--	--	5.5E-10	5.5E-10	--	--	--	--	7.5E-11	7.5E-11	--	--	--	--	--	--
SG09-10	10	4.1E-10	1.2E-09	--	--	--	--	2.8E-10	2.8E-10	--	--	--	--	3.8E-11	3.8E-11	--	--	--	--	--	--
SG09-15	15	2.8E-10	2.8E-10	--	--	--	--	1.9E-10	1.9E-10	--	--	--	--	2.5E-11	2.5E-11	--	--	--	--	--	--
SG10-05	5	7.9E-10	7.9E-10	--	--	--	--	5.5E-10	5.5E-10	--	--	--	--	7.5E-11	7.5E-11	--	--	--	--	--	--
SG10-10	10	4.1E-10	4.1E-10	--	--	--	--	2.8E-10	2.8E-10	--	--	--	--	3.8E-11	3.8E-11	--	--	--	--	--	--
SG10-15	15	2.8E-10	2.8E-10	--	--	--	--	1.9E-10	1.9E-10	--	--	--	--	2.5E-11	2.5E-11	--	--	--	--	--	--
SG11-05	5	7.9E-10	1.6E-09	--	--	--	--	5.5E-10	5.5E-10	--	--	--	--	7.5E-11	7.5E-11	--	--	--	--	--	--
SG11-10	10	4.1E-10	1.6E-09	--	--	--	--	2.8E-10	2.8E-10	--	--	--	--	3.8E-11	1.1E-10	--	--	--	--	--	--
SG11-15	15	6.7E-10	1.1E-09	--	--	--	--	1.9E-10	1.9E-10	--	--	--	--	2.5E-11	1.7E-10	--	--	--	--	--	--
SG12-05	5	2.1E-08	1.5E-08	--	--	--	--	2.8E-09	5.5E-10	--	--	--	--	3.7E-10	3.2E-10	--	--	--	--	--	--
SG12-10	10	5.6E-08	6.1E-08	--	--	--	--	7.3E-09	7.3E-09	--	--	--	--	9.5E-10	9.5E-10	--	--	--	--	--	--
SG12-15	15	6.0E-08	4.7E-08	--	--	--	--	4.9E-09	4.9E-09	--	--	--	--	6.3E-10	1.4E-09	--	--	--	--	--	--
SG13-05	5	2.0E-09	9.9E-09	--	--	--	--	5.5E-10	5.5E-10	--	--	--	--	2.5E-10	3.1E-10	--	--	--	--	--	--
SG13-10	10	2.0E-09	8.2E-09	--	--	--	--	1.4E-09	2.8E-10	--	--	--	--	1.9E-10	1.0E-10	--	--	--	--	--	--
SG13-15	15	2.8E-10	1.2E-08	--	--	--	--	1.9E-10	1.9E-10	--	--	--	--	2.5E-11	3.0E-10	--	--	--	--	--	--
SG14-05	5	7.9E-10	4.3E-09	--	--	--	--	5.5E-10	5.5E-10	--	--	--	--	7.5E-11	7.5E-11	--	--	--	--	--	--
SG14-10	10	4.1E-10	1.8E-09	--	--	--	--	2.8E-10	2.8E-10	--	--	--	--	1.2E-10	3.8E-11	--	--	--	--	--	--
SG14-15	15	2.2E-08	2.4E-07	--	--	--	--	1.1E-06	4.9E-09	--	--	--	--	1.7E-07	6.3E-10	--	--	--	--	--	--
Inhalation Unit Risk Factor (IUR) (ug/m ³) ⁻¹		2.90E-05		--		--		1.60E-05		--		--		2.50E-06		--		--		--	
References		OEHHA, 2015		--		--		OEHHA, 2015		--		--		U.S. EPA, 2015		--		--		--	

TABLE F-4A

CALCULATION OF EXCESS LIFETIME CANCER RISKS - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	METHYLENE CHLORIDE		NAPHTHALENE		O-XYLENE		TETRACHLOROETHENE		TETRAHYDROFURAN		TOLUENE		TRICHLOROETHENE		TRICHLORO-FLUOROMETHANE		VINYL ACETATE		Total Risk for 12/11/2014	Total Risk for 5/19/2015
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015		
SG08-05	5	3.3E-11	3.3E-11	1.1E-09	1.1E-09	--	--	4.6E-10	2.1E-10	--	--	--	--	1.5E-10	1.5E-10	--	--	--	--	1E-08	7E-09
SG08-10	10	1.7E-11	1.7E-11	5.6E-10	5.6E-10	--	--	4.6E-10	4.3E-10	--	--	--	--	7.8E-11	7.8E-11	--	--	--	--	6E-09	4E-09
SG08-15	15	1.2E-11	1.2E-11	3.7E-10	3.7E-10	--	--	4.9E-10	4.3E-10	--	--	--	--	5.2E-11	5.2E-11	--	--	--	--	4E-09	4E-09
SG09-05	5	3.3E-11	3.3E-11	1.1E-09	1.1E-09	--	--	5.8E-09	4.5E-09	--	--	--	--	1.5E-10	1.5E-10	--	--	--	--	1E-08	2E-08
SG09-10	10	1.7E-11	1.7E-11	5.6E-10	5.6E-10	--	--	2.4E-09	2.0E-09	--	--	--	--	7.8E-11	7.8E-11	--	--	--	--	6E-09	1E-08
SG09-15	15	1.2E-11	1.2E-11	3.7E-10	3.7E-10	--	--	1.3E-09	1.3E-09	--	--	--	--	5.2E-11	5.2E-11	--	--	--	--	4E-09	4E-09
SG10-05	5	3.3E-11	3.3E-11	1.1E-09	1.1E-09	--	--	1.3E-08	1.6E-08	--	--	--	--	1.5E-10	1.5E-10	--	--	--	--	2E-08	2E-08
SG10-10	10	1.7E-11	1.7E-11	5.6E-10	5.6E-10	--	--	6.1E-09	4.9E-09	--	--	--	--	7.8E-11	7.8E-11	--	--	--	--	1E-08	9E-09
SG10-15	15	1.2E-11	1.2E-11	3.7E-10	3.7E-10	--	--	2.4E-09	2.2E-09	--	--	--	--	5.2E-11	5.2E-11	--	--	--	--	5E-09	5E-09
SG11-05	5	3.3E-11	3.3E-11	1.1E-09	1.1E-09	--	--	6.8E-09	8.6E-09	--	--	--	--	1.5E-10	1.5E-10	--	--	--	--	1E-08	2E-08
SG11-10	10	1.7E-11	1.7E-11	5.6E-10	5.6E-10	--	--	3.0E-09	2.4E-09	--	--	--	--	7.8E-11	7.8E-11	--	--	--	--	7E-09	8E-09
SG11-15	15	1.2E-11	1.2E-11	3.7E-10	3.7E-10	--	--	9.8E-10	1.2E-09	--	--	--	--	5.2E-11	5.2E-11	--	--	--	--	4E-09	6E-09
SG12-05	5	1.7E-10	3.3E-11	5.7E-09	1.1E-09	--	--	3.0E-09	3.0E-09	--	--	--	--	7.6E-10	1.5E-10	--	--	--	--	7E-08	4E-08
SG12-10	10	4.3E-10	4.3E-10	1.4E-08	1.4E-08	--	--	2.6E-09	2.6E-09	--	--	--	--	2.0E-09	2.0E-09	--	--	--	--	4E-07	5E-07
SG12-15	15	2.9E-10	5.9E-10	9.2E-09	9.2E-09	--	--	1.7E-09	1.7E-09	--	--	--	--	1.3E-09	1.3E-09	--	--	--	--	5E-07	4E-07
SG13-05	5	3.3E-11	3.3E-11	1.1E-09	2.8E-09	--	--	2.1E-10	9.8E-10	--	--	--	--	1.5E-10	5.5E-10	--	--	--	--	1E-08	2E-08
SG13-10	10	8.8E-11	5.8E-11	2.8E-09	5.6E-10	--	--	5.2E-10	1.1E-10	--	--	--	--	3.8E-10	7.8E-11	--	--	--	--	6E-08	6E-08
SG13-15	15	1.2E-11	3.0E-11	3.7E-10	3.7E-10	--	--	7.0E-11	7.0E-11	--	--	--	--	5.2E-11	7.6E-10	--	--	--	--	3E-08	1E-07
SG14-05	5	3.3E-11	3.3E-11	1.1E-09	1.1E-09	--	--	2.1E-10	2.1E-10	--	--	--	--	1.5E-10	1.5E-10	--	--	--	--	7E-09	1E-08
SG14-10	10	1.7E-11	1.7E-11	5.6E-10	5.6E-10	--	--	2.3E-10	1.1E-10	--	--	--	--	7.8E-11	7.8E-11	--	--	--	--	4E-09	6E-09
SG14-15	15	4.3E-10	2.9E-10	4.1E-08	9.2E-09	--	--	7.6E-09	1.7E-09	--	--	--	--	1.3E-09	1.3E-09	--	--	--	--	4E-06	3E-07
Inhalation Unit Risk Factor (IUR) (ug/m ³) ⁻¹		1.00E-06		3.40E-05		--		5.90E-06		--		--		4.10E-06		--		--		--	
References		OEHHA, 2015		U.S. EPA, 2015		--		OEHHA, 2015		--		--		U.S. EPA, 2015		--		--		--	

TABLE F-4A

CALCULATION OF EXCESS LIFETIME CANCER RISKS - CURRENT ON-SITE COMMERCIAL/INDUSTRIAL WORKERS

IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles

Los Angeles, California

Abbreviations:

$(\mu\text{g}/\text{m}^3)^{-1}$ = risk per micrograms per cubic meter

-- = Not applicable / not available

References:

DTSC, 2014. Human Health Risk Assessment Note Number 1 - Recommended DTSC Default Exposure Factors for Use in Risk Assessment at California Hazardous Waste Sites and Permitted Facilities. Human and Ecological Risk Office, Department of Toxic Substances Control, California Environmental Protection Agency. September 30, 2014. http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA_Note1-2.pdf.

Office of Environmental Health Hazard Assessment (OEHHA), 2015, Toxicity Criteria Database (TCDB). www.oehha.ca.gov/risk/ChemicalDB/index.asp [or DTSC version of J&E (December, 2014)]. Accessed July

U.S Environmental Protection Agency, 2009, Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA-540-R-070-002.

U.S Environmental Protection Agency, 2015, Regional Screening Levels. June. <http://www.epa.gov/region9/superfund/prg/>

Parameter Definition	Units	Value	Rationale / Reference
Chemical Concentration (C_{air}) in Air	$\mu\text{g}/\text{m}^3$	Chemical-specific	Table F-2A
Exposure Time (ET)	hour/day	8	DTSC, 2014
Exposure Frequency (EF)	days/year	250	DTSC, 2014
Exposure Duration (ED)	years	25	DTSC, 2014
Averaging time - Cancer (AT_c)	hours	613200	U.S. EPA, 2009

Equation
Cancer Exposure Concentration (EC) $(\mu\text{g}/\text{m}^3) = (C_{air} \times ET \times EF \times ED) / AT_c$
Cancer Risk = EC $(\mu\text{g}/\text{m}^3) \times IUR (\mu\text{g}/\text{m}^3)^{-1}$

TABLE F-4B

CALCULATION OF EXCESS LIFETIME CANCER RISKS - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	1,1,2,2-TETRACHLOROETHANE		1,2,4-TRICHLOROBENZENE		1,2,4-TRIMETHYLBENZENE		1,2-DICHLOROETHANE		1,2-DICHLOROPROPANE		1,3,5-TRIMETHYLBENZENE		1,4-DIOXANE		2,2,4-TRIMETHYLPENTANE		ACETONE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
SG09-05	5	7.08E-08	2.43E-07	--	--	--	--	2.51E-08	1.71E-07	2.05E-08	2.05E-08	--	--	1.33E-08	1.33E-08	--	--	--	--
SG09-10	10	4.32E-08	4.32E-08	--	--	--	--	1.68E-08	2.05E-07	1.34E-08	1.34E-08	--	--	8.98E-09	8.98E-09	--	--	--	--
SG09-15	15	3.11E-08	3.11E-08	--	--	--	--	1.26E-08	3.64E-08	9.92E-09	9.92E-09	--	--	6.76E-09	6.76E-09	--	--	--	--
SG10-05	5	7.08E-08	7.08E-08	--	--	--	--	2.51E-08	2.51E-08	2.05E-08	2.05E-08	--	--	1.33E-08	1.33E-08	--	--	--	--
SG10-10	10	4.32E-08	4.32E-08	--	--	--	--	1.68E-08	1.68E-08	1.34E-08	1.34E-08	--	--	8.98E-09	8.98E-09	--	--	--	--
SG10-15	15	3.11E-08	3.11E-08	--	--	--	--	1.26E-08	1.26E-08	9.92E-09	9.92E-09	--	--	6.76E-09	6.76E-09	--	--	--	--
Inhalation Unit Risk Factor (IUR) (µg/m ³) ⁻¹		5.80E-05		--		--		2.60E-05		1.00E-05		--		7.70E-06		--		--	
References		U.S. EPA 2015		--		--		U.S. EPA, 2015		U.S. EPA, 2015		--		OEHHA, 2015		--		--	

TABLE F-4B

CALCULATION OF EXCESS LIFETIME CANCER RISKS - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	BENZENE		CARBON DISULFIDE		CHLOROMETHANE		CIS-1,3-DICHLOROPROPENE		CYCLOHEXANE		ETHYL ACETATE		ETHYLBENZENE		HEPTANE		HEXANE		M- AND P-XYLENE	
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015
SG09-05	5	2.23E-08	2.23E-08	--	--	--	--	1.64E-08	1.64E-08	--	--	--	--	2.32E-09	2.32E-09	--	--	--	--	--	--
SG09-10	10	1.50E-08	4.23E-08	--	--	--	--	1.07E-08	1.07E-08	--	--	--	--	1.49E-09	1.49E-09	--	--	--	--	--	--
SG09-15	15	1.14E-08	1.14E-08	--	--	--	--	8.00E-09	8.00E-09	--	--	--	--	1.10E-09	1.10E-09	--	--	--	--	--	--
SG10-05	5	2.23E-08	2.23E-08	--	--	--	--	1.64E-08	1.64E-08	--	--	--	--	2.32E-09	2.32E-09	--	--	--	--	--	--
SG10-10	10	1.50E-08	1.50E-08	--	--	--	--	1.07E-08	1.07E-08	--	--	--	--	1.49E-09	1.49E-09	--	--	--	--	--	--
SG10-15	15	1.14E-08	1.14E-08	--	--	--	--	8.00E-09	8.00E-09	--	--	--	--	1.10E-09	1.10E-09	--	--	--	--	--	--
Inhalation Unit Risk Factor (IUR) (µg/m ³) ⁻¹		2.90E-05		--		--		1.60E-05		--		--		2.50E-06		--		--		--	
References		OEHHA, 2015		--		--		OEHHA, 2015		--		--		U.S. EPA, 2015		--		--		--	

TABLE F-4B

CALCULATION OF EXCESS LIFETIME CANCER RISKS - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sample Location	Sample Depth:	METHYLENE CHLORIDE		NAPHTHALENE		O-XYLENE		TETRACHLOROETHENE		TETRAHYDROFURAN		TOLUENE		TRICHLOROETHENE		TRICHLORO-FLUOROMETHANE		VINYL ACETATE		Total Risk for 12/11/2014	Total Risk for 5/19/2015
		12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015	12/11/2014	5/19/2015		
SG09-05	5	8.81E-10	8.81E-10	3.55E-08	3.55E-08	--	--	1.99E-07	1.55E-07	--	--	--	--	4.76E-09	4.76E-09	--	--	--	--	4E-07	7E-07
SG09-10	10	6.07E-10	6.07E-10	2.24E-08	2.24E-08	--	--	1.00E-07	8.48E-08	--	--	--	--	3.07E-09	3.07E-09	--	--	--	--	2E-07	4E-07
SG09-15	15	4.63E-10	4.63E-10	1.64E-08	1.64E-08	--	--	6.02E-08	5.93E-08	--	--	--	--	2.26E-09	2.26E-09	--	--	--	--	2E-07	2E-07
SG10-05	5	8.81E-10	8.81E-10	3.55E-08	3.55E-08	--	--	4.40E-07	5.45E-07	--	--	--	--	4.76E-09	4.76E-09	--	--	--	--	7E-07	8E-07
SG10-10	10	6.07E-10	6.07E-10	2.24E-08	2.24E-08	--	--	2.57E-07	2.06E-07	--	--	--	--	3.07E-09	3.07E-09	--	--	--	--	4E-07	3E-07
SG10-15	15	4.63E-10	4.63E-10	1.64E-08	1.64E-08	--	--	1.11E-07	1.02E-07	--	--	--	--	2.26E-09	2.26E-09	--	--	--	--	2E-07	2E-07
Inhalation Unit Risk Factor (IUR) (µg/m³) ⁻¹		1.00E-06		3.40E-05		--		5.90E-06		--		--		4.10E-06		--		--		--	
References		OEHHA, 2015		U.S. EPA, 2015		--		OEHHA, 2015		--		--		U.S. EPA, 2015		--		--		--	

TABLE F-4B

CALCULATION OF EXCESS LIFETIME CANCER RISKS - CURRENT OFF-SITE RESIDENTS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Abbreviations:
($\mu\text{g}/\text{m}^3$)⁻¹ = risk per micrograms per cubic meter
-- = Not applicable / not available

References:
DTSC, 2014. Human Health Risk Assessment Note Number 1 - Recommended DTSC Default Exposure Factors for Use in Risk Assessment at California Hazardous Waste Sites and Permitted Facilities. Human and Ecological Risk Office, Department of Toxic Substances Control, California Environmental Protection Agency. September 30, 2014. http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA_Note1-2.pdf.
DTSC, 2015. Human Health Risk Assessment Note #3, DTSC-modified Screening Levels (DTSC-SLs), May 2015.
Office of Environmental Health Hazard Assessment (OEHHA), 2015, Toxicity Criteria Database (TCDB). www.oehha.ca.gov/risk/ChemicalDB/index.asp. Accessed July.
U.S. Environmental Protection Agency, 2009, Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part F, Supplemental Guidance for Inhalation Risk Assessment). Final. EPA-540-R-070-002.
U.S. Environmental Protection Agency, 2015, Regional Screening Levels. June. <http://www.epa.gov/region9/superfund/prg/>

Parameter Definition	Units	Value	Rationale / Reference
Chemical Concentration (C_{air}) in Air	$\mu\text{g}/\text{m}^3$	Chemical-specific	Table F-2B
Exposure Time (ET)	hours/day	24	DTSC, 2014
Exposure Frequency (EF)	days/year	350	DTSC, 2014
Exposure Duration (ED)	years	26	DTSC, 2014
Averaging time - Cancer (AT_c)	hours	613200	U.S. EPA, 2009

Equation
$\text{Cancer Exposure Concentration (EC) } (\mu\text{g}/\text{m}^3) = (C_{\text{air}} \times \text{EF} \times \text{ED} \times \text{ET}) / AT_c$ $\text{Cancer Risk} = \text{EC } (\mu\text{g}/\text{m}^3) \times \text{IUR } (\mu\text{g}/\text{m}^3)^{-1}$

TABLE F-5

SUMMARY OF ESTIMATED HAZARD INDEXES AND EXCESS LIFETIME CANCER RISKS
IRP Site 1, Naval and Marine Corps Reserve Center, Los Angeles
Los Angeles, California

Sampling Date:	Off-Site Residential Receptor				Current On-Site Commercial/Industrial Receptor			
	12/11/2014		5/19/2015		12/11/2014		5/19/2015	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Total Cancer Risk ¹	2E-07	7E-07	2E-07	8E-07	4E-09	4E-06	4E-09	5E-07
Total Noncancer Hazard Index ²	7E-03	2E-02	7E-03	2E-02	2E-04	4E-02	2E-04	1E-02

- Notes:
- 1. Estimated total cancer risks for On-Site Commercial/Industrial and Off-Site Residential Receptors are calculated in Tables F-4A and F-4B, respectively. Bold values exceed the point of departure for risk management decisions of one-in-a million (1x10⁻⁶).
 - 2. Estimated total noncancer hazards for On-Site Commercial/Industrial and Off-Site Residential Receptors are calculated in Tables F-3A and F-3B, respectively. Bold values exceed the point of departure for risk management decisions of one (1).

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Attachment A

Johnson and Ettinger Vapor Intrusion Models

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ATTACHMENT A-1
Johnson and Ettinger Model Input Parameters
NMCRC-LA
Los Angeles, California

Parameter	Symbol	Units	Value	Rationale	Value	Rationale	Value	Rationale
			On-Site C/I Worker		Current Off-Site Resident		Future On-Site Resident	
Depth below grade to bottom of enclosed floor space	L _F	(cm)	9	Slab-on-grade (Default); OEHHA, 2005	9	Slab-on-grade (Default); OEHHA, 2005	9	Slab-on-grade (Default); OEHHA, 2005
Soil gas sample depth	L _t	(cm)	152.4 (5 ft), 304.8 (10 ft), 457.2 (15 ft)	Site-specific sampling depths	152.4 (5 ft), 304.8 (10 ft), 457.2 (15 ft)	Site-specific sampling depths	152.4 (5 ft), 304.8 (10 ft), 457.2 (15 ft)	Site-specific sampling depths
Soil temperature	T _s	(°C)	22	Regional; U.S. EPA, 2004	22	Regional; U.S. EPA, 2004	22	Regional; U.S. EPA, 2004
Soil Vapor Permeability	K _v	(cm ²)	1.0x10 ⁻⁷	Model default; sand	1.0x10 ⁻⁷	Model default; sand	1.0x10 ⁻⁷	Model default; sand
Soil type – Stratum A	-	-	S	Sand; OEHHA, 2005, existing buildings	S	Sand; OEHHA, 2005, existing buildings	S	Sand; OEHHA, 2005, future buildings
Thickness of Soil Stratum A	h _A	(cm)	19	OEHHA, 2005	19	OEHHA, 2005	19	OEHHA, 2005
Soil dry bulk density – Stratum A	ρ _b	(g/cm ³)	1.66	Sand; default	1.66	Sand; default	1.66	Sand; default
Soil total porosity – Stratum A	P _T	(cm ³ /cm ³)	0.375	Sand; default	0.375	Sand; default	0.375	Sand; default
Soil water-filled porosity – Stratum A	P _w	(cm ³ /cm ³)	0.054	Sand; default	0.054	Sand; default	0.054	Sand; default
Soil type – Stratum B	-	-	SC	Sandy clay; site-specific grain size analysis, ASTM D422	S	Sand; default	SIC	Silty Clay used to represent low permeability engineered fill; OEHHA, 2005, future buildings
Thickness of Soil Stratum B	h _B	(cm)	133.4 / 285.8 / 438.2	Varies based on sample depth	133.4 / 285.8 / 438.2	Varies based on sample depth	30	OEHHA, 2005
Soil dry bulk density – Stratum B	ρ _b	(g/cm ³)	1.63	Sandy clay; default	1.66	Sand; default	1.8	OEHHA, 2005
Soil total porosity – Stratum B	P _T	(cm ³ /cm ³)	0.385	Sandy clay; default	0.375	Sand; default	0.3	OEHHA, 2005
Soil water-filled porosity – Stratum B	P _w	(cm ³ /cm ³)	0.197	Sandy clay; default	0.054	Sand; default	0.15	OEHHA, 2005
Soil type – Stratum C	-	-	--	--	--	--	SC	Sandy clay; site-specific grain size analysis, ASTM D422
Thickness of Soil Stratum C	h _C	(cm)	--	Only 2 stratums used	--	Only 2 stratums used	103.4 / 255.8 / 408.2	Varies based on sample depth
Soil dry bulk density – Stratum C	ρ _b	(g/cm ³)	--	--	--	--	1.63	Sandy clay; default
Soil total porosity – Stratum C	P _T	(cm ³ /cm ³)	--	--	--	--	0.385	Sandy clay; default
Soil water-filled porosity – Stratum C	P _w	(cm ³ /cm ³)	--	--	--	--	0.197	Sandy clay; default
Enclosed Space Floor Thickness	L _{crack}	(cm)/(ft)	9/0.3	Default; OEHHA, 2005	9/0.3	Default; OEHHA, 2005	9/0.3	Default; OEHHA, 2005
Soil/Building pressure differential	DP	(g/cm-s ²)	40	Default; DTSC, 2011	40	Default; DTSC, 2011	40	Default; DTSC, 2011
Width of building	W _B	(cm)/(ft)	1000/33	Default; DTSC, 2011	1000/33	Default; DTSC, 2011	1000/33	Default; DTSC, 2011
Height of building	H _B	(cm)/(ft)	244/8	Default; OEHHA, 2005	244/8	Default; OEHHA, 2005	244/8	Default; OEHHA, 2005
Floor-wall Seam Crack Width	w	(cm)/(ft)	0.1/0.0033	Default; U.S. EPA, 2004	0.1/0.0033	Default; U.S. EPA, 2004	0.1/0.0033	Default; U.S. EPA, 2004
Crack-to-total-area ratio	h	(--)	0.005	DTSC, 2011	0.005	DTSC, 2011	0.005	DTSC, 2011
Indoor air exchange rate	ER	(1/hr)	1	Commercial; DTSC, 2011	0.5	Residential; DTSC, 2011	0.5	Residential; DTSC, 2011
Average Vapor Flow Rate	Q _{soil}	(L/min)	5	DTSC, 2011	5	DTSC, 2011	5	DTSC, 2011

ATTACHMENT A-1
Johnson and Ettinger Model Input Parameters
NMCRC-LA
Los Angeles, California

Abbreviations:

°C = degrees celsius	C/I = commercial/industrial	hr = hour
cm = centimeter	ft = feet	L/min = liters per minute
cm ² = centimeter squared	g/cm-s ² = grams per centimeter per seconds squared	-- = not applicable
cm ³ /cm ³ = cubic centimeter per cubic centimeter	g/cm ³ = grams per cubic centimeter	

References:

Office of Environmental Health Hazard Assessment (OEHHA), 2005, Human-Exposure-Based Screening Numbers Developed to Aid Estimation of Cleanup Costs for Contaminated Soil. January.

Department of Toxic Substances Control (DTSC), 2011, Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance). California Environmental Protection Agency. October.

U.S. EPA, 2004, User's Guide for Evaluating Subsurface Vapor Intrusion into Buildings: Office of Emergency and Remedial Response, February 22.

SG-ADV
Version 3.1; 02/04Reset to
DefaultsAMEC FW
modified by LC; 07/15
Mult. Chemical; version 3.1.5ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
79345	1.00E+00			1,1,2,2-Tetrachloroethane
120821	1.00E+00			1,2,4-Trichlorobenzene
95636	1.00E+00			1,2,4-Trimethylbenzene
107062	1.00E+00			1,2-Dichloroethane
78875	1.00E+00			1,2-Dichloropropane
108678	1.00E+00			1,3,5-Trimethylbenzene
123911	1.00E+00			1,4-Dioxane
67641	1.00E+00			Acetone
71432	1.00E+00			Benzene
75150	1.00E+00			Carbon disulfide
74873	1.00E+00			Methyl chloride (chloromethane)
542756	1.00E+00			1,3-Dichloropropene
110827	1.00E+00			Cyclohexane
141786	1.00E+00			Ethylacetate
100414	1.00E+00			Ethylbenzene
142825	1.00E+00			Heptane
110543	1.00E+00			Hexane
108383	1.00E+00			m-Xylene
75092	1.00E+00			Methylene chloride (dichloromethane)
91203	1.00E+00			Naphthalene
95476	1.00E+00			o-Xylene
127184	1.00E+00			Tetrachloroethylene
109999	1.00E+00			Tetrahydrofuran
108883	1.00E+00			Toluene
79016	1.00E+00			Trichloroethylene
75694	1.00E+00			Trichlorofluoromethane
108054	1.00E+00			Vinyl acetate

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
9	152.4	22	19	133.4	0	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	SC	1.63	0.385	0.197	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g}/\text{cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_B (cm)	ENTER Enclosed space width, W_B (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q_{soil} (L/m)
9	40	1000	1000	244	0.1	1	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

	Diffusivity in air, D_a (cm ² /s)	Diffusivity in water, D_w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_b (°K)	Critical temperature, T_c (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
1,1,2,2-Tetrachloroethane	4.89E-02	9.29E-06	3.67E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00
1,2,4-Trichlorobenzene	3.96E-02	8.40E-06	1.42E-03	25	10,471	486.15	725.00	181.45	0.0E+00	2.0E-03
1,2,4-Trimethylbenzene	6.07E-02	7.92E-06	6.16E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,2-Dichloroethane	8.57E-02	1.10E-05	1.18E-03	25	7,643	356.65	561.00	98.96	2.6E-05	7.0E-03
1,2-Dichloropropane	7.33E-02	9.73E-06	2.82E-03	25	7,590	369.52	572.00	112.99	1.0E-05	4.0E-03
1,3,5-Trimethylbenzene	6.02E-02	7.84E-06	8.77E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
1,4-Dioxane	8.74E-02	1.05E-05	4.80E-06	25	8,164	374.30	587.15	88.11	7.7E-06	3.0E-02
Acetone	1.06E-01	1.15E-05	3.50E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.1E+01
Benzene	8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	78.11	2.9E-05	3.0E-03
Carbon disulfide	1.06E-01	1.30E-05	1.44E-02	25	6,391	319.00	552.00	76.13	0.0E+00	7.0E-01
Methyl chloride (chloromethane)	1.24E-01	1.36E-05	8.82E-03	25	5,115	249.00	416.25	50.49	0.0E+00	9.0E-02
1,3-Dichloropropene	7.63E-02	1.01E-05	3.55E-03	25	7,900	381.15	587.38	110.97	1.6E-05	2.0E-02
Cyclohexane	8.00E-02	9.11E-06	1.50E-01	25	7,154	353.70	553.40	84.16	0.0E+00	6.0E+00
Ethylacetate	8.23E-02	9.70E-06	1.34E-04	25	7,634	350.26	523.30	88.12	0.0E+00	7.0E-02
Ethylbenzene	6.85E-02	8.46E-06	7.88E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Heptane	8.80E-02	7.10E-06	9.01E-01	25	6,895	371.55	508.00	100.20	0.0E+00	0.0E+00
Hexane	7.31E-02	8.17E-06	1.80E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01
m-Xylene	6.84E-02	8.44E-06	7.18E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01
Methylene chloride (dichloromethane)	9.99E-02	1.25E-05	3.25E-03	25	6,706	313.00	510.00	84.93	1.0E-06	4.0E-01
Naphthalene	6.05E-02	8.38E-06	4.40E-04	25	10,373	491.14	748.40	128.18	3.4E-05	3.0E-03
o-Xylene	6.89E-02	8.53E-06	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
Tetrachloroethylene	5.05E-02	9.46E-06	1.77E-02	25	8,288	394.40	620.20	165.83	5.9E-06	3.5E-02
Tetrahydrofuran	9.54E-02	1.08E-05	7.05E-05	25	7,074	339.00	541.00	72.11	0.0E+00	2.0E+00
Toluene	7.78E-02	9.20E-06	6.64E-03	25	7,930	383.78	591.79	92.14	0.0E+00	3.0E-01
Trichloroethylene	6.87E-02	1.02E-05	9.85E-03	25	7,505	360.36	544.20	131.39	4.1E-06	2.0E-03
Trichlorofluoromethane	6.54E-02	1.00E-05	9.70E-02	25	5,999	296.70	471.00	137.36	0.0E+00	7.0E-01
Vinyl acetate	8.49E-02	1.00E-05	5.11E-04	25	7,800	345.65	519.13	86.09	0.0E+00	2.0E-01

INTERMEDIATE CALCULATIONS

	Exposure duration, τ (sec)	Source-building separation, L_1 (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ue} (cm ³ /cm ³)	Stratum A soil relative air permeability, k_r (cm ²)	Stratum A soil intrinsic permeability, k_{in} (cm ²)	Stratum A soil effective vapor permeability, k_{ev} (cm ²)	Floor-wall seam permeability, X_{uack} (cm)	Soil gas conc., Q_{uack} (μ g/m ³)	Bldg ventilation rate, Q_{uack} (m ³ /s)
1,1,2,2-Tetrachloroethane	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2,4-Trichlorobenzene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2,4-Trimethylbenzene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3-Dichlorobenzene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2-Dichloropropane	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3,5-Trimethylbenzene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,4-Dioxane	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Acetone	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Benzene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Carbon disulfide	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Methyl chloride (chloroform)	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3-Dichloropropane	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Cyclohexane	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Ethylacetate	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Ethylbenzene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Heptane	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Hexane	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
n-Xylene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Methylselen chloride (dichloro)	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Naphthalene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
o-Xylene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Tetrachloroethylene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Tetrahydrofuran	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Toluene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Trichloroethylene	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Trichlorobromomethane	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Vinyl acetate	7.88E+08	143.4	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
	Area of enclosed space below grade, A_0 (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth, Z_{uack} (cm)	Enthalpy of vaporization at ave. soil temperature, ΔH_{15} (cal/mol)	Henry's law constant at ave. soil temperature, H_{15} (atm-m ³ /mol)	Henry's law constant at diffusion temperature, H_{15} (unitless)	Vapor viscosity at diffusion temperature, μ_{15} (g/cm-s)	Stratum A effective diffusion coefficient, D_{15}^A (cm ² /s)	Stratum B effective diffusion coefficient, D_{15}^B (cm ² /s)	Stratum C effective diffusion coefficient, D_{15}^C (cm ² /s)	Total overall effective ave. soil coefficient, D_{15}^T (cm ² /s)	Diffusion path length, L_1 (cm)
1,1,2,2-Tetrachloroethane	1.00E+06	5.00E-03	9	10.420	3.07E-04	1.27E-02	1.79E-04	7.91E-03	1.29E-03	0.00E+00	1.37E-03	143.4
1,2,4-Trichlorobenzene	1.00E+06	5.00E-03	9	13.092	1.13E-03	4.68E-02	1.79E-04	6.40E-03	1.03E-03	0.00E+00	1.09E-03	143.4
1,2,4-Trimethylbenzene	1.00E+06	5.00E-03	9	11.541	5.05E-03	2.09E-01	1.79E-04	9.81E-03	1.57E-03	0.00E+00	1.67E-03	143.4
1,3-Dichlorobenzene	1.00E+06	5.00E-03	9	8.390	1.02E-03	4.22E-02	1.79E-04	1.36E-02	2.22E-03	0.00E+00	2.36E-03	143.4
1,2-Dichloropropane	1.00E+06	5.00E-03	9	8.500	2.44E-03	1.01E-01	1.79E-04	1.19E-02	1.90E-03	0.00E+00	2.01E-03	143.4
1,3,5-Trimethylbenzene	1.00E+06	5.00E-03	9	11.521	7.20E-03	2.97E-01	1.79E-04	9.74E-03	1.56E-03	0.00E+00	1.65E-03	143.4
1,4-Dioxane	1.00E+06	5.00E-03	9	9.136	4.10E-06	1.69E-04	1.79E-04	6.42E-02	4.34E-03	0.00E+00	4.34E-03	143.4
Acetone	1.00E+06	5.00E-03	9	7.410	3.08E-05	1.27E-03	1.79E-04	1.71E-02	3.01E-03	0.00E+00	3.19E-03	143.4
Benzene	1.00E+06	5.00E-03	9	7.998	4.84E-03	2.00E-01	1.79E-04	1.45E-02	2.31E-03	0.00E+00	2.46E-03	143.4
Carbon disulfide	1.00E+06	5.00E-03	9	6.588	1.29E-02	5.31E-01	1.79E-04	1.72E-02	2.75E-03	0.00E+00	2.92E-03	143.4
Methyl chloride (chloroform)	1.00E+06	5.00E-03	9	4.903	3.15E-03	3.20E-02	1.79E-04	2.20E-02	2.40E-03	0.00E+00	2.40E-03	143.4
1,3-Dichloropropane	1.00E+06	5.00E-03	9	8.969	3.04E-03	1.26E-01	1.79E-04	1.23E-02	1.97E-03	0.00E+00	2.09E-03	143.4
Cyclohexane	1.00E+06	5.00E-03	9	7.841	1.31E-01	5.41E+00	1.79E-04	1.29E-02	2.07E-03	0.00E+00	2.19E-03	143.4
Ethylacetate	1.00E+06	5.00E-03	9	8.478	1.16E-04	4.78E-03	1.79E-04	1.33E-02	2.19E-03	0.00E+00	2.32E-03	143.4
Ethylbenzene	1.00E+06	5.00E-03	9	10.017	6.84E-03	2.74E-01	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.88E-03	143.4
Heptane	1.00E+06	5.00E-03	9	8.274	7.82E-01	3.23E+01	1.79E-04	1.42E-02	2.27E-03	0.00E+00	2.41E-03	143.4
Hexane	1.00E+06	5.00E-03	9	7.576	1.58E+00	6.53E+01	1.79E-04	1.18E-02	1.89E-03	0.00E+00	2.01E-03	143.4
n-Xylene	1.00E+06	5.00E-03	9	10.114	6.40E-03	2.40E+01	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.88E-03	143.4
Methylselen chloride (dichloro)	1.00E+06	5.00E-03	9	6.908	2.89E-03	1.19E-01	1.79E-04	1.62E-02	2.58E-03	0.00E+00	2.74E-03	143.4
Naphthalene	1.00E+06	5.00E-03	9	12.789	3.53E-04	1.46E-02	1.79E-04	9.78E-03	1.58E-03	0.00E+00	1.68E-03	143.4
o-Xylene	1.00E+06	5.00E-03	9	10.268	4.34E-03	1.79E-01	1.79E-04	1.11E-02	1.78E-03	0.00E+00	1.89E-03	143.4
Tetrachloroethylene	1.00E+06	5.00E-03	9	9.431	1.51E-02	6.22E-01	1.79E-04	6.16E-03	1.30E-03	0.00E+00	1.38E-03	143.4
Tetrahydrofuran	1.00E+06	5.00E-03	9	7.574	6.19E-05	2.56E-03	1.79E-04	1.54E-02	2.59E-03	0.00E+00	2.75E-03	143.4
Toluene	1.00E+06	5.00E-03	9	9.023	5.69E-03	2.35E-01	1.79E-04	1.26E-02	2.01E-03	0.00E+00	2.14E-03	143.4
Trichloroethylene	1.00E+06	5.00E-03	9	8.407	8.53E-03	3.52E-01	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.88E-03	143.4
Trichlorobromomethane	1.00E+06	5.00E-03	9	6.018	8.75E-02	3.61E+00	1.79E-04	1.06E-02	1.69E-03	0.00E+00	1.79E-03	143.4
Vinyl acetate	1.00E+06	5.00E-03	9	8.588	4.41E-04	1.82E-02	1.79E-04	1.37E-02	2.21E-03	0.00E+00	2.35E-03	143.4
	Convection path length, L_1 (cm)	Source vapor conc., C_{uack} (μ g/m ³)	Crack radius, r_{uack} (cm)	Average vapor flow rate into bldg., Q_{uack} (m ³ /s)	Crack effective diffusion coefficient, D_{15}^{uack} (cm ² /s)	Area of crack, A_{uack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C_{uack} (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RC (mg/m ³)	
1,1,2,2-Tetrachloroethane	9	1.00E+00	1.25	8.33E+01	7.91E-03	5.00E+03	1.73E+08	1.26E-04	1.26E-04	5.8E-05	NA	
1,2,4-Trichlorobenzene	9	1.00E+00	1.25	8.33E+01	6.40E-03	5.00E+03	1.50E+01	1.03E-04	1.03E-04	NA	2.0E-03	
1,2,4-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.81E-03	5.00E+03	4.38E+06	1.50E-04	1.50E-04	NA	7.0E-03	
1,3-Dichlorobenzene	9	1.00E+00	1.25	8.33E+01	1.39E-02	5.00E+03	5.02E+04	2.03E-04	2.03E-04	2.6E-05	7.0E-03	
1,2-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.19E-02	5.00E+03	3.12E+05	1.77E-04	1.77E-04	1.0E-05	4.0E-03	
1,3,5-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.74E-03	5.00E+03	4.91E+06	1.49E-04	1.49E-04	NA	3.5E-02	
1,4-Dioxane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	4.01E+04	3.28E-04	3.28E-04	7.7E-06	3.0E-02	
Acetone	9	1.00E+00	1.25	8.33E+01	1.71E-02	5.00E+03	6.36E+03	2.59E-04	2.59E-04	NA	3.1E-01	
Benzene	9	1.00E+00	1.25	8.33E+01	1.45E-02	5.00E+03	3.17E+04	2.10E-04	2.10E-04	2.9E-05	3.0E-03	
Carbon disulfide	9	1.00E+00	1.25	8.33E+01	1.72E-02	5.00E+03	6.10E+03	2.41E-04	2.41E-04	NA	7.0E-01	
Methyl chloride (chloroform)	9	1.00E+00	1.25	8.33E+01	2.06E-02	5.00E+03	2.72E-04	2.72E-04	2.72E-04	NA	8.9E-02	
1,3-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.23E-02	5.00E+03	1.62E+05	1.83E-04	1.83E-04	1.8E-05	2.0E-02	
Cyclohexane	9	1.00E+00	1.25	8.33E+01	1.29E-02	5.00E+03	1.09E+05	1.91E-04	1.91E-04	NA	6.0E+00	
Ethylacetate	9	1.00E+00	1.25	8.33E+01	1.33E-02	5.00E+03	7.88E+04	2.00E-04	2.00E-04	NA	7.0E-02	
Ethylbenzene	9	1.00E+00	1.25	8.33E+01	1.39E-02	5.00E+03	7.66E+04	1.87E-04	1.87E-04	2.5E-06	5.5E-02	
Heptane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	3.80E+04	2.07E-04	2.07E-04	NA	NA	
Hexane	9	1.00E+00	1.25	8.33E+01	1.18E-02	5.00E+03	3.25E+05	1.77E-04	1.77E-04	NA	7.0E-01	
n-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.04E+05	1.68E-04	1.68E-04	NA	1.0E-01	
Methylselen chloride (dichloro)	9	1.00E+00	1.25	8.33E+01	1.62E-02	5.00E+03	1.08E+04	2.30E-04	2.30E-04	1.0E-06	4.0E-01	
Naphthalene	9	1.00E+00	1.25	8.33E+01	9.78E-03	5.00E+03	4.58E+06	1.51E				

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SG-ADV
Version 3.1; 02/04Reset to
DefaultsAMEC FW
modified by LC; 07/15
Mult. Chemical; version 3.1.5ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
79345	1.00E+00			1,1,2,2-Tetrachloroethane
120821	1.00E+00			1,2,4-Trichlorobenzene
95636	1.00E+00			1,2,4-Trimethylbenzene
107062	1.00E+00			1,2-Dichloroethane
78875	1.00E+00			1,2-Dichloropropane
108678	1.00E+00			1,3,5-Trimethylbenzene
123911	1.00E+00			1,4-Dioxane
67641	1.00E+00			Acetone
71432	1.00E+00			Benzene
75150	1.00E+00			Carbon disulfide
74873	1.00E+00			Methyl chloride (chloromethane)
542756	1.00E+00			1,3-Dichloropropene
110827	1.00E+00			Cyclohexane
141786	1.00E+00			Ethylacetate
100414	1.00E+00			Ethylbenzene
142825	1.00E+00			Heptane
110543	1.00E+00			Hexane
108383	1.00E+00			m-Xylene
75092	1.00E+00			Methylene chloride (dichloromethane)
91203	1.00E+00			Naphthalene
95476	1.00E+00			o-Xylene
127184	1.00E+00			Tetrachloroethylene
109999	1.00E+00			Tetrahydrofuran
108883	1.00E+00			Toluene
79016	1.00E+00			Trichloroethylene
75694	1.00E+00			Trichlorofluoromethane
108054	1.00E+00			Vinyl acetate

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Soil gas sampling depth below grade, L _s (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Thickness of soil stratum A, h _A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)
9	152.4	22	19	133.4	0	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
9	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	26	26	350

END

	DATA ENTRY									
	Diffusivity in air, D_a (cm ² /s)	Diffusivity in water, D_w (cm ² /s)	Henry's law constant at reference temperature, H (atm-m ³ /mol)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
1,1,2,2-Tetrachloroethane	4.89E-02	9.29E-06	3.67E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00
1,2,4-Trichlorobenzene	3.96E-02	8.40E-06	1.42E-03	25	10,471	486.15	725.00	181.45	0.0E+00	2.0E-03
1,2,4-Trimethylbenzene	6.07E-02	7.92E-06	6.16E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,2-Dichloroethane	8.57E-02	1.10E-05	1.18E-03	25	7,643	356.65	561.00	98.96	2.6E-05	7.0E-03
1,2-Dichloropropane	7.33E-02	9.73E-06	2.82E-03	25	7,590	369.52	572.00	112.99	1.0E-05	4.0E-03
1,3,5-Trimethylbenzene	6.02E-02	7.84E-06	8.77E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
1,4-Dioxane	8.74E-02	1.05E-05	4.80E-06	25	8,164	374.30	587.15	88.11	7.7E-06	3.0E-02
Acetone	1.06E-01	1.15E-05	3.50E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.1E+01
Benzene	8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	78.11	2.9E-05	3.0E-03
Carbon disulfide	1.06E-01	1.30E-05	1.44E-02	25	6,391	319.00	552.00	76.13	0.0E+00	7.0E-01
Methyl chloride (chloromethane)	1.24E-01	1.36E-05	8.82E-03	25	5,115	249.00	416.25	50.49	0.0E+00	9.0E-02
1,3-Dichloropropene	7.63E-02	1.01E-05	3.55E-03	25	7,900	381.15	587.38	110.97	1.6E-05	2.0E-02
Cyclohexane	8.00E-02	9.11E-06	1.50E-01	25	7,154	353.70	553.40	84.16	0.0E+00	6.0E+00
Ethylacetate	8.23E-02	9.70E-06	1.34E-04	25	7,634	350.26	523.30	88.12	0.0E+00	7.0E-02
Ethylbenzene	6.85E-02	8.46E-06	7.88E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Heptane	8.80E-02	7.10E-06	9.01E-01	25	6,895	371.55	508.00	100.20	0.0E+00	0.0E+00
Hexane	7.31E-02	8.17E-06	1.80E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01
m-Xylene	6.84E-02	8.44E-06	7.18E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01
Methylene chloride (dichloromethane)	9.99E-02	1.25E-05	3.25E-03	25	6,706	313.00	510.00	84.93	1.0E-06	4.0E-01
Naphthalene	6.05E-02	8.38E-06	4.40E-04	25	10,373	491.14	748.40	128.18	3.4E-05	3.0E-03
o-Xylene	6.89E-02	8.53E-06	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
Tetrachloroethylene	5.05E-02	9.46E-06	1.77E-02	25	8,288	394.40	620.20	165.83	5.9E-06	3.5E-02
Tetrahydrofuran	9.54E-02	1.08E-05	7.05E-05	25	7,074	339.00	541.00	72.11	0.0E+00	2.0E+00
Toluene	7.78E-02	9.20E-06	6.64E-03	25	7,930	383.79	591.79	92.14	0.0E+00	3.0E-01
Trichloroethylene	6.87E-02	1.02E-05	9.85E-03	25	7,505	360.36	544.20	131.39	4.1E-06	2.0E-03
Trichlorofluoromethane	6.54E-02	1.00E-05	9.70E-02	25	5,999	296.70	471.00	137.36	0.0E+00	7.0E-01
Vinyl acetate	8.49E-02	1.00E-05	5.11E-04	25	7,800	345.65	519.13	86.09	0.0E+00	2.0E-01

	Exposure duration, τ (sec)	Source-building separation, L_1 (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ue} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{ra} (cm ²)	Stratum A soil effective vapor permeability, k_{ve} (cm ²)	Floor-wall seam perimeter, X_{seam} (cm)	Soil gas conc., Q_{soil} (ug/m ³)	Bldg ventilation rate, Q_{vent} (m ³ /s)
1,1,2,2-Tetrachloroethane	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2,4-Trichlorobenzene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2,4-Trimethylbenzene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,3-Dichlorobenzene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2-Dichloropropane	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,3,5-Trimethylbenzene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,4-Dioxane	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Acetone	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Benzene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Carbon disulfide	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Methyl chloride (chloroform)	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,3-Dichloropropane	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Cyclohexane	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Ethylacetate	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Ethylbenzene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Heptane	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Hexane	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
n-Xylene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Methylsulfide (dimethyl)	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Naphthalene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
o-Xylene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Tetrahydrofuran	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Toluene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Trichloroethylene	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Trichlorobromomethane	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Vinyl acetate	8.20E+08	143.4	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04

	Area of enclosed space below grade, A_g (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth, Z_{crack} (cm)	Enthalpy of vaporization at below temperature, ΔH_{15} (cal/mol)	Henry's law constant at below temperature, H_{15} (atm-m ³ /mol)	Henry's law constant at below temperature, H_{15} (unitless)	Vapor viscosity at below temperature, μ_{15} (g/cm-s)	Stratum A effective diffusion coefficient, D_{eff}^A (cm ² /s)	Stratum B effective diffusion coefficient, D_{eff}^B (cm ² /s)	Stratum C effective diffusion coefficient, D_{eff}^C (cm ² /s)	Total effective diffusion coefficient, D_{eff}^T (cm ² /s)	Diffusion path length, L_1 (cm)
1,1,2,2-Tetrachloroethane	1.00E+06	5.00E-03	9	10.420	3.07E-04	1.27E-02	1.79E-04	7.91E-03	7.91E-03	0.00E+00	7.91E-03	143.4
1,2,4-Trichlorobenzene	1.00E+06	5.00E-03	9	13.092	1.13E-03	4.68E-02	1.79E-04	6.40E-03	6.40E-03	0.00E+00	6.40E-03	143.4
1,2,4-Trimethylbenzene	1.00E+06	5.00E-03	9	11.541	5.05E-03	2.09E-01	1.79E-04	9.81E-03	9.81E-03	0.00E+00	9.81E-03	143.4
1,3-Dichlorobenzene	1.00E+06	5.00E-03	9	8.390	1.02E-03	4.22E-02	1.79E-04	1.39E-02	1.39E-02	0.00E+00	1.39E-02	143.4
1,2-Dichloropropane	1.00E+06	5.00E-03	9	8.500	2.44E-03	1.01E-01	1.79E-04	1.19E-02	1.19E-02	0.00E+00	1.19E-02	143.4
1,3,5-Trimethylbenzene	1.00E+06	5.00E-03	9	11.521	7.20E-03	2.97E-01	1.79E-04	9.74E-03	9.74E-03	0.00E+00	9.74E-03	143.4
1,4-Dioxane	1.00E+06	5.00E-03	9	9.136	4.10E-06	1.69E-04	1.79E-04	6.24E-02	6.24E-02	0.00E+00	6.24E-02	143.4
Acetone	1.00E+06	5.00E-03	9	7.410	3.08E-05	1.27E-03	1.79E-04	1.71E-02	1.71E-02	0.00E+00	1.71E-02	143.4
Benzene	1.00E+06	5.00E-03	9	7.998	4.84E-03	2.00E-01	1.79E-04	1.45E-02	1.45E-02	0.00E+00	1.45E-02	143.4
Carbon disulfide	1.00E+06	5.00E-03	9	6.588	1.29E-02	5.31E-01	1.79E-04	1.72E-02	1.72E-02	0.00E+00	1.72E-02	143.4
Methyl chloride (chloroform)	1.00E+06	5.00E-03	9	4.903	3.15E-03	1.20E-02	1.79E-04	2.00E-02	2.00E-02	0.00E+00	2.00E-02	143.4
1,3-Dichloropropane	1.00E+06	5.00E-03	9	8.969	3.04E-03	1.26E-01	1.79E-04	1.23E-02	1.23E-02	0.00E+00	1.23E-02	143.4
Cyclohexane	1.00E+06	5.00E-03	9	7.841	1.31E-01	5.41E+00	1.79E-04	1.29E-02	1.29E-02	0.00E+00	1.29E-02	143.4
Ethylacetate	1.00E+06	5.00E-03	9	8.478	1.16E-04	4.78E-03	1.79E-04	1.33E-02	1.33E-02	0.00E+00	1.33E-02	143.4
Ethylbenzene	1.00E+06	5.00E-03	9	10.017	6.84E-03	2.74E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	143.4
Heptane	1.00E+06	5.00E-03	9	8.274	7.82E-01	3.23E+01	1.79E-04	1.42E-02	1.42E-02	0.00E+00	1.42E-02	143.4
Hexane	1.00E+06	5.00E-03	9	7.576	1.58E+00	6.53E+01	1.79E-04	1.18E-02	1.18E-02	0.00E+00	1.18E-02	143.4
n-Xylene	1.00E+06	5.00E-03	9	10.114	6.10E-03	2.40E+01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	143.4
Methylsulfide (dimethyl)	1.00E+06	5.00E-03	9	6.908	2.89E-03	1.19E-01	1.79E-04	1.62E-02	1.62E-02	0.00E+00	1.62E-02	143.4
Naphthalene	1.00E+06	5.00E-03	9	12.789	3.53E-04	1.46E-02	1.79E-04	9.78E-03	9.78E-03	0.00E+00	9.78E-03	143.4
o-Xylene	1.00E+06	5.00E-03	9	10.268	4.34E-03	1.79E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	143.4
Tetrahydrofuran	1.00E+06	5.00E-03	9	9.431	1.51E-02	6.22E-01	1.79E-04	8.16E-03	8.16E-03	0.00E+00	8.16E-03	143.4
Toluene	1.00E+06	5.00E-03	9	7.574	6.19E-05	2.56E-03	1.79E-04	1.54E-02	1.54E-02	0.00E+00	1.54E-02	143.4
Trichloroethylene	1.00E+06	5.00E-03	9	9.023	5.69E-03	2.35E-01	1.79E-04	1.26E-02	1.26E-02	0.00E+00	1.26E-02	143.4
Trichlorobromomethane	1.00E+06	5.00E-03	9	6.407	8.53E-03	3.52E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	143.4
Vinyl acetate	1.00E+06	5.00E-03	9	6.018	8.75E-02	3.61E+00	1.79E-04	1.06E-02	1.06E-02	0.00E+00	1.06E-02	143.4
Vinyl acetate	1.00E+06	5.00E-03	9	6.588	4.41E-04	1.82E-02	1.79E-04	1.37E-02	1.37E-02	0.00E+00	1.37E-02	143.4

	Convection path length, L_1 (cm)	Source vapor conc., C_{soil} (ug/m ³)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm ³ /s)	Crack effective diffusion coefficient, D_{eff}^{crack} (cm ² /s)	Area of crack, A_{crack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C_{bldg} (ug/m ³)	Unit risk factor, URF (ug/m ³) ⁻¹	Reference conc., RRC (mg/m ³)
1,1,2,2-Tetrachloroethane	9	1.00E+00	1.25	8.33E+01	7.91E-03	5.00E+03	1.73E+08	9.79E-04	9.79E-04	5.8E-05	NA
1,2,4-Trichlorobenzene	9	1.00E+00	1.25	8.33E+01	6.40E-03	5.00E+03	1.50E+01	8.88E-04	8.88E-04	NA	2.0E-03
1,2,4-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.81E-03	5.00E+03	4.38E+08	1.11E-03	1.11E-03	NA	7.0E-03
1,3-Dichlorobenzene	9	1.00E+00	1.25	8.33E+01	1.39E-02	5.00E+03	5.02E+04	1.32E-03	1.32E-03	2.6E-05	7.0E-03
1,2-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.19E-02	5.00E+03	3.12E+05	1.22E-03	1.22E-03	1.0E-05	4.0E-03
1,3,5-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.74E-03	5.00E+03	4.91E+08	1.10E-03	1.10E-03	NA	3.5E-02
1,4-Dioxane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	4.01E+04	1.33E-03	1.33E-03	7.7E-06	3.0E-02
Acetone	9	1.00E+00	1.25	8.33E+01	1.71E-02	5.00E+03	6.36E+03	1.45E-03	1.45E-03	NA	1.1E-01
Benzene	9	1.00E+00	1.25	8.33E+01	1.45E-02	5.00E+03	3.17E+04	1.35E-03	1.35E-03	2.9E-05	3.0E-03
Carbon disulfide	9	1.00E+00	1.25	8.33E+01	1.72E-02	5.00E+03	6.10E+03	1.45E-03	1.45E-03	NA	7.0E-01
Methyl chloride (chloroform)	9	1.00E+00	1.25	8.33E+01	2.00E-02	5.00E+03	1.54E+03	1.54E-03	1.54E-03	NA	8.0E-02
1,3-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.23E-02	5.00E+03	1.62E+05	1.25E-03	1.25E-03	1.8E-05	2.0E-02
Cyclohexane	9	1.00E+00	1.25	8.33E+01	1.29E-02	5.00E+03	1.09E+05	1.28E-03	1.28E-03	NA	6.0E+00
Ethylacetate	9	1.00E+00	1.25	8.33E+01	1.33E-02	5.00E+03	7.88E+04	1.30E-03	1.30E-03	NA	7.0E-02
Ethylbenzene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.66E+03	1.18E-03	1.18E-03	2.5E-06	5.0E-00
Heptane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	3.80E+04	1.34E-03	1.34E-03	NA	NA
Hexane	9	1.00E+00	1.25	8.33E+01	1.18E-02	5.00E+03	3.25E+05	1.22E-03	1.22E-03	NA	7.0E-01
n-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.49E+03	1.18E-03	1.18E-03	NA	1.0E-01
Methylsulfide (dimethyl)	9	1.00E+00	1.25	8.33E+01	1.62E-02	5.00E+03	1.08E+04	1.41E-03	1.41E-03	1.0E-06	4.0E-01
Naphthalene	9	1.00E+00	1.25	8.33E+01	9.78E-03	5.00E+03	4.58E+06	1.11E-03	1.11E-03	3.4E-05	3.0E-03
o-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.03E+05	1.19E-03	1.19E-03	NA	1.0E-

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SG-ADV
Version 3.1; 02/04Reset to
DefaultsAMEC FW
modified by LC; 07/15
Mult. Chemical; version 3.1.5ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
79345	1.00E+00			1,1,2,2-Tetrachloroethane
120821	1.00E+00			1,2,4-Trichlorobenzene
95636	1.00E+00			1,2,4-Trimethylbenzene
107062	1.00E+00			1,2-Dichloroethane
78875	1.00E+00			1,2-Dichloropropane
108678	1.00E+00			1,3,5-Trimethylbenzene
123911	1.00E+00			1,4-Dioxane
67641	1.00E+00			Acetone
71432	1.00E+00			Benzene
75150	1.00E+00			Carbon disulfide
74873	1.00E+00			Methyl chloride (chloromethane)
542756	1.00E+00			1,3-Dichloropropene
110827	1.00E+00			Cyclohexane
141786	1.00E+00			Ethylacetate
100414	1.00E+00			Ethylbenzene
142825	1.00E+00			Heptane
110543	1.00E+00			Hexane
108383	1.00E+00			m-Xylene
75092	1.00E+00			Methylene chloride (dichloromethane)
91203	1.00E+00			Naphthalene
95476	1.00E+00			o-Xylene
127184	1.00E+00			Tetrachloroethylene
109999	1.00E+00			Tetrahydrofuran
108883	1.00E+00			Toluene
79016	1.00E+00			Trichloroethylene
75694	1.00E+00			Trichlorofluoromethane
108054	1.00E+00			Vinyl acetate

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Soil gas sampling depth, below grade, L _s (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Thickness of soil stratum A, h _A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)
9	304.8	22	19	285.8	0	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _b ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _b ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _b ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
S	1.66	0.375	0.054	SC	1.63	0.385	0.197	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
9	40	1000	1000	244	0.1	1	5

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

	Diffusivity in air, D_a (cm ² /s)	Diffusivity in water, D_w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T_R (°C)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_b (°K)	Critical temperature, T_c (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
1,1,2,2-Tetrachloroethane	4.89E-02	9.29E-06	3.67E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00
1,2,4-Trichlorobenzene	3.96E-02	8.40E-06	1.42E-03	25	10,471	486.15	725.00	181.45	0.0E+00	2.0E-03
1,2,4-Trimethylbenzene	6.07E-02	7.92E-06	6.16E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,2-Dichloroethane	8.57E-02	1.10E-05	1.18E-03	25	7,643	356.65	561.00	98.96	2.6E-05	7.0E-03
1,2-Dichloropropane	7.33E-02	9.73E-06	2.82E-03	25	7,590	369.52	572.00	112.99	1.0E-05	4.0E-03
1,3,5-Trimethylbenzene	6.02E-02	7.84E-06	8.77E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
1,4-Dioxane	8.74E-02	1.05E-05	4.80E-06	25	8,164	374.30	587.15	88.11	7.7E-06	3.0E-02
Acetone	1.06E-01	1.15E-05	3.50E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.1E+01
Benzene	8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	78.11	2.9E-05	3.0E-03
Carbon disulfide	1.06E-01	1.30E-05	1.44E-02	25	6,391	319.00	552.00	76.13	0.0E+00	7.0E-01
Methyl chloride (chloromethane)	1.24E-01	1.36E-05	8.82E-03	25	5,115	249.00	416.25	50.49	0.0E+00	9.0E-02
1,3-Dichloropropene	7.63E-02	1.01E-05	3.55E-03	25	7,900	381.15	587.38	110.97	1.6E-05	2.0E-02
Cyclohexane	8.00E-02	9.11E-06	1.50E-01	25	7,154	353.70	553.40	84.16	0.0E+00	6.0E+00
Ethylacetate	8.23E-02	9.70E-06	1.34E-04	25	7,634	350.26	523.30	88.12	0.0E+00	7.0E-02
Ethylbenzene	6.85E-02	8.46E-06	7.88E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Heptane	8.80E-02	7.10E-06	9.01E-01	25	6,895	371.55	508.00	100.20	0.0E+00	0.0E+00
Hexane	7.31E-02	8.17E-06	1.80E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01
m-Xylene	6.84E-02	8.44E-06	7.18E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01
Methylene chloride (dichloromethane)	9.99E-02	1.25E-05	3.25E-03	25	6,706	313.00	510.00	84.93	1.0E-06	4.0E-01
Naphthalene	6.05E-02	8.38E-06	4.40E-04	25	10,373	491.14	748.40	128.18	3.4E-05	3.0E-03
o-Xylene	6.89E-02	8.53E-06	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
Tetrachloroethylene	5.05E-02	9.46E-06	1.77E-02	25	8,288	394.40	620.20	165.83	5.9E-06	3.5E-02
Tetrahydrofuran	9.54E-02	1.08E-05	7.05E-05	25	7,074	339.00	541.00	72.11	0.0E+00	2.0E+00
Toluene	7.78E-02	9.20E-06	6.64E-03	25	7,930	383.78	591.79	92.14	0.0E+00	3.0E-01
Trichloroethylene	6.87E-02	1.02E-05	9.85E-03	25	7,505	360.36	544.20	131.39	4.1E-06	2.0E-03
Trichlorofluoromethane	6.54E-02	1.00E-05	9.70E-02	25	5,999	296.70	471.00	137.36	0.0E+00	7.0E-01
Vinyl acetate	8.49E-02	1.00E-05	5.11E-04	25	7,800	345.65	519.13	86.09	0.0E+00	2.0E-01

INTERMEDIATE CALCULATIONS

	Exposure duration, τ (sec)	Source-building separation, L_1 (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ue} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{ra} (cm ²)	Stratum A soil effective vapor permeability, k_{ve} (cm ²)	Floor-wall seam perimeter, X_{uack} (cm)	Soil gas conc., Q_{uack} (μ g/m ³)	Bldg ventilation rate, Q_{uack} (m ³ /s)
1,1,2,2-Tetrachloroethane	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2,4-Trichlorobenzene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2,4-Trimethylbenzene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3-Dichlorobenzene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2-Dichloropropane	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3,5-Trimethylbenzene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,4-Dioxane	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Acetone	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Benzene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Carbon disulfide	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Methyl chloride (chloroform)	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3-Dichloropropane	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Cyclohexane	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Ethylacetate	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Ethylbenzene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Heptane	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Hexane	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
n-Xylene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Methylselen chloride (dichloro)	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Naphthalene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
n-Xylene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Tetrachloroethylene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Tetrahydrofuran	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Toluene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Trichloroethylene	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Trichlorofluoromethane	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Vinyl acetate	7.88E+08	295.8	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
	Area of enclosed space below grade, A_0 (cm ²)	Crack-to-total area ratio, η_1 (unitless)	Crack depth, Z_{uack} (cm)	Enthalpy of vaporization at ave. soil temperature, ΔH_{15} (cal/mol)	Henry's law constant at ave. soil temperature, H_{15} (atm-m ³ /mol)	Henry's law constant at diffusion temperature, H_{T3} (unitless)	Vapor viscosity at diffusion temperature, μ_{T3} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective ave. soil coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_1 (cm)
1,1,2,2-Tetrachloroethane	1.00E+06	5.00E-03	9	10.420	3.07E-04	1.27E-02	1.79E-04	7.91E-03	1.29E-03	0.00E+00	1.32E-03	295.8
1,2,4-Trichlorobenzene	1.00E+06	5.00E-03	9	13.052	1.13E-03	4.68E-02	1.79E-04	6.40E-03	1.03E-03	0.00E+00	1.06E-03	295.8
1,2,4-Trimethylbenzene	1.00E+06	5.00E-03	9	11.541	5.05E-03	2.09E-01	1.79E-04	9.81E-03	1.57E-03	0.00E+00	1.81E-03	295.8
1,3-Dichlorobenzene	1.00E+06	5.00E-03	9	8.390	1.02E-03	4.22E-02	1.79E-04	1.36E-02	2.22E-03	0.00E+00	2.29E-03	295.8
1,2-Dichloropropane	1.00E+06	5.00E-03	9	8.500	2.44E-03	1.01E-01	1.79E-04	1.19E-02	1.90E-03	0.00E+00	1.95E-03	295.8
1,3,5-Trimethylbenzene	1.00E+06	5.00E-03	9	11.521	7.20E-03	2.97E-01	1.79E-04	9.74E-03	1.56E-03	0.00E+00	1.60E-03	295.8
1,4-Dioxane	1.00E+06	5.00E-03	9	9.136	4.10E-06	1.69E-04	1.79E-04	4.22E-02	4.13E-03	0.00E+00	4.23E-03	295.8
Acetone	1.00E+06	5.00E-03	9	7.410	3.08E-05	1.27E-03	1.79E-04	1.71E-02	3.01E-03	0.00E+00	3.09E-03	295.8
Benzene	1.00E+06	5.00E-03	9	7.998	4.84E-03	2.00E-01	1.79E-04	1.45E-02	2.31E-03	0.00E+00	2.38E-03	295.8
Carbon disulfide	1.00E+06	5.00E-03	9	6.588	1.29E-02	5.31E-01	1.79E-04	1.72E-02	2.75E-03	0.00E+00	2.83E-03	295.8
Methyl chloride (chloroform)	1.00E+06	5.00E-03	9	4.903	3.15E-03	1.20E-01	1.79E-04	2.20E-02	3.20E-03	0.00E+00	3.30E-03	295.8
1,3-Dichloropropane	1.00E+06	5.00E-03	9	8.969	3.04E-03	1.26E-01	1.79E-04	1.23E-02	1.97E-03	0.00E+00	2.03E-03	295.8
Cyclohexane	1.00E+06	5.00E-03	9	7.841	1.31E-01	5.41E+00	1.79E-04	1.29E-02	2.07E-03	0.00E+00	2.13E-03	295.8
Ethylacetate	1.00E+06	5.00E-03	9	8.478	1.16E-04	4.78E-03	1.79E-04	1.33E-02	2.19E-03	0.00E+00	2.25E-03	295.8
Ethylbenzene	1.00E+06	5.00E-03	9	10.017	8.64E-03	2.74E-01	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.82E-03	295.8
Heptane	1.00E+06	5.00E-03	9	8.274	7.82E-01	3.23E+01	1.79E-04	1.42E-02	2.27E-03	0.00E+00	2.34E-03	295.8
Hexane	1.00E+06	5.00E-03	9	7.576	1.58E+00	6.53E+01	1.79E-04	1.18E-02	1.89E-03	0.00E+00	1.94E-03	295.8
n-Xylene	1.00E+06	5.00E-03	9	10.114	2.40E-01	9.40E+00	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.82E-03	295.8
Methylselen chloride (dichloro)	1.00E+06	5.00E-03	9	6.908	2.89E-03	2.19E-01	1.79E-04	1.62E-02	2.58E-03	0.00E+00	2.66E-03	295.8
Naphthalene	1.00E+06	5.00E-03	9	12.789	3.53E-04	1.46E-02	1.79E-04	9.78E-03	1.58E-03	0.00E+00	1.63E-03	295.8
n-Xylene	1.00E+06	5.00E-03	9	10.268	4.34E-03	1.79E-01	1.79E-04	1.11E-02	1.78E-03	0.00E+00	1.83E-03	295.8
Tetrachloroethylene	1.00E+06	5.00E-03	9	9.431	1.51E-02	6.22E-01	1.79E-04	8.16E-03	1.30E-03	0.00E+00	1.34E-03	295.8
Tetrahydrofuran	1.00E+06	5.00E-03	9	7.574	6.19E-05	2.56E-03	1.79E-04	1.54E-02	2.59E-03	0.00E+00	2.67E-03	295.8
Toluene	1.00E+06	5.00E-03	9	9.023	5.69E-03	2.35E-01	1.79E-04	1.26E-02	2.01E-03	0.00E+00	2.07E-03	295.8
Trichloroethylene	1.00E+06	5.00E-03	9	8.407	8.53E-03	3.52E-01	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.83E-03	295.8
Trichlorofluoromethane	1.00E+06	5.00E-03	9	6.018	8.75E-02	3.61E+00	1.79E-04	1.06E-02	1.69E-03	0.00E+00	1.74E-03	295.8
Vinyl acetate	1.00E+06	5.00E-03	9	8.588	4.41E-04	1.82E-02	1.79E-04	1.37E-02	2.21E-03	0.00E+00	2.27E-03	295.8
	Convection path length, L_1 (cm)	Source vapor conc., C_{uack} (μ g/m ³)	Crack radius, r_{uack} (cm)	Average vapor flow rate into bldg., Q_{uack} (cm ³ /s)	Crack effective diffusion coefficient, D^{eff}_{uack} (cm ² /s)	Area of crack, A_{uack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C_{uack} (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RC (mg/m ³)	
1,1,2,2-Tetrachloroethane	9	1.00E+00	1.25	8.33E+01	7.91E-03	5.00E+03	1.73E+08	6.26E-05	6.26E-05	5.8E-05	NA	
1,2,4-Trichlorobenzene	9	1.00E+00	1.25	8.33E+01	6.40E-03	5.00E+03	1.50E+00	5.06E-05	5.06E-05	NA	2.0E-03	
1,2,4-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.81E-03	5.00E+03	4.38E+06	7.56E-05	7.56E-05	NA	7.0E-03	
1,3-Dichlorobenzene	9	1.00E+00	1.25	8.33E+01	1.39E-02	5.00E+03	5.02E+04	1.04E-04	1.04E-04	2.6E-05	7.0E-03	
1,2-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.19E-02	5.00E+03	3.12E+05	9.02E-05	9.02E-05	1.0E-05	4.0E-03	
1,3,5-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.74E-03	5.00E+03	4.91E+06	7.50E-05	7.50E-05	NA	3.5E-02	
1,4-Dioxane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	4.01E+04	1.80E-04	1.80E-04	7.7E-06	3.0E-02	
Acetone	9	1.00E+00	1.25	8.33E+01	1.71E-02	5.00E+03	6.36E+03	1.37E-04	1.37E-04	NA	3.1E-01	
Benzene	9	1.00E+00	1.25	8.33E+01	1.45E-02	5.00E+03	3.17E+04	1.08E-04	1.08E-04	2.9E-05	3.0E-03	
Carbon disulfide	9	1.00E+00	1.25	8.33E+01	1.72E-02	5.00E+03	6.10E+03	1.27E-04	1.27E-04	NA	7.0E-01	
Methyl chloride (chloroform)	9	1.00E+00	1.25	8.33E+01	2.06E-02	5.00E+03	1.45E-04	1.45E-04	1.45E-04	NA	8.0E-02	
1,3-Dichloropropane	9	1.00E+00	1.25	8.33E+01	2.23E-02	5.00E+03	1.92E-05	9.35E-05	9.35E-05	1.8E-05	2.0E-02	
Cyclohexane	9	1.00E+00	1.25	8.33E+01	1.29E-02	5.00E+03	1.09E+05	9.76E-05	9.76E-05	NA	6.0E+00	
Ethylacetate	9	1.00E+00	1.25	8.33E+01	1.33E-02	5.00E+03	7.88E+04	1.03E-04	1.03E-04	NA	7.0E-02	
Ethylbenzene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.66E+05	8.46E-05	8.46E-05	2.5E-06	5.0E+00	
Heptane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	3.80E+04	1.07E-04	1.07E-04	NA	NA	
Hexane	9	1.00E+00	1.25	8.33E+01	1.18E-02	5.00E+03	3.25E+05	8.89E-05	8.89E-05	NA	7.0E-01	
n-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.08E+05	8.45E-05	8.45E-05	NA	1.0E-01	
Methylselen chloride (dichloro)	9	1.00E+00	1.25	8.33E+01	1.62E-02	5.00E+03	1.08E+04	1.20E-04	1.20E-04	1.0E-06	4.0E-01	
Naphthalene	9	1.00E+00	1.25	8.33E+01	9.78E-03	5.00E+03	4.58E+06	7.61E-05				

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SG-ADV
Version 3.1; 02/04Reset to
DefaultsAMEC FW
modified by LC; 07/15
Mult. Chemical; version 3.1.5ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
79345	1.00E+00			1,1,2,2-Tetrachloroethane
120821	1.00E+00			1,2,4-Trichlorobenzene
95636	1.00E+00			1,2,4-Trimethylbenzene
107062	1.00E+00			1,2-Dichloroethane
78875	1.00E+00			1,2-Dichloropropane
108678	1.00E+00			1,3,5-Trimethylbenzene
123911	1.00E+00			1,4-Dioxane
67641	1.00E+00			Acetone
71432	1.00E+00			Benzene
75150	1.00E+00			Carbon disulfide
74873	1.00E+00			Methyl chloride (chloromethane)
542756	1.00E+00			1,3-Dichloropropene
110827	1.00E+00			Cyclohexane
141786	1.00E+00			Ethylacetate
100414	1.00E+00			Ethylbenzene
142825	1.00E+00			Heptane
110543	1.00E+00			Hexane
108383	1.00E+00			m-Xylene
75092	1.00E+00			Methylene chloride (dichloromethane)
91203	1.00E+00			Naphthalene
95476	1.00E+00			o-Xylene
127184	1.00E+00			Tetrachloroethylene
109999	1.00E+00			Tetrahydrofuran
108883	1.00E+00			Toluene
79016	1.00E+00			Trichloroethylene
75694	1.00E+00			Trichlorofluoromethane
108054	1.00E+00			Vinyl acetate

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Soil gas sampling depth below grade, L _s (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Thickness of soil stratum A, h _A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)
9	304.8	22	19	285.8	0	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _s ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _s ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _s ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
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ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
9	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	26	26	350

END

Chemical Name	DATA ENTRY									
	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _B (°K)	Critical temperature, T _C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RFC (mg/m ³)
1,1,2,2-Tetrachloroethane	4.89E-02	9.29E-06	3.67E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00
1,2,4-Trichlorobenzene	3.96E-02	8.40E-06	1.42E-03	25	10,471	486.15	725.00	181.45	0.0E+00	2.0E-03
1,2,4-Trimethylbenzene	6.07E-02	7.92E-06	6.16E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,2-Dichloroethane	8.57E-02	1.10E-05	1.18E-03	25	7,643	356.65	561.00	98.96	2.6E-05	7.0E-03
1,2-Dichloropropane	7.33E-02	9.73E-06	2.82E-03	25	7,590	369.52	572.00	112.99	1.0E-05	4.0E-03
1,3,5-Trimethylbenzene	6.02E-02	7.84E-06	8.77E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
1,4-Dioxane	8.74E-02	1.05E-05	4.80E-06	25	8,164	374.30	587.15	88.11	7.7E-06	3.0E-02
Acetone	1.06E-01	1.15E-05	3.50E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.1E+01
Benzene	8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	78.11	2.9E-05	3.0E-03
Carbon disulfide	1.06E-01	1.30E-05	1.44E-02	25	6,391	319.00	552.00	76.13	0.0E+00	7.0E-01
Methyl chloride (chloromethane)	1.24E-01	1.36E-05	8.82E-03	25	5,115	249.00	416.25	50.49	0.0E+00	9.0E-02
1,3-Dichloropropene	7.63E-02	1.01E-05	3.55E-03	25	7,900	381.15	587.38	110.97	1.6E-05	2.0E-02
Cyclohexane	8.00E-02	9.11E-06	1.50E-01	25	7,154	353.70	553.40	84.16	0.0E+00	6.0E+00
Ethylacetate	8.23E-02	9.70E-06	1.34E-04	25	7,634	350.26	523.30	88.12	0.0E+00	7.0E-02
Ethylbenzene	6.85E-02	8.46E-06	7.88E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Heptane	8.80E-02	7.10E-06	9.01E-01	25	6,895	371.55	508.00	100.20	0.0E+00	0.0E+00
Hexane	7.31E-02	8.17E-06	1.80E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01
m-Xylene	6.84E-02	8.44E-06	7.18E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01
Methylene chloride (dichloromethane)	9.99E-02	1.25E-05	3.25E-03	25	6,706	313.00	510.00	84.93	1.0E-06	4.0E-01
Naphthalene	6.05E-02	8.38E-06	4.40E-04	25	10,373	491.14	748.40	128.18	3.4E-05	3.0E-03
o-Xylene	6.89E-02	8.53E-06	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
Tetrachloroethylene	5.05E-02	9.46E-06	1.77E-02	25	8,288	394.40	620.20	165.83	5.9E-06	3.5E-02
Tetrahydrofuran	9.54E-02	1.08E-05	7.05E-05	25	7,074	339.00	541.00	72.11	0.0E+00	2.0E+00
Toluene	7.78E-02	9.20E-06	6.64E-03	25	7,930	383.78	591.79	92.14	0.0E+00	3.0E-01
Trichloroethylene	6.87E-02	1.02E-05	9.85E-03	25	7,505	360.36	544.20	131.39	4.1E-06	2.0E-03
Trichlorofluoromethane	6.54E-02	1.00E-05	9.70E-02	25	5,999	296.70	471.00	137.36	0.0E+00	7.0E-01
Vinyl acetate	8.49E-02	1.00E-05	5.11E-04	25	7,800	345.65	519.13	86.09	0.0E+00	2.0E-01

DATA ENTRY

	Exposure duration, τ (sec)	Source-building separation, L_1 (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ue} (cm ³ /cm ³)	Stratum A soil relative air permeability, k_r (cm ²)	Stratum A soil intrinsic permeability, k_{so} (cm ²)	Stratum A soil effective vapor permeability, k_{ve} (cm ²)	Floor-wall seam perimeter, X_{uack} (cm)	Soil gas conc., Q_{uack} (ug/m ³)	Bldg ventilation rate, Q_{uack} (m ³ /s)
1,1,2,2-Tetrachloroethane	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2,4-Trichlorobenzene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2,4-Trimethylbenzene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,3-Dichlorobenzene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2-Dichloropropane	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,3,5-Trimethylbenzene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,4-Dioxane	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Acetone	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Benzene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Carbon disulfide	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Methyl chloride (chloroform)	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,3-Dichloropropane	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Cyclohexane	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Ethylacetate	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Ethylbenzene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Heptane	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Hexane	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
n-Xylene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Methylsulfonate (dimethyl)	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Naphthalene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
n-Xylene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Tetrachloroethylene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Tetrahydrofuran	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Toluene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Trichloroethylene	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Trichlorofluoromethane	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Vinyl acetate	8.20E+08	295.8	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
	Area of enclosed space below grade, A_g (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth, Z_{uack} (cm)	Enthalpy of vaporization at ave. soil temperature, ΔH_{15} (cal/mol)	Henry's law constant at ave. soil temperature, H_{15} (atm-m ³ /mol)	Henry's law constant at diffusion temperature, H_{15} (unitless)	Vapor viscosity at diffusion temperature, μ_{15} (g/cm-s)	Stratum A effective diffusion coefficient, D_{15}^A (cm ² /s)	Stratum B effective diffusion coefficient, D_{15}^B (cm ² /s)	Stratum C effective diffusion coefficient, D_{15}^C (cm ² /s)	Total overall effective diffusion coefficient, D_{15}^T (cm ² /s)	Diffusion path length, L_1 (cm)
1,1,2,2-Tetrachloroethane	1.00E+06	5.00E-03	9	10.420	3.07E-04	1.27E-02	1.79E-04	7.91E-03	7.91E-03	0.00E+00	7.91E-03	295.8
1,2,4-Trichlorobenzene	1.00E+06	5.00E-03	9	13.052	1.13E-03	4.68E-02	1.79E-04	6.40E-03	6.40E-03	0.00E+00	6.40E-03	295.8
1,2,4-Trimethylbenzene	1.00E+06	5.00E-03	9	11.541	5.05E-03	2.09E-01	1.79E-04	9.81E-03	9.81E-03	0.00E+00	9.81E-03	295.8
1,3-Dichlorobenzene	1.00E+06	5.00E-03	9	8.390	1.02E-03	1.22E-02	1.79E-04	1.39E-02	1.39E-02	0.00E+00	1.39E-02	295.8
1,2-Dichloropropane	1.00E+06	5.00E-03	9	8.500	2.44E-03	1.01E-01	1.79E-04	1.19E-02	1.19E-02	0.00E+00	1.19E-02	295.8
1,3,5-Trimethylbenzene	1.00E+06	5.00E-03	9	11.521	7.20E-03	2.97E-01	1.79E-04	9.74E-03	9.74E-03	0.00E+00	9.74E-03	295.8
1,4-Dioxane	1.00E+06	5.00E-03	9	9.136	4.10E-06	1.69E-04	1.79E-04	7.42E-02	7.42E-02	0.00E+00	7.42E-02	295.8
Acetone	1.00E+06	5.00E-03	9	7.410	3.08E-05	1.27E-03	1.79E-04	1.71E-02	1.71E-02	0.00E+00	1.71E-02	295.8
Benzene	1.00E+06	5.00E-03	9	7.998	4.84E-03	2.00E-01	1.79E-04	1.45E-02	1.45E-02	0.00E+00	1.45E-02	295.8
Carbon disulfide	1.00E+06	5.00E-03	9	6.588	1.29E-02	5.31E-01	1.79E-04	1.72E-02	1.72E-02	0.00E+00	1.72E-02	295.8
Methyl chloride (chloroform)	1.00E+06	5.00E-03	9	4.903	3.15E-03	1.05E-02	1.79E-04	2.00E-02	2.00E-02	0.00E+00	2.00E-02	295.8
1,3-Dichloropropane	1.00E+06	5.00E-03	9	8.969	3.04E-03	1.26E-01	1.79E-04	1.23E-02	1.23E-02	0.00E+00	1.23E-02	295.8
Cyclohexane	1.00E+06	5.00E-03	9	7.841	1.31E-01	5.41E+00	1.79E-04	1.29E-02	1.29E-02	0.00E+00	1.29E-02	295.8
Ethylacetate	1.00E+06	5.00E-03	9	8.478	1.16E-04	4.78E-03	1.79E-04	1.33E-02	1.33E-02	0.00E+00	1.33E-02	295.8
Ethylbenzene	1.00E+06	5.00E-03	9	10.017	8.84E-03	2.74E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	295.8
Heptane	1.00E+06	5.00E-03	9	8.274	7.82E-01	3.23E+01	1.79E-04	1.42E-02	1.42E-02	0.00E+00	1.42E-02	295.8
Hexane	1.00E+06	5.00E-03	9	7.576	1.58E+00	6.53E+01	1.79E-04	1.18E-02	1.18E-02	0.00E+00	1.18E-02	295.8
n-Xylene	1.00E+06	5.00E-03	9	10.114	2.40E-01	9.04E+00	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	295.8
Methylsulfonate (dimethyl)	1.00E+06	5.00E-03	9	6.908	2.89E-03	2.19E-01	1.79E-04	1.62E-02	1.62E-02	0.00E+00	1.62E-02	295.8
Naphthalene	1.00E+06	5.00E-03	9	12.789	3.53E-04	1.46E-02	1.79E-04	9.78E-03	9.78E-03	0.00E+00	9.78E-03	295.8
n-Xylene	1.00E+06	5.00E-03	9	10.268	4.34E-03	1.79E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	295.8
Tetrachloroethylene	1.00E+06	5.00E-03	9	9.431	1.51E-02	6.22E-01	1.79E-04	8.16E-03	8.16E-03	0.00E+00	8.16E-03	295.8
Tetrahydrofuran	1.00E+06	5.00E-03	9	7.574	6.19E-05	2.56E-03	1.79E-04	1.54E-02	1.54E-02	0.00E+00	1.54E-02	295.8
Toluene	1.00E+06	5.00E-03	9	9.023	5.69E-03	2.35E-01	1.79E-04	1.26E-02	1.26E-02	0.00E+00	1.26E-02	295.8
Trichloroethylene	1.00E+06	5.00E-03	9	8.407	8.53E-03	3.52E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	295.8
Trichlorofluoromethane	1.00E+06	5.00E-03	9	6.018	8.75E-02	3.61E+00	1.79E-04	1.06E-02	1.06E-02	0.00E+00	1.06E-02	295.8
Vinyl acetate	1.00E+06	5.00E-03	9	8.588	4.41E-04	1.82E-02	1.79E-04	1.37E-02	1.37E-02	0.00E+00	1.37E-02	295.8
	Convection path length, L_1 (cm)	Source vapor conc., C_{uack} (ug/m ³)	Crack radius, r_{uack} (cm)	Average vapor flow rate into bldg., Q_{uack} (cm ³ /s)	Crack effective diffusion coefficient, D_{15}^{uack} (cm ² /s)	Area of crack, A_{uack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C_{uack} (ug/m ³)	Unit risk factor, URF (ug/m ³) ⁻¹	Reference conc., RRC (mg/m ³)	
1,1,2,2-Tetrachloroethane	9	1.00E+00	1.25	8.33E+01	7.91E-03	5.00E+03	1.73E+08	5.97E-04	5.97E-04	5.8E-05	NA	
1,2,4-Trichlorobenzene	9	1.00E+00	1.25	8.33E+01	6.40E-03	5.00E+03	1.50E+10	5.07E-04	5.07E-04	NA	2.0E-03	
1,2,4-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.81E-03	5.00E+03	4.38E+06	7.00E-04	7.00E-04	NA	7.0E-03	
1,3-Dichlorobenzene	9	1.00E+00	1.25	8.33E+01	1.39E-02	5.00E+03	5.02E+04	9.85E-04	9.85E-04	2.6E-05	7.0E-03	
1,2-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.19E-02	5.00E+03	3.12E+05	7.99E-04	7.99E-04	1.0E-05	4.0E-03	
1,3,5-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.74E-03	5.00E+03	4.91E+06	6.96E-04	6.96E-04	NA	3.5E-02	
1,4-Dioxane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	4.01E+04	8.97E-04	8.97E-04	7.7E-06	3.0E-02	
Acetone	9	1.00E+00	1.25	8.33E+01	1.71E-02	5.00E+03	6.36E+03	1.01E-03	1.01E-03	NA	1.1E-01	
Benzene	9	1.00E+00	1.25	8.33E+01	1.45E-02	5.00E+03	3.17E+04	9.10E-04	9.10E-04	2.9E-05	3.0E-03	
Carbon disulfide	9	1.00E+00	1.25	8.33E+01	1.72E-02	5.00E+03	6.10E+03	1.01E-03	1.01E-03	NA	7.0E-01	
Methyl chloride (chloroform)	9	1.00E+00	1.25	8.33E+01	2.00E-02	5.00E+03	1.0E+03	1.0E-03	1.0E-03	NA	8.0E-02	
1,3-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.23E-02	5.00E+03	1.62E+05	8.20E-04	8.20E-04	1.8E-05	2.0E-02	
Cyclohexane	9	1.00E+00	1.25	8.33E+01	1.29E-02	5.00E+03	1.09E+05	8.46E-04	8.46E-04	NA	6.0E+00	
Ethylacetate	9	1.00E+00	1.25	8.33E+01	1.33E-02	5.00E+03	7.88E+04	8.62E-04	8.62E-04	NA	7.0E-02	
Ethylbenzene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.66E+04	7.62E-04	7.62E-04	2.5E-06	5.0E-02	
Heptane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	3.80E+04	9.00E-04	9.00E-04	NA	NA	
Hexane	9	1.00E+00	1.25	8.33E+01	1.18E-02	5.00E+03	3.25E+05	7.97E-04	7.97E-04	NA	7.0E-01	
n-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.84E+04	7.61E-04	7.61E-04	NA	1.0E-01	
Methylsulfonate (dimethyl)	9	1.00E+00	1.25	8.33E+01	1.62E-02	5.00E+03	1.08E+04	9.74E-04	9.74E-04	1.0E-06	4.0E-01	
Naphthalene	9	1.00E+00	1.25	8.33E+01	9.78E-03	5.00E+03	4.58E+06	6.99E-04	6.99E-04	3.4E-05	3.0E-03	
n-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.03E+05	7.65E-04	7.65E-04	NA</		

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SG-ADV
Version 3.1; 02/04Reset to
DefaultsAMEC FW
modified by LC; 07/15
Mult. Chemical; version 3.1.5ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C _g (µg/m ³)	OR	ENTER Soil gas conc., C _g (ppmv)	Chemical
79345	1.00E+00			1,1,2,2-Tetrachloroethane
120821	1.00E+00			1,2,4-Trichlorobenzene
95636	1.00E+00			1,2,4-Trimethylbenzene
107062	1.00E+00			1,2-Dichloroethane
78875	1.00E+00			1,2-Dichloropropane
108678	1.00E+00			1,3,5-Trimethylbenzene
123911	1.00E+00			1,4-Dioxane
67641	1.00E+00			Acetone
71432	1.00E+00			Benzene
75150	1.00E+00			Carbon disulfide
74873	1.00E+00			Methyl chloride (chloromethane)
542756	1.00E+00			1,3-Dichloropropene
110827	1.00E+00			Cyclohexane
141786	1.00E+00			Ethylacetate
100414	1.00E+00			Ethylbenzene
142825	1.00E+00			Heptane
110543	1.00E+00			Hexane
108383	1.00E+00			m-Xylene
75092	1.00E+00			Methylene chloride (dichloromethane)
91203	1.00E+00			Naphthalene
95476	1.00E+00			o-Xylene
127184	1.00E+00			Tetrachloroethylene
109999	1.00E+00			Tetrahydrofuran
108883	1.00E+00			Toluene
79016	1.00E+00			Trichloroethylene
75694	1.00E+00			Trichlorofluoromethane
108054	1.00E+00			Vinyl acetate

MORE
↓

ENTER Depth below grade to bottom of enclosed space floor, L _F (cm)	ENTER Soil gas sampling depth, below grade, L _s (cm)	ENTER Average soil temperature, T _S (°C)	ENTER Thickness of soil stratum A, h _A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h _B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h _C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k _v (cm ²)
9	457.2	22	19	438.2	0	S		

MORE
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ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ _s ^A (g/cm ³)	ENTER Stratum A soil total porosity, n ^A (unitless)	ENTER Stratum A soil water-filled porosity, θ _w ^A (cm ³ /cm ³)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ _s ^B (g/cm ³)	ENTER Stratum B soil total porosity, n ^B (unitless)	ENTER Stratum B soil water-filled porosity, θ _w ^B (cm ³ /cm ³)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ _s ^C (g/cm ³)	ENTER Stratum C soil total porosity, n ^C (unitless)	ENTER Stratum C soil water-filled porosity, θ _w ^C (cm ³ /cm ³)
S	1.66	0.375	0.054	SC	1.63	0.385	0.197	S	1.66	0.375	0.054

MORE
↓

ENTER Enclosed space floor thickness, L _{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP (g/cm-s ²)	ENTER Enclosed space floor length, L _B (cm)	ENTER Enclosed space width, W _B (cm)	ENTER Enclosed space height, H _B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate Q _{soil} (L/m)
9	40	1000	1000	244	0.1	1	5

ENTER Averaging time for carcinogens, AT _C (yrs)	ENTER Averaging time for noncarcinogens, AT _{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	25	25	250

END

SUBSTRAL WORKER - 15FT	DATA ENTRY									
	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _B (°K)	Critical temperature, T _C (°K)	Molecular weight, MW (g/mol)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RFC (mg/m ³)
1,1,2,2-Tetrachloroethane	4.89E-02	9.29E-06	3.67E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00
1,2,4-Trichlorobenzene	3.96E-02	8.40E-06	1.42E-03	25	10,471	486.15	725.00	181.45	0.0E+00	2.0E-03
1,2,4-Trimethylbenzene	6.07E-02	7.92E-06	6.16E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,2-Dichloroethane	8.57E-02	1.10E-05	1.18E-03	25	7,643	356.65	561.00	98.96	2.6E-05	7.0E-03
1,2-Dichloropropane	7.33E-02	9.73E-06	2.82E-03	25	7,590	369.52	572.00	112.99	1.0E-05	4.0E-03
1,3,5-Trimethylbenzene	6.02E-02	7.84E-06	8.77E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
1,4-Dioxane	8.74E-02	1.05E-05	4.80E-06	25	8,164	374.30	587.15	88.11	7.7E-06	3.0E-02
Acetone	1.06E-01	1.15E-05	3.50E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.1E+01
Benzene	8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	78.11	2.9E-05	3.0E-03
Carbon disulfide	1.06E-01	1.30E-05	1.44E-02	25	6,391	319.00	552.00	76.13	0.0E+00	7.0E-01
Methyl chloride (chloromethane)	1.24E-01	1.36E-05	8.82E-03	25	5,115	249.00	416.25	50.49	0.0E+00	9.0E-02
1,3-Dichloropropene	7.63E-02	1.01E-05	3.55E-03	25	7,900	381.15	587.38	110.97	1.6E-05	2.0E-02
Cyclohexane	8.00E-02	9.11E-06	1.50E-01	25	7,154	353.70	553.40	84.16	0.0E+00	6.0E+00
Ethylacetate	8.23E-02	9.70E-06	1.34E-04	25	7,634	350.26	523.30	88.12	0.0E+00	7.0E-02
Ethylbenzene	6.85E-02	8.46E-06	7.88E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Heptane	8.80E-02	7.10E-06	9.01E-01	25	6,895	371.55	508.00	100.20	0.0E+00	0.0E+00
Hexane	7.31E-02	8.17E-06	1.80E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01
m-Xylene	6.84E-02	8.44E-06	7.18E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01
Methylene chloride (dichloromethane)	9.99E-02	1.25E-05	3.25E-03	25	6,706	313.00	510.00	84.93	1.0E-06	4.0E-01
Naphthalene	6.05E-02	8.38E-06	4.40E-04	25	10,373	491.14	748.40	128.18	3.4E-05	3.0E-03
o-Xylene	6.89E-02	8.53E-06	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
Tetrachloroethylene	5.05E-02	9.46E-06	1.77E-02	25	8,288	394.40	620.20	165.83	5.9E-06	3.5E-02
Tetrahydrofuran	9.54E-02	1.08E-05	7.05E-05	25	7,074	339.00	541.00	72.11	0.0E+00	2.0E+00
Toluene	7.78E-02	9.20E-06	6.64E-03	25	7,930	383.78	591.79	92.14	0.0E+00	3.0E-01
Trichloroethylene	6.87E-02	1.02E-05	9.85E-03	25	7,505	360.36	544.20	131.39	4.1E-06	2.0E-03
Trichlorofluoromethane	6.54E-02	1.00E-05	9.70E-02	25	5,999	296.70	471.00	137.36	0.0E+00	7.0E-01
Vinyl acetate	8.49E-02	1.00E-05	5.11E-04	25	7,800	345.65	519.13	86.09	0.0E+00	2.0E-01

	Exposure duration, τ (sec)	Source-building separation, L_1 (cm)	Stratum A soil air-filled porosity, θ_a^A (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^B (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^C (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_{ue} (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{ra} (cm ²)	Stratum A soil effective vapor permeability, k_{ve} (cm ²)	Floor-wall seam perimeter, X_{uack} (cm)	Soil gas conc., Q_{uack} (μ g/m ³)	Bldg ventilation rate, Q_{uack} (m ³ /s)
1,1,2,2-Tetrachloroethane	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2,4-Trichlorobenzene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2,4-Trimethylbenzene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3-Dichlorobenzene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,2-Dichloropropane	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3,5-Trimethylbenzene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,4-Dioxane	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Acetone	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Benzene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Carbon disulfide	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Methyl chloride (chloroform)	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
1,3-Dichloropropane	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Cyclohexane	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Ethylacetate	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Ethylbenzene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Heptane	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Hexane	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
n-Xylene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Methylene chloride (dichloromethane)	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Naphthalene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
n-Butylene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Tetrahydrofuran	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Toluene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Trichloroethylene	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Trichlorobromomethane	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
Vinyl acetate	7.88E+08	448.2	0.321	0.188	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	6.78E+04
	Area of enclosed space below grade, A_g (cm ²)	Crack-to-total area ratio, η_1 (unitless)	Crack depth, Z_{uack} (cm)	Enthalpy of vaporization at ave. soil temperature, ΔH_{15} (cal/mol)	Henry's law constant at ave. soil temperature, H_{15} (atm-m ³ /mol)	Henry's law constant at diffusion temperature, H_{T5} (unitless)	Vapor viscosity at diffusion temperature, μ_{T5} (g/cm-s)	Stratum A effective diffusion coefficient, D^{eff}_A (cm ² /s)	Stratum B effective diffusion coefficient, D^{eff}_B (cm ² /s)	Stratum C effective diffusion coefficient, D^{eff}_C (cm ² /s)	Total overall effective diffusion coefficient, D^{eff}_T (cm ² /s)	Diffusion path length, L_1 (cm)
1,1,2,2-Tetrachloroethane	1.00E+06	5.00E-03	9	10.420	3.07E-04	1.27E-02	1.79E-04	7.91E-03	1.29E-03	0.00E+00	1.31E-03	448.2
1,2,4-Trichlorobenzene	1.00E+06	5.00E-03	9	13.092	1.13E-03	4.68E-02	1.79E-04	6.40E-03	1.03E-03	0.00E+00	1.05E-03	448.2
1,2,4-Trimethylbenzene	1.00E+06	5.00E-03	9	11.541	5.05E-03	2.09E-01	1.79E-04	9.81E-03	1.57E-03	0.00E+00	1.80E-03	448.2
1,3-Dichlorobenzene	1.00E+06	5.00E-03	9	8.390	1.02E-03	4.22E-02	1.79E-04	1.36E-02	2.22E-03	0.00E+00	2.26E-03	448.2
1,2-Dichloropropane	1.00E+06	5.00E-03	9	8.500	2.44E-03	1.01E-01	1.79E-04	1.19E-02	1.90E-03	0.00E+00	1.93E-03	448.2
1,3,5-Trimethylbenzene	1.00E+06	5.00E-03	9	11.521	7.20E-03	2.97E-01	1.79E-04	9.74E-03	1.56E-03	0.00E+00	1.59E-03	448.2
1,4-Dioxane	1.00E+06	5.00E-03	9	9.136	4.10E-06	1.99E-04	1.79E-04	4.22E-02	4.13E-03	0.00E+00	4.19E-03	448.2
Acetone	1.00E+06	5.00E-03	9	7.410	3.08E-05	1.27E-03	1.79E-04	1.71E-02	3.01E-03	0.00E+00	3.06E-03	448.2
Benzene	1.00E+06	5.00E-03	9	7.998	4.84E-03	2.00E-01	1.79E-04	1.45E-02	2.31E-03	0.00E+00	2.36E-03	448.2
Carbon disulfide	1.00E+06	5.00E-03	9	6.588	1.29E-02	5.31E-01	1.79E-04	1.72E-02	2.75E-03	0.00E+00	2.80E-03	448.2
Methyl chloride (chloroform)	1.00E+06	5.00E-03	9	4.803	3.15E-03	3.20E-02	1.79E-04	2.00E-02	2.26E-03	0.00E+00	2.26E-03	448.2
1,3-Dichloropropane	1.00E+06	5.00E-03	9	8.969	3.04E-03	1.26E-01	1.79E-04	1.23E-02	1.97E-03	0.00E+00	2.01E-03	448.2
Cyclohexane	1.00E+06	5.00E-03	9	7.841	1.31E-01	5.41E+00	1.79E-04	1.29E-02	2.07E-03	0.00E+00	2.10E-03	448.2
Ethylacetate	1.00E+06	5.00E-03	9	8.478	1.16E-04	4.78E-03	1.79E-04	1.33E-02	2.19E-03	0.00E+00	2.23E-03	448.2
Ethylbenzene	1.00E+06	5.00E-03	9	10.017	8.64E-03	2.74E-01	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.80E-03	448.2
Heptane	1.00E+06	5.00E-03	9	8.274	7.82E-01	3.23E+01	1.79E-04	1.42E-02	2.27E-03	0.00E+00	2.32E-03	448.2
Hexane	1.00E+06	5.00E-03	9	7.576	1.58E+00	6.53E+01	1.79E-04	1.18E-02	1.89E-03	0.00E+00	1.92E-03	448.2
n-Xylene	1.00E+06	5.00E-03	9	10.114	2.40E-01	2.40E+01	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.80E-03	448.2
Methylene chloride (dichloromethane)	1.00E+06	5.00E-03	9	6.908	2.89E-03	1.19E-01	1.79E-04	1.62E-02	2.58E-03	0.00E+00	2.63E-03	448.2
Naphthalene	1.00E+06	5.00E-03	9	12.789	3.53E-04	1.46E-02	1.79E-04	9.78E-03	1.58E-03	0.00E+00	1.61E-03	448.2
n-Butylene	1.00E+06	5.00E-03	9	10.268	4.34E-03	1.79E-01	1.79E-04	1.11E-02	1.78E-03	0.00E+00	1.82E-03	448.2
Tetrahydrofuran	1.00E+06	5.00E-03	9	9.431	1.51E-02	6.22E-01	1.79E-04	8.16E-03	1.30E-03	0.00E+00	1.33E-03	448.2
Toluene	1.00E+06	5.00E-03	9	7.574	6.19E-05	2.56E-03	1.79E-04	1.54E-02	2.59E-03	0.00E+00	2.64E-03	448.2
Trichloroethylene	1.00E+06	5.00E-03	9	9.023	5.69E-03	2.35E-01	1.79E-04	1.26E-02	2.01E-03	0.00E+00	2.05E-03	448.2
Trichlorobromomethane	1.00E+06	5.00E-03	9	8.407	8.53E-03	3.52E-01	1.79E-04	1.11E-02	1.77E-03	0.00E+00	1.81E-03	448.2
Vinyl acetate	1.00E+06	5.00E-03	9	6.018	8.75E-02	3.61E+00	1.79E-04	1.06E-02	1.69E-03	0.00E+00	1.72E-03	448.2
	1.00E+06	5.00E-03	9	8.588	4.41E-04	1.82E-02	1.79E-04	1.37E-02	2.21E-03	0.00E+00	2.25E-03	448.2
	Convection path length, L_1 (cm)	Source vapor conc., C_{uack} (μ g/m ³)	Crack radius, r_{uack} (cm)	Average vapor flow rate into bldg., Q_{uack} (m ³ /s)	Crack effective diffusion coefficient, D^{eff}_{uack} (cm ² /s)	Area of crack, A_{uack} (cm ²)	Exponent of equivalent foundation Peclet number, $\exp(Pe)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source indoor concentration, C_{uack} (μ g/m ³)	Unit risk factor, URF (μ g/m ³) ⁻¹	Reference conc., RC (mg/m ³)	
1,1,2,2-Tetrachloroethane	9	1.00E+00	1.25	8.33E+01	7.91E-03	5.00E+03	1.73E+08	4.17E-05	4.17E-05	5.8E-05	NA	
1,2,4-Trichlorobenzene	9	1.00E+00	1.25	8.33E+01	6.40E-03	5.00E+03	1.50E+01	3.35E-05	3.35E-05	NA	2.0E-03	
1,2,4-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.81E-03	5.00E+03	4.38E+06	5.04E-05	5.04E-05	NA	7.0E-03	
1,3-Dichlorobenzene	9	1.00E+00	1.25	8.33E+01	1.39E-02	5.00E+03	5.02E+04	7.03E-05	7.03E-05	2.6E-05	7.0E-03	
1,2-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.19E-02	5.00E+03	3.12E+05	6.05E-05	6.05E-05	1.0E-05	4.0E-03	
1,3,5-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.74E-03	5.00E+03	4.91E+06	5.01E-05	5.01E-05	NA	3.5E-02	
1,4-Dioxane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	4.01E+04	1.24E-04	1.24E-04	7.7E-06	3.0E-02	
Acetone	9	1.00E+00	1.25	8.33E+01	1.71E-02	5.00E+03	6.36E+03	9.32E-05	9.32E-05	NA	3.1E-01	
Benzene	9	1.00E+00	1.25	8.33E+01	1.45E-02	5.00E+03	3.17E+04	7.30E-05	7.30E-05	2.9E-05	3.0E-03	
Carbon disulfide	9	1.00E+00	1.25	8.33E+01	1.72E-02	5.00E+03	6.10E+03	8.58E-05	8.58E-05	NA	7.0E-01	
Methyl chloride (chloroform)	9	1.00E+00	1.25	8.33E+01	2.00E-02	5.00E+03	9.88E-05	9.88E-05	9.88E-05	NA	8.0E-02	
1,3-Dichloropropane	9	1.00E+00	1.25	8.33E+01	2.23E-02	5.00E+03	1.92E-05	6.28E-05	6.28E-05	1.8E-05	2.0E-02	
Cyclohexane	9	1.00E+00	1.25	8.33E+01	1.29E-02	5.00E+03	1.09E+05	6.66E-05	6.66E-05	NA	6.0E+00	
Ethylacetate	9	1.00E+00	1.25	8.33E+01	1.33E-02	5.00E+03	7.88E+04	6.92E-05	6.92E-05	NA	7.0E-02	
Ethylbenzene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.66E+05	5.86E-05	5.86E-05	2.5E-06	5.0E-02	
Heptane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	3.80E+04	7.18E-05	7.18E-05	NA	NA	
Hexane	9	1.00E+00	1.25	8.33E+01	1.18E-02	5.00E+03	3.25E+05	6.02E-05	6.02E-05	NA	7.0E-01	
n-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.84E+05	5.66E-05	5.66E-05	NA	1.0E-01	
Methylene chloride (dichloromethane)	9	1.00E+00	1.25	8.33E+01	1.62E-02	5.00E+03	1.08E+04	8.10E-05	8.10E-05	1.0E-06	4.0E-01	
Naphthalene	9	1.00E+00	1.25	8.33E+01	9.78E-03	5.00E+03	4.58E+06	5.08E-05	5.08E-05	3.4E-05	3.0E-03	
n-Butylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.03E+05	5.70E-05	5.70E-05	NA	1.0	

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SG-ADV
Version 3.1: 02/04

Reset to
Defaults

AMEC FW
modified by LC: 07/15
Mult. Chemical: version 3.1.5

ENTER
U.S. EPA or
Cal-EPA

Cal-EPA

Soil Gas Concentration Data				
ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_a ($\mu\text{g}/\text{m}^3$)	OR	ENTER Soil gas conc., C_a (ppmv)	Chemical
79345	1.00E+00			1,1,2,2-Tetrachloroethane
120821	1.00E+00			1,2,4-Trichlorobenzene
95636	1.00E+00			1,2,4-Trimethylbenzene
107062	1.00E+00			1,2-Dichloroethane
78875	1.00E+00			1,2-Dichloropropane
108678	1.00E+00			1,3,5-Trimethylbenzene
123911	1.00E+00			1,4-Dioxane
67641	1.00E+00			Acetone
71432	1.00E+00			Benzene
75150	1.00E+00			Carbon disulfide
74873	1.00E+00			Methyl chloride (chloromethane)
542756	1.00E+00			1,3-Dichloropropene
110827	1.00E+00			Cyclohexane
141786	1.00E+00			Ethylacetate
100414	1.00E+00			Ethylbenzene
142825	1.00E+00			Heptane
110543	1.00E+00			Hexane
108383	1.00E+00			m-Xylene
75092	1.00E+00			Methylene chloride (dichloromethane)
91203	1.00E+00			Naphthalene
95476	1.00E+00			o-Xylene
127184	1.00E+00			Tetrachloroethylene
109999	1.00E+00			Tetrahydrofuran
108883	1.00E+00			Toluene
79016	1.00E+00			Trichloroethylene
75694	1.00E+00			Trichlorofluoromethane
108054	1.00E+00			Vinyl acetate

MORE
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ENTER Depth below grade to bottom of enclosed space floor, L_F (cm)	ENTER Soil gas sampling depth below grade, L_S (cm)	ENTER Average soil temperature, T_S ($^{\circ}\text{C}$)	ENTER Totals must add up to value of L_s (cell F24) Thickness of soil stratum A, h_A (cm)	ENTER Thickness of soil stratum B, (Enter value or 0) h_B (cm)	ENTER Thickness of soil stratum C, (Enter value or 0) h_C (cm)	ENTER Soil stratum A SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined stratum A soil vapor permeability, k_v (cm^2)
9	457.2	22	19	438.2	0	S		

MORE
↓

ENTER Stratum A SCS soil type Lookup Soil Parameters	ENTER Stratum A soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Stratum A soil total porosity, n^A (unitless)	ENTER Stratum A soil water-filled porosity, θ_w^A (cm^3/cm^3)	ENTER Stratum B SCS soil type Lookup Soil Parameters	ENTER Stratum B soil dry bulk density, ρ_b^B (g/cm^3)	ENTER Stratum B soil total porosity, n^B (unitless)	ENTER Stratum B soil water-filled porosity, θ_w^B (cm^3/cm^3)	ENTER Stratum C SCS soil type Lookup Soil Parameters	ENTER Stratum C soil dry bulk density, ρ_b^C (g/cm^3)	ENTER Stratum C soil total porosity, n^C (unitless)	ENTER Stratum C soil water-filled porosity, θ_w^C (cm^3/cm^3)
S	1.66	0.375	0.054	S	1.66	0.375	0.054	S	1.66	0.375	0.054

MORE
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ENTER Enclosed space floor thickness, L_{crack} (cm)	ENTER Soil-bldg. pressure differential, ΔP ($\text{g}/\text{cm}^2\text{-s}^2$)	ENTER Enclosed space floor length, L_A (cm)	ENTER Enclosed space floor width, W_A (cm)	ENTER Enclosed space height, H_B (cm)	ENTER Floor-wall seam crack width, w (cm)	ENTER Indoor air exchange rate, ER (1/h)	ENTER Average vapor flow rate into bldg. OR Leave blank to calculate O_{soil} (L/m)
9	40	1000	1000	244	0.1	0.5	5

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	26	26	350

END

	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H ($\text{atm}\cdot\text{m}^3/\text{mol}$)	Henry's law constant reference temperature, T_R ($^{\circ}\text{C}$)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B ($^{\circ}\text{K}$)	Critical temperature, T_C ($^{\circ}\text{K}$)	Molecular weight, MW (g/mol)	Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹	Reference conc., RfC (mg/m^3)
1,1,2,2-Tetrachloroethane	4.89E-02	9.29E-06	3.67E-04	25	8,996	419.60	661.15	167.85	5.8E-05	0.0E+00
1,2,4-Trichlorobenzene	3.96E-02	8.40E-06	1.42E-03	25	10,471	486.15	725.00	181.45	0.0E+00	2.0E-03
1,2,4-Trimethylbenzene	6.07E-02	7.92E-06	6.16E-03	25	9,369	442.30	649.17	120.20	0.0E+00	7.0E-03
1,2-Dichloroethane	8.57E-02	1.10E-05	1.18E-03	25	7,643	356.65	561.00	98.96	2.6E-05	7.0E-03
1,2-Dichloropropane	7.33E-02	9.73E-06	2.82E-03	25	7,590	369.52	572.00	112.99	1.0E-05	4.0E-03
1,3,5-Trimethylbenzene	6.02E-02	7.84E-06	8.77E-03	25	9,321	437.89	637.25	120.20	0.0E+00	3.5E-02
1,4-Dioxane	8.74E-02	1.05E-05	4.80E-06	25	8,164	374.30	587.15	88.11	7.7E-06	3.0E-02
Acetone	1.06E-01	1.15E-05	3.50E-05	25	6,955	329.20	508.10	58.08	0.0E+00	3.1E+01
Benzene	8.95E-02	1.03E-05	5.55E-03	25	7,342	353.24	562.16	78.11	2.9E-05	3.0E-03
Carbon disulfide	1.06E-01	1.30E-05	1.44E-02	25	6,391	319.00	552.00	76.13	0.0E+00	7.0E-01
Methyl chloride (chloromethane)	1.24E-01	1.36E-05	8.82E-03	25	5,115	249.00	416.25	50.49	0.0E+00	9.0E-02
1,3-Dichloropropene	7.63E-02	1.01E-05	3.55E-03	25	7,900	381.15	587.38	110.97	1.6E-05	2.0E-02
Cyclohexane	8.00E-02	9.11E-06	1.50E-01	25	7,154	353.70	553.40	84.16	0.0E+00	6.0E+00
Ethylacetate	8.23E-02	9.70E-06	1.34E-04	25	7,634	350.26	523.30	88.12	0.0E+00	7.0E-02
Ethylbenzene	6.85E-02	8.46E-06	7.88E-03	25	8,501	409.34	617.20	106.17	2.5E-06	1.0E+00
Heptane	8.80E-02	7.10E-06	9.01E-01	25	6,895	371.55	508.00	100.20	0.0E+00	0.0E+00
Hexane	7.31E-02	8.17E-06	1.80E+00	25	6,895	341.70	508.00	86.18	0.0E+00	7.0E-01
m-Xylene	6.84E-02	8.44E-06	7.18E-03	25	8,523	412.27	617.05	106.17	0.0E+00	1.0E-01
Methylene chloride (dichloromethane)	9.99E-02	1.25E-05	3.25E-03	25	6,706	313.00	510.00	84.93	1.0E-06	4.0E-01
Naphthalene	6.05E-02	8.38E-06	4.40E-04	25	10,373	491.14	748.40	128.18	3.4E-05	3.0E-03
o-Xylene	6.89E-02	8.53E-06	5.18E-03	25	8,661	417.60	630.30	106.17	0.0E+00	1.0E-01
Tetrachloroethylene	5.05E-02	9.46E-06	1.77E-02	25	8,288	394.40	620.20	165.83	5.9E-06	3.5E-02
Tetrahydrofuran	9.54E-02	1.08E-05	7.05E-05	25	7,074	339.00	541.00	72.11	0.0E+00	2.0E+00
Toluene	7.78E-02	9.20E-06	6.64E-03	25	7,930	383.78	591.79	92.14	0.0E+00	3.0E-01
Trichloroethylene	6.87E-02	1.02E-05	9.85E-03	25	7,505	360.36	544.20	131.39	4.1E-06	2.0E-03
Trichlorofluoromethane	6.54E-02	1.00E-05	9.70E-02	25	5,999	296.70	471.00	137.36	0.0E+00	7.0E-01
Vinyl acetate	8.49E-02	1.00E-05	5.11E-04	25	7,800	345.65	519.13	86.09	0.0E+00	2.0E-01

DATA ENTRY

	Exposure duration, τ (sec)	Source-building separation, L_r (cm)	Stratum A soil air-filled porosity, θ_a (cm ³ /cm ³)	Stratum B soil air-filled porosity, θ_a^* (cm ³ /cm ³)	Stratum C soil air-filled porosity, θ_a^* (cm ³ /cm ³)	Stratum A effective total fluid saturation, S_w (cm ³ /cm ³)	Stratum A soil intrinsic permeability, k_i (cm ²)	Stratum A soil relative air permeability, k_{ra} (cm ²)	Stratum A soil effective vapor permeability, k_{ev} (cm ²)	Floor-wall seam perimeter, X_{seam} (cm)	Soil gas conc. (mg/m ³)	Bldg. ventilation rate, Q_{vent} (cm ³ /s)
1,1,2,2-Tetrachloroethane	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2,4-Trichlorobenzene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2,4-Trimethylbenzene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2-Dichloroethane	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,2-Dichloropropane	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,3,5-Trimethylbenzene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,4-Dioxane	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Acetone	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Benzene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Carbon disulfide	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Methyl chloride (chloromethane)	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
1,3-Dichloropropene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Cyclohexane	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Ethylacetate	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Ethylbenzene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Heptane	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Hexane	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
m-Xylene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Methylene chloride (dichloromethane)	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Naphthalene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
o-Xylene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Tetrachloroethylene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Tetrahydrofuran	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Toluene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Trichloroethylene	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Trichlorofluoromethane	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04
Vinyl acetate	8.20E+08	448.2	0.321	0.321	0.321	0.003	1.01E-07	0.998	1.01E-07	4.000	1.00E+00	3.39E+04

	Area of enclosed space below grade, A_g (cm ²)	Crack-to-total ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at temperature, $\Delta H_{v,ts}$ (cal/mol)	Henry's law constant at temperature, H_{ts} (atm-m ³ /mol)	Henry's law constant at temperature, H_{ts} (unitless)	Vapor viscosity at temperature, μ_{ts} (g/cm-s)	Stratum A effective diffusion coefficient, $D_{eff,A}^*$ (cm ² /s)	Stratum B effective diffusion coefficient, $D_{eff,B}^*$ (cm ² /s)	Stratum C effective diffusion coefficient, $D_{eff,C}^*$ (cm ² /s)	Total overall effective diffusion coefficient, D^{**} (cm ² /s)	Diffusion path length, L_p (cm)
1,1,2,2-Tetrachloroethane	1.00E+06	5.00E-03	9	10,420	3.07E-04	1.27E-02	1.79E-04	7.91E-03	7.91E-03	0.00E+00	7.91E-03	448.2
1,2,4-Trichlorobenzene	1.00E+06	5.00E-03	9	13,092	1.13E-03	4.68E-02	1.79E-04	6.40E-03	6.40E-03	0.00E+00	6.40E-03	448.2
1,2,4-Trimethylbenzene	1.00E+06	5.00E-03	9	11,541	5.00E-03	2.09E-01	1.79E-04	9.81E-03	9.81E-03	0.00E+00	9.81E-03	448.2
1,2-Dichloroethane	1.00E+06	5.00E-03	9	8,390	1.02E-03	4.22E-02	1.79E-04	1.39E-02	1.39E-02	0.00E+00	1.39E-02	448.2
1,2-Dichloropropane	1.00E+06	5.00E-03	9	8,500	2.44E-03	1.01E-01	1.79E-04	1.19E-02	1.19E-02	0.00E+00	1.19E-02	448.2
1,3,5-Trimethylbenzene	1.00E+06	5.00E-03	9	11,521	7.20E-03	2.97E-01	1.79E-04	9.74E-03	9.74E-03	0.00E+00	9.74E-03	448.2
1,4-Dioxane	1.00E+06	5.00E-03	9	9,136	4.10E-06	1.69E-04	1.79E-04	1.42E-02	1.42E-02	0.00E+00	1.42E-02	448.2
Acetone	1.00E+06	5.00E-03	9	7,410	3.08E-05	1.27E-03	1.79E-04	1.71E-02	1.71E-02	0.00E+00	1.71E-02	448.2
Benzene	1.00E+06	5.00E-03	9	7,998	4.84E-03	2.00E-01	1.79E-04	1.45E-02	1.45E-02	0.00E+00	1.45E-02	448.2
Carbon disulfide	1.00E+06	5.00E-03	9	6,588	1.29E-02	5.31E-01	1.79E-04	1.72E-02	1.72E-02	0.00E+00	1.72E-02	448.2
Methyl chloride (chloromethane)	1.00E+06	5.00E-03	9	4,603	8.15E-03	3.37E-01	1.79E-04	2.00E-02	2.00E-02	0.00E+00	2.00E-02	448.2
1,3-Dichloropropene	1.00E+06	5.00E-03	9	9,969	2.04E-03	8.26E-01	1.79E-04	1.22E-02	1.22E-02	0.00E+00	1.22E-02	448.2
Cyclohexane	1.00E+06	5.00E-03	9	7,841	1.31E-01	5.41E+00	1.79E-04	1.29E-02	1.29E-02	0.00E+00	1.29E-02	448.2
Ethylacetate	1.00E+06	5.00E-03	9	8,478	1.16E-04	4.78E-03	1.79E-04	1.33E-02	1.33E-02	0.00E+00	1.33E-02	448.2
Ethylbenzene	1.00E+06	5.00E-03	9	10,017	6.64E-03	2.74E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	448.2
Heptane	1.00E+06	5.00E-03	9	8,274	7.82E-01	3.32E+01	1.79E-04	1.42E-02	1.42E-02	0.00E+00	1.42E-02	448.2
Hexane	1.00E+06	5.00E-03	9	7,576	1.58E+00	6.53E+01	1.79E-04	1.18E-02	1.18E-02	0.00E+00	1.18E-02	448.2
m-Xylene	1.00E+06	5.00E-03	9	10,114	6.04E-03	2.49E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	448.2
Methylene chloride (dichloromethane)	1.00E+06	5.00E-03	9	6,906	2.89E-03	1.19E-01	1.79E-04	1.62E-02	1.62E-02	0.00E+00	1.62E-02	448.2
Naphthalene	1.00E+06	5.00E-03	9	12,789	3.53E-04	1.46E-02	1.79E-04	9.78E-03	9.78E-03	0.00E+00	9.78E-03	448.2
o-Xylene	1.00E+06	5.00E-03	9	10,269	4.74E-03	1.79E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	448.2
Tetrachloroethylene	1.00E+06	5.00E-03	9	9,431	1.51E-02	6.22E-01	1.79E-04	8.16E-03	8.16E-03	0.00E+00	8.16E-03	448.2
Tetrahydrofuran	1.00E+06	5.00E-03	9	7,574	6.19E-05	2.56E-03	1.79E-04	1.54E-02	1.54E-02	0.00E+00	1.54E-02	448.2
Toluene	1.00E+06	5.00E-03	9	9,023	5.69E-03	2.35E-01	1.79E-04	1.26E-02	1.26E-02	0.00E+00	1.26E-02	448.2
Trichloroethylene	1.00E+06	5.00E-03	9	8,407	8.53E-03	3.52E-01	1.79E-04	1.11E-02	1.11E-02	0.00E+00	1.11E-02	448.2
Trichlorofluoromethane	1.00E+06	5.00E-03	9	6,018	8.76E-02	3.61E+00	1.79E-04	1.06E-02	1.06E-02	0.00E+00	1.06E-02	448.2
Vinyl acetate	1.00E+06	5.00E-03	9	8,588	4.41E-04	1.82E-02	1.79E-04	1.37E-02	1.37E-02	0.00E+00	1.37E-02	448.2

	Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu\text{g}/\text{m}^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., $Q_{v,i}$ (cm^3/s)	Crack effective diffusion coefficient, D^{***} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, $\exp(Pe)$ (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C_{bldg} ($\mu\text{g}/\text{m}^3$)	Unit risk factor, URF ($\mu\text{g}/\text{m}^3$) ⁻¹	Reference conc., RIC (mg/m ³)
1,1,2,2-Tetrachloroethane	9	1.00E+00	1.25	8.33E+01	7.91E-03	5.00E+03	1.73E+08	4.30E-04	4.30E-04	5.8E-05	NA
1,2,4-Trichlorobenzene	9	1.00E+00	1.25	8.33E+01	6.40E-03	5.00E+03	1.50E+10	3.60E-04	3.60E-04	NA	2.0E-03
1,2,4-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.81E-03	5.00E+03	4.38E+06	5.11E-04	5.11E-04	NA	7.0E-03
1,2-Dichloroethane	9	1.00E+00	1.25	8.33E+01	1.39E-02	5.00E+03	5.02E+04	6.65E-04	6.65E-04	2.6E-05	7.0E-03
1,2-Dichloropropane	9	1.00E+00	1.25	8.33E+01	1.19E-02	5.00E+03	3.12E+05	5.92E-04	5.92E-04	1.0E-05	4.0E-03
1,3,5-Trimethylbenzene	9	1.00E+00	1.25	8.33E+01	9.74E-03	5.00E+03	4.91E+06	5.08E-04	5.08E-04	NA	3.5E-02
1,4-Dioxane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	4.01E+04	6.76E-04	6.76E-04	7.7E-06	3.0E-02
Acetone	9	1.00E+00	1.25	8.33E+01	1.71E-02	5.00E+03	6.36E+03	7.73E-04	7.73E-04	NA	3.1E+01
Benzene	9	1.00E+00	1.25	8.33E+01	1.45E-02	5.00E+03	3.17E+04	6.87E-04	6.87E-04	2.9E-05	3.0E-03
Carbon disulfide	9	1.00E+00	1.25	8.33E+01	1.72E-02	5.00E+03	6.10E+03	7.76E-04	7.76E-04	NA	7.0E-01
Methyl chloride (chloromethane)	9	1.00E+00	1.25	8.33E+01	2.00E-02	5.00E+03	1.78E+03	8.59E-04	8.59E-04	NA	9.0E-02
1,3-Dichloropropene	9	1.00E+00	1.25	8.33E+01	1.23E-02	5.00E+03	1.92E+05	6.10E-04	6.10E-04	1.6E-05	2.0E-02
Cyclohexane	9	1.00E+00	1.25	8.33E+01	1.29E-02	5.00E+03	1.09E+05	6.32E-04	6.32E-04	NA	6.0E+00
Ethylacetate	9	1.00E+00	1.25	8.33E+01	1.33E-02	5.00E+03	7.86E+04	6.46E-04	6.46E-04	NA	7.0E-02
Ethylbenzene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.69E+05	5.62E-04	5.62E-04	2.5E-06	1.0E+00
Heptane	9	1.00E+00	1.25	8.33E+01	1.42E-02	5.00E+03	3.80E+04	6.78E-04	6.78E-04	NA	NA
Hexane	9	1.00E+00	1.25	8.33E+01	1.18E-02	5.00E+03	3.25E+05	5.91E-04	5.91E-04	NA	7.0E-01
m-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.84E+05	5.61E-04	5.61E-04	NA	1.0E-01
Methylene chloride (dichloromethane)	9	1.00E+00	1.25	8.33E+01	1.62E-02	5.00E+03	1.08E+04	7.43E-04	7.43E-04	1.0E-06	4.0E-01
Naphthalene	9	1.00E+00	1.25	8.33E+01	9.78E-03	5.00E+03	4.58E+06	5.10E-04	5.10E-04	3.4E-05	3.0E-03
n-Xylene	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.03E+05	5.65E-04	5.65E-04	NA	1.0E-01
Tetrachloroethylene	9	1.00E+00	1.25	8.33E+01	1.16E-02	5.00E+03	8.66E+07	4.41E-04	4.41E-04	5.9E-06	2.0E-02
Tetrahydrofuran	9	1.00E+00	1.25	8.33E+01	1.54E-02	5.00E+03	1.67E+04	7.19E-04	7.19E-04	NA	2.0E+00
Toluene	9	1.00E+00	1.25	8.33E+01	1.26E-02	5.00E+03	1.51E+05	6.19E-04	6.19E-04	NA	3.0E+00
Trichloroethane	9	1.00E+00	1.25	8.33E+01	1.11E-02	5.00E+03	7.39E+05	5.63E-04	5.63E-04	4.1E-06	2.0E-03
Trichlorobenzene	9	1.00E+00	1.25	8.33E+01	1.08E-02	5.00E+03	1.40E+06	5.42E-04	5.42E-04	NA	7.0E-03
Vinyl acetate	9	1.00E+00	1.25	8.33E+01	1.37E-02	5.00E+03	5.95E+04	6.61E-04	6.61E-04	NA	2.0E-01

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J-11 - Albion Park, 1739 Albion Street

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UNDERGROUND STORAGE TANK LOW RISK CASE REVIEW FORM

Case reviewer: Arman Tournari <i>AT</i>	Unit Chief: Yi Lu <i>YL</i>	Section Chief: Yue Rong <i>YR</i>	AEO: Paula Rasmussen <i>PR</i>	EO: Samuel Unger <i>SU</i>
Date: 10/16/13	Date: 11/14/13	Date: 11/19/13	Date: 11-19-13	Date: 11-19-13

LUSTIS File No.: 900310052A		Investigation and Cleanup Priority: D-1	
Site Name/Address: Former Albion Dairy 1739 Albion Street Los Angeles, CA 90031	Responsible parties: City of Los Angeles Bureau of Engineering Attention: Kendrick Okuda	Address: 1149 South Broadway Street, Suite 120 Los Angeles, CA 90015	Phone no.:

I. CASE INFORMATION (N/A = Not Applicable)

Tank No.	Size in Gallons	Contents	Closed in-place/Removed/Active?	Date
1	20,000	Diesel	Removed	2012
2	2,380	Gasoline	Removed	2012

II. SITE CHARACTERIZATION INFORMATION (GW=groundwater)

GW Basin: Central Basin	Beneficial uses: Mun, Ind, Proc, Agr	Water purveyor in the area: DWP, Water Quality Division
Distance to nearest municipal supply well: 14,021 feet	Water purveyor contact: Gregg Reed	
GW highest depth: 37 ft. bgs	GW lowest depth: 39 ft. bgs	Well screen interval: 20-35 ft bgs
Soil types: Silty Sand	Flow direction: West	
		Maximum soil depth sampled (ft): 25 ft. bgs.

III. SITE INSPECTION

Pre-closure site inspection date: N/A	Is there sensitive receptor next to the site (school, church, hospital, kindergarten etc.)? If yes, brief description: The Downey Recreation Center is located 300 ft to the northeast.

IV. MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS -- Initial and Latest (ND=Non-detect; NRQ=Not required)

Contaminant	Soil (mg/kg)		EPA SLs*		Soil Screening Levels (mg/kg)**	Water (µg/L)		MCLs/NL (µg/L)
	Initial (10/2011)	Latest (3/2013)	Residential (mg/kg)	Industrial (mg/kg)		Initial (4/2009)	Latest (5/2013)	
TPH (Gas)	234	ND	NE	NE	500	3,500,000	ND	NE
TPH (Diesel)	17,900	77.4	NE	NE	1,000	216,000,000	ND	NE
Benzene	0.00267	ND	1.1	5.4	0.0805	ND	ND	1
Toluene	ND	ND	5,000	45,000	4.185	ND	ND	150
Ethylbenzene	0.0152	ND	5.4	27	16.4	ND	ND	300
Xylenes	0.0464	ND	630	2,700	45.4	ND	ND	1,750
Methyl tertiary butyl ether (MTBE)	ND	ND	43	220	0.089	45	13.9	13 (Primary) 5 (Secondary)
Di-isopropyl ether (DIPE)	ND	ND	2,400	10,000	NE	ND	ND	NE
Ethyl tertiary butyl ether (ETBE)	ND	ND	NE	NE	NE	ND	ND	NE
Tertiary amyl methyl ether (TAME)	ND	ND	NE	NE	NE	ND	ND	NE
Tertiary butyl alcohol (TBA)	ND	130	NE	NE	NE	ND	ND	12 (NL)
Ethanol	ND	ND	NE	NE	NE	ND	ND	NE
Naphthalene	12.5	541	9.7#	45#	NE	ND	ND	170 (NL)

NE = Not Established. NL = Notification Level. ND = Non-Detect; NRQ = Not Required; NA = Not Analyzed

= California UST Low-Threat Policy numbers for 0-5 feet.

* SLs = USEPA Risk-Based Screening Levels (November 2011). ** Please see the Table 4 -1

Site Name/Address: 1739 Albion St., Los Angeles, CA 90031

Staff Initial: AT

V. FREE PRODUCT

Was free product encountered? No Has free product been totally removed? N/A

When was free product recovery project completed? N/A

VI. SOIL REMEDIATION

Method: Duration of remediation:
Excavation and Disposal 2010-2013

Waste manifest document: Volume of soil disposal/mass removal:
Yes 9,537 tons of impacted soil

VII. GROUNDWATER REMEDIATION

Method: N/A Duration of remediation: N/A

Mass removal: N/A

VIII. COMMENTS AND JUSTIFICATION FOR RECOMMENDED ACTION

Site History

The Site was most recently used as a Swiss Dairy distribution facility. Swiss Dairy vacated the Site and turned it over to the City of Los Angeles. The relatively flat, triangular shaped property is located in central Los Angeles between North Spring Street to the north, Avenue 17 to the northeast, and Albion Street to the southeast. Union Pacific Railroad (UPRR) tracks bound the Site to the west along a 20-foot wide strip. Directly west of the UPRR corridor is the channelized Los Angeles River. The Site property consists of five parcels that total approximately 4 acres and was purchased by the City in 2010. Swiss Dairy activities consisted largely of dairy product cold warehousing and trucking. The Site was occupied by five main structures: Warehouse 1, Warehouse 2, an office, a maintenance garage, and a storage building. Exterior site features included asphalt- and concrete-paved driving and parking areas for trucks, a truck wash area, two clarifiers, an oil and hazardous materials storage area adjacent to the garage, and a 20,000-gallon underground storage tank (UST) and fueling island. The Site also included a security booth at the entrance, a covered steel canopy structure, and a telecommunications monopine (cell tower). All structures on the property have been demolished as of 2012, with the exception of the telecommunications monopine. In addition to dairy production and distribution, the Site has historically, been used as a brewery, a warehouse, a junk yard, a metal pipe manufacturer, and an automobile repair facility. The use of vehicle fuels is known. The surrounding area is both residential and industrial. There is an existing City park and playground adjacent to the northeast portion of the Site. The City of Los Angeles Fire Department transferred this case to the Los Angeles Regional Water Quality Control Board on March 6, 2012.

Site Assessment Summary

April 2009 – Ten soil vapor probes and thirteen soil borings (B-1 through B-13) were drilled to a maximum depth of 10 ft bgs at the site. Soil samples collected from the borings detected total recoverable petroleum hydrocarbons (TRPH) up to 29,000 mg/kg, benzene up to 0.0013 mg/kg, methyl tertiary butyl ether (MTBE) up to 0.0017 mg/kg, and tetrachloroethylene (PCE) up to 0.0043 mg/kg. Heavy metals detected included up to 8.1 mg/kg of Arsenic, 841 mg/kg of Lead, and 0.805 mg/kg of Thallium. See Figure 1 and Table 1.

October - November 2011 – Several excavation and disposal activities were performed in areas marked as RAA1 (center and southern portion of the site), RAA2 (northern portion of the site), and the warehouse (southern portion of the site). Soil samples collected from the confirmation borings drilled in the excavation areas detected up to 234 mg/kg of TPHg, 17,900 mg/kg of TPHd, 0.00267 mg/kg of benzene and 12.5 mg/kg of naphthalene. Heavy metals detected included up to 29.4 mg/kg of Arsenic and 4,100 mg/kg of Lead. See Figure 5 and Table 2.

January 2012 – Eleven soil samples were collected from the bottom of the two USTs following the removal of the USTs. Soil samples collected detected maximum concentrations of TPHd at 50,000 mg/kg, benzene at 0.008 mg/kg, and naphthalene at 0.115 mg/kg. TPHg and oxygenates were not detected. See Figure 3 and Table 3.

June 2012 – Eighteen soil vapor samples were collected at a depth of 5 ft bgs and detected up to 0.130 µg/L of benzene and 1.3 µg/L of tetrachloroethylene (PCE) following a soil vapor survey at the site. No other volatile organic compounds (VOCs) were detected. In addition, twenty six soil borings were drilled at the site to 25 ft bgs following the removal of the USTs. Soil samples collected from the borings detected maximum concentrations of TPHd at 6,160 mg/kg. TPHg, BTEX and oxygenates were not detected. Heavy metals detected included up to 20.9 mg/kg of Arsenic and 4,520 mg/kg of Lead. Three groundwater monitoring wells (MW-1 through MW-3) was also installed. See Figure 2, Figure 4, and Table 4.

March 2013 – A larger scale excavation activity was conducted throughout the site in areas RAA-1, RAA-2, and the Warehouse, to remove the remaining impacted soil discovered in the 2011 site assessment. Soil confirmation sampling was conducted following excavation activities to remove impacted soil. Confirmation soil samples detected TPHd up to 77.4 mg/kg, naphthalene up to 541 mg/kg, arsenic up to 5.94 mg/kg, and lead up to 92.4 mg/kg. See Figure 6 and Table 5.

Remedial Action Summary

In 2011, 2,239 tons of impacted soil were excavated and removed from the areas RAA-1 and RAA-2.
In 2013, 7,298 tons of impacted soil were excavated and removed from the entire site.

Subsurface Lithology

According to boring logs and cross-section maps, site lithology is composed predominately of silty sand with some debris and underlying alluvial deposits consisting of sand, silt, and gravel mixtures.

Groundwater Monitoring Summary

There are three groundwater monitoring wells (MW-1 through MW-3) at the site. Groundwater monitoring has been conducted since 2012. Historically, MTBE up to 22.5 µg/L were detected in the groundwater. During the most recent monitoring event in May 2013, MTBE up to 13.9 µg/L were detected in the groundwater. TPHg, TPHd, and VOCs were not detected at any of the monitoring wells. See Table 6. During the May 2013 groundwater monitoring event, depth to groundwater was measured at about 28 feet bgs and the groundwater flow direction was towards the west. See Figures 7, 8, and 9.

Low Threat UST Policy Criteria Evaluation**General Criteria**

The site meets a through h general criteria of the low threat closure policy as follows:

- The unauthorized release is located within the service area of a public water system - DWP, Water Quality Division
- The unauthorized release consists of petroleum only - True
- The unauthorized ("primary") release from the UST system has been stopped – True (All USTs were removed).
- Free product has been removed to the extent practicable - True (Free product has never been detected at the site).
- A conceptual site model has been developed - True
- The secondary source has been removed to the extent practicable – True (impacted soil was removed via soil excavation).
- Soil and groundwater has been tested for MTBE- True
- No known nuisances exist at the site- True

Groundwater

The site is identified under Groundwater - Specific Criteria 1 and meets the following:

- a. The contaminant plume that exceeds water quality objectives is less than 100 feet in length – True.
- b. There is no free product – Free product has never been detected at the site.
- c. The nearest existing water supply well or surface water body is greater than 250 feet from the defined plume boundary – True.

Vapor Intrusion to Indoor Air

The site is identified under Petroleum Vapor Intrusion to Indoor Air - Specific Criteria 2b and meets the following:

Petroleum Vapor Intrusion to Indoor Air - A site-specific risk assessment for the vapor intrusion pathway has been prepared that demonstrates human health is protected to the satisfaction of the regulatory agency – A soil vapor survey was conducted in June 2012 and detected up to 0.13 µg/L of benzene and 1.3 µg/L of PCE. No other VOCs were detected. The maximum benzene concentration detected in the soil vapor is less than the soil gas criterion (0.28 µg/L) for the commercial developments according to the Low Threat Closure Policy, therefore the risk of vapor intrusion to indoor air at the site is insignificant.

Direct Contact and Outdoor Air Exposure

With the exception of naphthalene, the site meets Criterion 3.1. of the Low Threat UST Policy which states:

"Maximum concentrations of petroleum constituents in soil are less than or equal to those listed in the table for the specified depth below ground surface." Specifically:

Maximum Benzene Detected = 0.0013 mg/kg at 5 to 10 ft bgs < 12 mg/kg (Commercial)

Maximum Ethylbenzene Detected = ND mg/kg at 5 to 10 ft bgs < 134 mg/kg (Commercial)

Maximum Naphthalene Detected = 541 mg/kg at 5.5 ft bgs > 45 mg/kg (Commercial)

Maximum PAHs Detected = 0.301 mg/kg at 7 ft bgs < 0.68 mg/kg (Commercial)

Naphthalene has been detected at levels higher than its commercial/industrial limit for volatilization to outdoor air. However, the areas exceeding this limit mg/kg are all at a depth above which has been backfilled to original grade with 3 feet of clean soil. The clean soil would prevent direct contact and also prevent the migration of vapors into the air at the site.

Factors Supporting Low Risk Closure

Based on the above assessment, staff recommends to grant a low-risk closure for the site for the following reasons:

- The source of the gasoline leak has been removed from the site.
- The extent of the soil and groundwater contamination has been adequately defined.
- 9,537 tons of contaminated soil has been removed and disposed of off-site.
- 2-3 feet of clean fill material has been placed over the entire site.
- The residual soil and groundwater contamination are unlikely to cause significant human health and environmental risks via major pathways, such as direct contact, drinking water ingestion, and vapor intrusion.

IX. MTBE FATE & TRANSPORT PLUME LENGTH MODELING ANALYSIS

Plume length calculations are not required because MTBE was not detected at the down-gradient wells above its MCLs.

Site Name/Address: 1739 Albion St., Los Angeles, CA 90031

Staff Initial: AT

X. ELECTRONIC DELIVERABLE FORMAT (EDF) SUBMISSION

Has electronic data reporting requirement been met? Yes

XI. AB 681 REQUIREMENT (Land Owner Notification)

Verify property ownership <http://assessor.lacounty.gov/extranet/DataMaps/Pais.aspx> (date) : November 4, 2013

Have landowner or impacted site notification requirements been met? N/A

Owner: City of Los Angeles

Responsible party: City of Los Angeles

Pre-closure letter sent date:

(Jan. 2012)

Table 4-1: Maximum Soil Screening Levels (mg/kg) for TPH, BTEX and MTBE above Drinking Water Aquifers

T P H	Distance Above Groundwater	Carbon Range			
		C4-C12	C13-C22	C23-C32	
	>150 feet	1,000	10,000	50,000	
	20-150 feet	500	1,000	10,000	
	<20 feet	100	100	1,000	
B T E X & M T B E	Distance Above Groundwater	Lithology			
		Gravel	Sand	Silt	Clay
	150 feet	B=0.044 T=2 E=8 X=23 MTBE = 0.039	B=0.077 T=4 E=17 X=48 MTBE = 0.078	B=0.165 T=9 E=34 X=93 MTBE = 0.156	B=0.8 T=43 E=170 X=465 MTBE = 0.78
	120 feet	B=0.035 T=1.57 E=6.3 X=17.9 MTBE = 0.028	B=0.058 T=3.1 E=12.7 X=36 MTBE = 0.061	B=0.123 T=7 E=25.9 X=70.3 MTBE = 0.117	B=0.603 T=32 E=128 X=351 MTBE = 0.591
	100 feet	B=0.028 T=1.3 E=5.1 X=14.4 MTBE = 0.020	B=0.046 T=2.57 E=9.86 X=28 MTBE = 0.05	B=0.094 T=5.4 E=20.4 X=55.1 MTBE = 0.091	B=0.471 T=25 E=101 X=276 MTBE = 0.464
	80 feet	B=0.022 T=1 E=4 X=11 MTBE = 0.013	B=0.033 T=2 E=7 X=20 MTBE = 0.039	B=0.066 T=4 E=15 X=40 MTBE = 0.065	B=0.34 T=18 E=73 X=200 MTBE = 0.338
	60 feet	B=0.018 T=0.72 E=2.9 X=7.9 MTBE = 0.013	B=0.026 T=1.4 E=4.9 X=13.9 MTBE = 0.03	B=0.048 T=2.8 E=10.7 X=28.4 MTBE = 0.048	B=0.241 T=13 E=52 X=141.5 MTBE = 0.247
	40 feet	B=0.015 T=0.43 E=1.8 X=4.8 MTBE = 0.013	B=0.018 T=0.87 E=2.8 X=7.8 MTBE = 0.022	B=0.029 T=1.6 E=6.3 X=16.9 MTBE = 0.03	B=0.143 T=7.5 E=30 X=83 MTBE = 0.156
	20 feet	B=0.011 T=0.15 E=0.7 X=1.75 MTBE = 0.013	B=0.011 T=0.3 E=0.7 X=1.75 MTBE = 0.013	B=0.011 T=0.45 E=2 X=5.3 MTBE = 0.013	B=0.044 T=2.3 E=9 X=24.5 MTBE = 0.065

- TPH = Total petroleum hydrocarbons.
- BTEX = benzene, toluene, ethylbenzene, and xylenes, respectively. MTBE = methyl tertiary butyl ether.
- Respective MCLs (ppm): B=0.001, T=0.15, E=0.3, X=1.75, MTBE=0.013.
- BTEX screening concentrations determined per the attenuation factor method as described in RWQCB Guidance for VOC Impacted Sites (March 1996), with a natural degradation factor of 11 for BTEX and of 3 for MTBE. Table values can be linearly interpolated between distance above groundwater and are proportional to fraction of each lithological thickness.
- Values in Table 4-1 are for soils above drinking water aquifers. All groundwaters are considered as drinking water resources unless exempted by one of the criteria as defined under SWRCB Resolution 88-63 (TDS>3000 mg/L, or deliverability <200 gal/day, or existing contamination that cannot be reasonably treated). Regional Board staff will make a determination of potential water use at a particular site considering water quality objectives and beneficial uses. For non-drinking water aquifers, regardless of depth, TPH for ">150 feet" category in the table should be used; Distance above groundwater must be measured from the highest anticipated water level. Lithology is based on the USCS scale.
- In areas of naturally-occurring hydrocarbons, Regional Board staff will make determinations on TPH levels.

(revised 1/7/05)

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TPH Carbon Chain (mg/kg)																				
Boring ID	Date	Depth (feet/kg)	TRPH (mg/kg)	C6	C7	C8	C9-C10	C11-C12	C13-C14	C15-C16	C17-C18	C19-C20	C21-C22	C23-C24	C25-C28	C29-C32	C33-C36	C37-C40	C41-C44	C6-C44 Total
B-1	4/23/09	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-2	4/23/09	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-3	4/22/09	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		8.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		20.0	220	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	5400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-4	4/23/09	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-5	4/22/09	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-6	4/22/09	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		15.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		20.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-7	4/23/09	25.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		30.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		35.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		40.0	18000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		15.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		20.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		25.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		30.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		35.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		40.0	29000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 3
Laboratory Analysis of Soil Data
TRPH/TPH
Proposed Albion Dairy Park
1739 Albion Street
Los Angeles, California

Boring ID	Date	Depth (feet bgs)	TRPH (mg/kg)	TPH Carbon Chain (mg/kg)																
				C6	C7	C8	C9-C10	C11-C12	C13-C14	C15-C16	C17-C18	C19-C20	C21-C22	C23-C24	C25-C28	C29-C32	C33-C36	C37-C40	C41-C44	C6-C44 Total
B-8	4/23/09	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-9	4/23/09	10.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-10	4/22/09	5.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-11	4/22/09	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	330	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-12	4/22/09	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-13	4/22/09	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	930	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	930	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes: ND = Non-Detect
 -- = Not Analyzed
 bgs = below ground surface
 mg/kg = milligram per kilogram
 TRPH = Total Recoverable Petroleum Hydrocarbons
 TPH = Total Petroleum Hydrocarbons

Table 4
Laboratory Analysis of Soil Samples
VOCs/SVOCs
Proposed Albion Dairy Park
1739 Albion Street
Los Angeles, California

Boring ID	Date	Depth (feet bgs)	VOCs (ug/kg)														SVOCs (ug/kg)	
			Acetone	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	DIPE	ETBE	TAME	Ethanol	TCE	PCE	2-Butanone	All Other VOCs	DEHP	All Other SVOCs
B-8	4/23/09	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-9	4/23/09	10.0	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	56	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
B-10	4/22/09	5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	ND	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
		0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B-11	4/22/09	2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
B-12	4/22/09	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		10.0	61	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
B-13	4/22/09	1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		2.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		5.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
		10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	700	ND	ND	160	ND	-	-

Notes: ND = Non-Detect
 - = Not Analyzed
 VOCs = Volatile Organic Compounds
 SVOCs = Semi-Volatile Organic Compounds
 ug/kg = micrograms per kilogram
 mg/kg = milligrams per kilogram

Table 5
Laboratory Analysis of Soil Samples
Pesticides, PCBs, Herbicides, and Title 22 Metals
Proposed Alhambra Dairy Park
1739 Alhambra Street
Los Angeles, California

Boring ID		Date	Depth (feet bgs)	Pesticides (ug/kg)		PCBs (ug/kg)	Herbicides (ug/kg)	Title 22 Metals (ug/kg)																
Boring ID		Date	Depth (feet bgs)	Endosulfan I	Other Pesticides	PCBs (ug/kg)	Herbicides (ug/kg)	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
B-8	4/23/09	0.5	--	--	--	--	--	ND	2.76	166	0.477	ND	16.8	7.49	40.1	142	0.438	1.21	16.2	ND	ND	ND	30.3	141
		1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-9	4/23/09	10.0	--	--	--	--	--	ND	ND	31.4	ND	ND	3.23	2.59	7.49	1.32	0.182	ND	2.74	ND	ND	ND	8.73	18.7
		0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-10	4/22/09	5.0	--	--	--	--	--	ND	3.60	112	0.347	ND	11.4	6.83	35.3	108	0.145	ND	10	ND	ND	ND	25.8	191
		10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-11	4/22/09	2.5	--	--	--	--	--	ND	0.773	31.6	ND	ND	3.37	3.05	4.85	1.35	0.170	ND	2.88	ND	ND	ND	10.5	17.5
		3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-12	4/22/09	1.0	--	--	--	--	--	ND	76.2	0.288	ND	15.1	7.34	50.9	39.6	0.503	ND	11.8	ND	ND	ND	ND	25.1	128
		2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		5.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		10.0	22	ND	ND	ND	ND	ND	2.69	2.55	4.30	1.40	0.111	ND	2.23	ND	ND	ND	ND	8.30	13.5			
B-13	4/22/09	0.5	--	--	--	--	--	1.79	8.10	447	0.271	2.40	12.9	6.08	130	841	0.095	ND	16.7	ND	ND	0.805	23.6	1090
		1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		3.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
B-13	4/22/09	10.0	--	--	--	--	--	ND	ND	39.1	ND	ND	15.9	3.28	9.17	5.37	ND	1.60	3.86	ND	ND	ND	9.94	20.3
		1.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		5.0	ND	ND	ND	ND	ND	9.43	3.62	128	83.7	0.190	ND	8.04	ND	ND	17.8	62.5						
B-13	4/22/09	10.0	--	--	--	--	--	ND	2.69	64.6	ND	ND	9.43	3.62	128	83.7	0.190	ND	8.04	ND	ND	17.8	62.5	
		10.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes: ND = Non-Detect
 -- = Not Analyzed
 ug/kg = micrograms per kilogram
 mg/kg = milligrams per kilogram

Table 6
Laboratory Analysis of Soil Samples
Lead STLC and TCLP Analysis
Proposed Albion Dairy Park
1739 Albion Street
Los Angeles, California

Boring ID	Date	Depth (feet bgs)	Lead (mg/kg)	STLC (mg/L)	TCLP (mg/L)
B-6	4/22/09	40.0	53.3	ND	--
B-8	4/23/09	1.0	142	7.44	ND
B-9	4/23/09	1.0	108	0.271	3.69
B-12	4/22/09	1.0	841	47.6	4.35
B-13	4/22/09	2.5	84	6.48	--

Notes: ND = not detected

-- = not analyzed

mg/kg = milligrams per kilogram

mg/L = milligrams per Liter

Table 7
Laboratory Analysis of Groundwater Samples
TPH
Proposed Albion Dairy Park
1739 Albion Street
Los Angeles, California

Sample Location: MW-1		Sample Date: 4/22/09
Lab Sample ID: MWC		4/22/09
MW-2		MW
TPH Carbon Chain in mg/L		
C6	ND	
C7	ND	
C8	ND	
C9-C10	ND	
C11-C12	3500	
C13-C14	17000	
C15-C16	35000	
C17-C18	50000	
C19-C20	60000	
C21-C22	54000	
C23-C24	48000	
C25-C28	120000	
C29-C32	110000	
C33-C36	70000	
C37-C40	84000	
C41-C44	65000	
C6-C44 Total	720000	
TPH Crude Oil in mg/kg		
TPH as Crude Oil		760000
--		

Notes:
TPH = Total Petroleum Hydrocarbons
ND = not detected
-- = not analyzed

Table 8
Laboratory Analysis of Groundwater Samples
VOCs
Proposed Albion Dairy Park
1739 Albion Street
Los Angeles, California

Sample Location		
MW-2	MW	Trip Blank
Sample ID:		
4/22/09		
Sample Date:		
Volatile Organic Compounds in ug/L		
Benzene	ND	ND
Toluene	ND	ND
Ethylbenzene	ND	ND
p/m-Xylene	ND	ND
o-Xylene	ND	ND
MTBE	45	ND
TBA	ND	ND
DIPE	ND	ND
ETBE	ND	ND
TAME	ND	ND
Ethanol	ND	ND
TCE	ND	ND
PCE	ND	ND
c-1,2-dichloroethene	1.3	ND
Other Vocs	ND	ND

Notes:
 ND = Non-detect
 ug/L = micrograms per liter

Table 9
Laboratory Analysis of Groundwater Samples
Title 22 Metals and General Water Quality Parameters
Proposed Albion Dairy Park
1739 Albion Street
Los Angeles, California

Sample Location:		MW-2
Sample ID:		MW
Sample Date:		4/22/09
Title 22 Metals in mg/L		
Antimony	ND	
Arsenic	ND	
Barium	0.164	
Beryllium	ND	
Cadmium	ND	
Chromium	ND	
Cobalt	ND	
Copper	ND	
Lead	ND	
Mercury	ND	
Molybdenum	ND	
Nickel	ND	
Selenium	ND	
Silver	ND	
Thallium	ND	
Vanadium	ND	
Zinc	ND	
General Water Quality Parameters in mg/L		
Chloride	88	
Nitrate (as Nitrogen)	ND	
Sulfate	38	
Total Hardness	560	
Salinity	1.1	
Total Dissolved Solids	800	
pH	7.21	

Notes:

ND = Non-detect

mg/L = milligrams per liter

Table 2

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Table 4
Summary Soil Analytical Results, Volatile Organic Compounds
ARCADIS-J042501.1.M01

Max of 1	Date Sampled	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	2-Butanone (MEK)	4-Isopropyltoluene	Acetone	Benzene	1,2-Dichloroethane	Ethylbenzene	m,p-Xylene	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Xylene
Sample ID														
RAAT Side B - Surface S9	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side B - Surface S10	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall #2 S1	10/12/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall #2 S2	10/12/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall #2 S3	10/12/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall S4	10/13/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall S5	10/13/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall S6	10/13/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall S7	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall S8	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall S9	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAT Side C - Wall S10	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-BIC-01	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-BIC-02	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-BIC-03	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-BIC-04	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-BIC-05	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-BIC-06	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-BIC-07	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-SWC-01-W	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-SWC-02-N	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-SWC-03-N	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-SWC-04-N	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-SWC-05-S	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-SWC-07-S	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAS-SWC-08-S	10/14/2011	<4.0	<4.0	<4.0	<4.0	<8.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0

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Table 4
Summary Soil Analytical Results, Volatile Organic Compounds
ARCADIS-J045401.1.M01

Sample ID	Date	Max of 1	2,4-Trimethylbenzene	3,5-Trimethylbenzene	2-Butanone (MEK)	4-Isopropyltoluene	Acetone	Benzene	1,2-Dichloroethane	Ethylbenzene	m,p-Xylene	Naphthalene	n-Butylbenzene	n-Propylbenzene	o-Xylene
WH-1-PH-12-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-PH-12-6'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-PH-13-1'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-PH-14-5'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-PH-15-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-02-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-03-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-04-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-05-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-06-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-06-5'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-07-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-07-5'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-08-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-08-5'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-09-3'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-PH-09-5'	11/2/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
Excavation/Benchtop Samples															
ADMIN-EX-01-01	10/21/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
ADMIN-EX-01-02	10/21/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
ADMIN-EX-01-03	10/21/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
ADMIN-EX-01-04	10/21/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
ADMIN-EX-01-05	10/21/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
ADMIN-EX-01-06	10/21/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-BSMT-DEBR-01	11/4/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-BSMT-DEBR-02	11/4/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-CAISSON-01-5'	11/02/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-CAISSON-SH1	11/02/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-EX-01-01-20'	10/28/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-EX-01-02-10'	10/28/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-EX-01-03-7'	10/28/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-EX-01-04-2'	10/28/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-EX-01-CMF	10/28/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-1-EX-02-01-4'	10/28/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-BSP-01	10/20/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-BSP-02	10/20/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-EX-01-1'	10/20/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-EX-01-5'	10/20/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-EX-01-6'	10/20/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-EX-01-7.5'	10/20/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-2-EX-01-9'	10/20/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
Stock Pile Samples															
RAAI-SP-01	10/17/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAI-SP-02	10/17/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAI-SP-03	10/17/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAI-SP-04	10/17/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAI-SO-SP-01	11/23/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAI-SO-SP-02	11/23/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
RAAI-SO-SP-03	11/23/2011	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<2.0	<4.0	<2.0	<2.0	<4.0	<4.0	<4.0	<2.0
WH-SWS-01	12/2/2011	316	181	440	263	440	440	<10	<20	11	<10	148	77.4	28.4	51.8
WH-SWS-02	12/2/2011	47.5	154	<40	213	<400	<400	<10	<20	11	<10	<20	54.2	28.4	64

Table 4
Summary Soil Analytical Results, Volatile Organic Compounds
ARCADIS-J045401.TMO1

Sample ID	Date Sampled	1,2,4-Trimethylbenzene ppb/kg	1,3,5-Trimethylbenzene ppb/kg	2-Butanone (MEK) ppb/kg	4-Isopropyltoluene ppb/kg	Acetone ppb/kg	Benzene ppb/kg	cis-1,2-Dichloroethane ppb/kg	Ethylbenzene ppb/kg	m,p-Xylene ppb/kg	Naphthalene ppb/kg	n-Butylbenzene ppb/kg	n-Propylbenzene ppb/kg	o-Xylene ppb/kg
Max of 1														
WI-SW-SP-03	12/2/2011	<20	361	<40	44.4	<400	<10	<20	12.8	<10	22.4	167	14.4	84.7
WI-SE-SP-01	12/2/2011	<20	56.4	<40	<20	<400	<10	<20	<10	<10	<20	27	<20	10.6
WI-SE-SP-02	12/2/2011	<20	36.8	<40	41.8	<400	<10	<20	<10	<10	<20	101	<20	13.2
WI-SW-SP-01	12/2/2011	<20	136	<40	<20	<400	<10	<20	<10	<10	<20	101	<20	76
WI-H-SP-02	12/2/2011	<20	113	<40	<20	<400	<10	<20	15.2	46.4	<20	119	43.5	35.4
WI-H-SP-03	12/2/2011	276	368	<40	51.8	<400	<10	<20	<10	<10	<20	<40	<20	172
RA02-S02-SP-01	12/5/2011	<20	<40	<40	<20	<400	<10	<20	<10	<10	<20	<40	<20	<20
RA02-SE-S02	12/5/2011	<20	<40	<40	<20	<400	<10	<20	<10	<10	<20	<40	<20	<20

Table 4
Summary Soil Analytical Results, Volatile Organic Compounds
ARCADIS-LAC2560.1.M01

Sample ID	Date Sampled	Remedial Goal	Max of 1
6250 B 197Kg	1,2,4-Trimethylbenzene	62,000	
6250 B 197Kg	1,3,5-Trimethylbenzene	776,000	
6250 B 197Kg	2-Butanone (MEK)	26,000,000	
6250 B 197Kg	4-Isopropyltoluene	-	
6250 B 197Kg	Acetone	61,000,000	
6250 B 197Kg	Benzene	1,100	
6250 B 197Kg	cis-1,2-Dichloroethene	189,000	
6250 B 197Kg	Ethylbenzene	5,400	
6250 B 197Kg	m,p-Xylene	630,000	
6250 B 197Kg	Naphthalene	3,600	
6250 B 197Kg	n-Butylbenzene	3,300,000	
6250 B 197Kg	n-Propylbenzene	3,400,000	
6250 B 197Kg	o-Xylene	690,000	

Notes:
 < = Not detected above laboratory reporting limit indicated.
 197Kg = Micrograms per kilogram

2/8/2012 MCM

2/8/2012 NEW

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ND = Not detected above laboratory reporting limit indicated.
 pg/kg = Micrograms per kilogram
 Note: SVDs are shown for detected compounds only. See laboratory report(s) for a complete list of compounds analyzed.
 ND = Not Detected. The compound was analyzed for but was not found to be present at or above the detection limit.
 Analyte above Remedial Goals

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Table 1
Summary Soil Analytical Results, Metals
ARCADIS URGENT 11/16/11

Sample ID	Date	Antimony mg/kg	Artenic mg/kg	Barium mg/kg	Cadmium mg/kg	Chromium mg/kg	Cobalt mg/kg	Copper mg/kg	Lead mg/kg	Lead mg/kg	Lead mg/kg	Mercury mg/kg	Molybdenum mg/kg	Nickel mg/kg	Selenium mg/kg	Silver mg/kg	Vanadium mg/kg	Zinc mg/kg
SW-05-E-50	11/15/2011	7.72	14.2	118	2.84	22.5	11	1200	908	-	-	0.332	1.72	2.09	2.8	1.09	42.8	748
WH-1-PH-01-2	11/02/2011	<2.5	1.22	118	<1.0	13.5	12.7	67.5	-	-	-	<0.1	<1.0	8.52	<1.0	<1.0	62.5	62.5
WH-1-PH-14-5	11/02/2011	2.83	3.42	93.6	<1.0	10	6.87	74.4	-	-	-	0.37	<1.0	9.44	<1.0	<1.0	31.9	53.6
WH-1-PH-15-5	11/02/2011	3.62	3.28	161	<1.0	10	6.89	125	-	-	-	0.302	<1.0	33.2	<1.0	<1.0	16.4	130.0
WH-1-PH-02-2	11/02/2011	<2.5	1.07	148	<1.0	8.91	11.3	16.9	-	-	-	<0.1	<1.0	5.8	<1.0	<1.0	38.3	198
WH-1-PH-02-5	11/02/2011	6.02	2.86	135	<1.0	12.5	6.92	231	-	-	-	0.256	<1.0	5.4	<1.0	<1.0	31.7	47.5
WH-1-PH-02-5	11/02/2011	<2.5	1.06	144	<1.0	12	11.8	53.8	-	-	-	0.342	<1.0	7.38	<1.0	<1.0	37.8	238
WH-1-PH-04-2	11/02/2011	<2.5	<1.0	151	<1.0	14.8	10.9	36.9	-	-	-	<0.1	<1.0	7.77	<1.0	<1.0	42.3	107
WH-1-PH-04-2	11/02/2011	<2.5	1.31	155	<1.0	10.5	10.8	101	-	-	-	0.21	<1.0	7.5	<1.0	<1.0	49.2	88.8
WH-1-PH-05-2	11/02/2011	<2.5	<1.0	164	<1.0	10.2	12.3	19.6	-	-	-	<0.1	<1.0	6.06	<1.0	<1.0	48.7	117
WH-1-PH-05-2	11/02/2011	3.08	1.84	91.8	<1.0	8.99	6.45	187	-	-	-	0.398	<1.0	6.44	<1.0	<1.0	65	50.8
WH-1-PH-06-2	11/02/2011	<2.5	<1.0	151	<1.0	11.8	11.5	28.8	-	-	-	0.306	<1.0	8.25	<1.0	<1.0	24.1	75
WH-1-PH-07-5	11/02/2011	<2.5	1.42	123	<1.0	15.3	10.4	16.9	-	-	-	<0.1	<1.0	8.83	<1.0	<1.0	37.5	161
WH-1-PH-07-5	11/02/2011	<2.5	1.74	119	<1.0	14.9	9.79	21	-	-	-	0.344	<1.0	10.9	<1.0	<1.0	37.5	82.4
WH-1-PH-08-5	11/02/2011	8.83	2.72	92.3	<1.0	10.8	6.75	205	-	-	-	0.383	<1.0	9.23	<1.0	<1.0	38.5	280
WH-1-PH-08-5	11/02/2011	<2.5	2.87	122	<1.0	12.4	7.23	34.8	-	-	-	0.351	<1.0	11.9	<1.0	<1.0	40.2	187
WH-1-PH-08-5	11/02/2011	<2.5	1.46	93.6	<1.0	8.95	7.3	21.4	-	-	-	0.377	<1.0	11.9	<1.0	<1.0	31.3	137
WH-1-PH-10-4	11/02/2011	<2.5	1.54	125	<1.0	18.4	12.1	22.4	-	-	-	0.382	<1.0	11.5	<1.0	<1.0	36.5	67.3
WH-1-PH-10-4	11/02/2011	<2.5	1.35	104	<1.0	13.5	8.82	20.5	-	-	-	0.382	<1.0	9.2	<1.0	<1.0	32.9	71.8
WH-1-PH-11-3	11/02/2011	<2.5	1.81	103	<1.0	15.1	7.75	16.9	-	-	-	0.313	<1.0	8.16	<1.0	<1.0	31.8	103
WH-1-PH-11-3	11/02/2011	<2.5	1.62	102	<1.0	11.9	7.25	22.5	-	-	-	0.376	<1.0	8.16	<1.0	<1.0	28.3	70.6
WH-1-PH-11-3	11/02/2011	<2.5	2.3	64.8	<1.0	9.85	4.66	18.1	-	-	-	<0.1	<1.0	7.78	<1.0	<1.0	14.2	142
WH-2-PH-01-3	11/02/2011	<2.5	<1.0	66.4	<1.0	24.1	10.4	12.3	-	-	-	0.302	<1.0	20.5	<1.0	<1.0	40.1	48.5
WH-2-PH-01-3	11/02/2011	4.06	3.54	192	<1.0	15.4	7.44	74.7	-	-	-	0.385	<1.0	13.5	<1.0	<1.0	31.9	203
WH-2-PH-02-3	11/02/2011	4.48	5.55	194	1.05	19.5	8.44	215	-	-	-	0.378	<1.0	14.7	<1.0	<1.0	35.3	280
WH-2-PH-03-3	11/02/2011	3.65	3.53	110	<1.0	10.5	6.65	84.1	-	-	-	0.35	<1.0	10.2	<1.0	<1.0	32.6	230
WH-2-PH-03-3	11/02/2011	18.5	5.71	110	<1.0	18.1	10.5	13.5	-	-	-	0.344	<1.0	10.5	<1.0	<1.0	31.6	230
WH-2-PH-03-3	11/02/2011	18.5	5.71	110	<1.0	18.1	10.5	13.5	-	-	-	0.344	<1.0	10.5	<1.0	<1.0	31.6	230
WH-2-PH-06-3	11/02/2011	6.81	4.64	582	1.53	19.2	8.31	289	-	-	-	0.392	<1.0	2.28	<1.0	<1.0	34.1	113
WH-2-PH-06-3	11/02/2011	<2.5	1.56	77.7	<1.0	8.79	6.04	32.1	-	-	-	0.392	<1.0	8.87	<1.0	<1.0	26.6	98.7
WH-2-PH-06-3	11/02/2011	<2.5	4.77	233	<1.0	10.9	8.29	3.45	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	6.87	4.77	233	<1.0	10.9	8.29	3.45	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	74.1	<1.0	8.1	7.74	6.4	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	6.35	5.9	287	1.56	22.3	8.33	124	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	14.5	7.53	1340	4.9	23.5	8.34	285	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	51.5	<1.0	6.27	5.33	6.17	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	19.3	6.85	1780	8.85	48.7	8	648	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	24.4	6.85	561	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-	0.344	<1.0	2.71	<1.0	<1.0	14.7	118
WH-2-PH-06-3	11/02/2011	<2.5	<1.0	56.2	<1.0	72.4	5.8	18.9	-	-	-</							

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Table 1
Summary Soil Analytical Results, Metals
ARCADIS-10425601.MKT

Sample ID	Date Sampled	Antimony	Arsenic	Barium	Cadmium	Chromium	Cobalt	Copper	Lead	Lead	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Vanadium	Zinc
Removal Data	31	8	15,000	70	120,000	370	3,100	--	--	400	10	300	1,400	300	300	300	300	23,000

Notes:
mg/Kg = Milligrams per kilogram
mg/L = Milligrams per liter
-- = Not detected above laboratory reporting limit indicated
-- = Not Analyzed
RCL = Regional Screening Level
(Not to be used for decision making)
(Results above RCL are not a concern)

Table 5
Summary Soil Analytical Results, Polychlorinated Biphenyls
 Albion Dairy
 ARCADIS-L0425401.TM01

Sample ID	Date Sampled	Aroclor-1016 8082_PCB µg/Kg	Aroclor-1221 8082_PCB µg/Kg	Aroclor-1232 8082_PCB µg/Kg	Aroclor-1242 8082_PCB µg/Kg	Aroclor-1248 8082_PCB µg/Kg	Aroclor-1254 8082_PCB µg/Kg	Aroclor-1260 8082_PCB µg/Kg
Step-Out Samples								
RAA1-A-S1-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-A-S2-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-A-S4-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-A-S9-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-B-S1-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-B-S2-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-C-S2-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-C-S3-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-C-S4-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-C-S6-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1-C-S7-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side A - Wall S1	10/12/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side A - Wall S2	10/12/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side A - Wall S3	10/12/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side A - Wall S4	10/13/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side A - Wall S5	10/13/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side A - Wall S6	10/13/2011	<200	<200	<200	<200	<200	<200	<200
RAA1 Side A - Wall S7	10/14/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side A - Wall S8	10/14/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side A - Wall S9	10/14/2011	<200	<200	<200	<200	<200	<200	<200
RAA1 Side A - Wall S10	10/14/2011	<50	<50	<50	<50	<50	<50	<50

Table 5
Summary Soil Analytical Results, Polychlorinated Biphenyls
 Albion Dairy
 ARCADIS-L0425401.TM01

Sample ID	Date Sampled	8082_PCB Aroclor-1016 µg/Kg	8082_PCB Aroclor-1221 µg/Kg	8082_PCB Aroclor-1232 µg/Kg	8082_PCB Aroclor-1242 µg/Kg	8082_PCB Aroclor-1248 µg/Kg	8082_PCB Aroclor-1254 µg/Kg	8082_PCB Aroclor-1260 µg/Kg
RAA1 Side B - Surface S1	10/12/2011	<100	<100	<100	<100	<100	<100	<100
RAA1 Side B - Surface S2	10/12/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side B - Surface S3	10/12/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side B - Surface S4	10/13/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side B - Surface S5	10/13/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side B - Surface S6	10/13/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side B - Surface S7	10/14/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side B - Surface S8	10/14/2011	<200	<200	<200	<200	<200	<200	<200
RAA1 Side B - Surface S9	10/14/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side B - Surface S10	10/14/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side C - Wall #2 S1	10/12/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side C - Wall #2 S2	10/12/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side C - Wall #2 S3	10/12/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side C - Wall #2 S4	10/13/2011	<200	<200	<200	<200	<200	<200	<200
RAA1 Side C - Wall S5	10/13/2011	<200	<200	<200	<200	<200	<200	<200
RAA1 Side C - Wall S6	10/13/2011	<200	<200	<200	<200	<200	<200	<200
RAA1 Side C - Wall S7	10/14/2011	<200	<200	<200	<200	<200	<200	<200
RAA1 Side C - Wall S8	10/14/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side C - Wall S9	10/14/2011	<50	<50	<50	<50	<50	<50	<50
RAA1 Side C - Wall S10	10/14/2011	<200	<200	<200	<200	<200	<200	<200
RAA1-SP-01	10/17/2011	<200	<200	<200	<200	<200	<200	<200
RAA1-SP-02	10/17/2011	<200	<200	<200	<200	<200	<200	<200
RAA1-SP-03	10/17/2011	<200	<200	<200	<200	<200	<200	<200

Table 5
Summary Soil Analytical Results, Polychlorinated Biphenyls
 Albion Dairy
 ARCADIS-L0425401.TM01

Sample ID	Date Sampled	Aroclor-1016 8082_PCB µg/Kg	Aroclor-1221 8082_PCB µg/Kg	Aroclor-1232 8082_PCB µg/Kg	Aroclor-1242 8082_PCB µg/Kg	Aroclor-1248 8082_PCB µg/Kg	Aroclor-1254 8082_PCB µg/Kg	Aroclor-1260 8082_PCB µg/Kg
SWC-02-N-SO	11/15/2011	<50	<50	<50	<50	<50	<50	76.5
SWC-05-E-SO	11/15/2011	<50	<50	<50	<50	<50	<50	<50
Pothole Samples								
WH-1-PH-01-2'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-01-2.5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-02-2'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-02-2.5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-03-2'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-03-2.5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-04-2'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-04-2.5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-05-2'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-05-2.5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-06-2'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-06-2.5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-07-3'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-07-5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-08-3'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-08-5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-09-3'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-09-4'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-10-3'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-10-4'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-11-3'	11/02/2011	<50	<50	<50	<50	<50	<50	<50

Table 5
Summary Soil Analytical Results, Polychlorinated Biphenyls
 Albion Dairy
 ARCADIS-L0425401.TM01

Sample ID	Date Sampled	8082_PCB Aroclor-1016 µg/Kg	8082_PCB Aroclor-1221 µg/Kg	8082_PCB Aroclor-1232 µg/Kg	8082_PCB Aroclor-1242 µg/Kg	8082_PCB Aroclor-1248 µg/Kg	8082_PCB Aroclor-1254 µg/Kg	8082_PCB Aroclor-1260 µg/Kg
WH-1-PH-11-4.5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-12-3'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-12-6'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-13-1'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-14-5.5'	11/4/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-PH-15-5.5'	11/4/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-01-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-02-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-03-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-04-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-05-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-06-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-06-6'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-06-9'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-07-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-07-6'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-07-9'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-08-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-08-6'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-08-9'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-09-3'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-09-6'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-PH-09-9'	11/3/2011	<50	<50	<50	<50	<50	<50	<50
Excavation/Demolition Samples								

Table 5
Summary Soil Analytical Results, Polychlorinated Biphenyls
 Albion Dairy
 ARCADIS-L0425401.TM01

Sample ID	Date Sampled	Aroclor-1016 8082_PCB µg/Kg	Aroclor-1221 8082_PCB µg/Kg	Aroclor-1232 8082_PCB µg/Kg	Aroclor-1242 8082_PCB µg/Kg	Aroclor-1248 8082_PCB µg/Kg	Aroclor-1254 8082_PCB µg/Kg	Aroclor-1260 8082_PCB µg/Kg
ADMIN-EX-01-01	10/21/2011	<200	<200	<200	<200	<200	<200	<200
ADMIN-EX-01-02	10/21/2011	<200	<200	<200	<200	<200	<200	<200
ADMIN-EX-01-03	10/21/2011	<200	<200	<200	<200	<200	<200	<200
ADMIN-EX-01-04	10/21/2011	<200	<200	<200	<200	<200	<200	<200
ADMIN-EX-01-05	10/21/2011	<200	<200	<200	<200	<200	<200	<200
ADMIN-EX-01-06	10/21/2011	<200	<200	<200	<200	<200	<200	<200
WH-1-BSMT-DEBR-01	11/4/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-BSMT-DEBR-02	11/4/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-CAISSON-01-5'	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-CAISSON-SP1	11/02/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-EX-01-01-20'	10/26/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-EX-01-02-10'	10/26/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-EX-01-03-6'	10/26/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-EX-01-04-2'	10/26/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-EX-01-CMF	10/26/2011	<50	<50	<50	<50	<50	<50	<50
WH-1-EX-02-01-4'	10/26/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-BSP-01	10/20/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-BSP-02	10/20/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-EX-01-1'	10/20/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-EX-01-3'	10/20/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-EX-01-5'	10/20/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-EX-01-6'	10/20/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-EX-01-7.5'	10/20/2011	<50	<50	<50	<50	<50	<50	<50
WH-2-EX-01-9'	10/20/2011	<50	<50	<50	<50	<50	<50	<50

Table 5
Summary Soil Analytical Results, Polychlorinated Biphenyls
 Albion Dairy
 ARCADIS-L0425401.TM01

Sample ID	Date Sampled														
		Remedial Goal	6,300	140	140	220	220								
Are results above the threshold?		NO	NO	NO	NO	NO	NO								
		8082_PCB µg/Kg	Aroclor-1016	8082_PCB µg/Kg	Aroclor-1221	8082_PCB µg/Kg	Aroclor-1232	8082_PCB µg/Kg	Aroclor-1242	8082_PCB µg/Kg	Aroclor-1248	8082_PCB µg/Kg	Aroclor-1254	8082_PCB µg/Kg	Aroclor-1260

Notes:

< = Not detected above laboratory reporting limit indicated.

µg/Kg = Micrograms per kilogram

RSL = Regional Screening Limit

μg/kg = Micrograms per kilogram

Jan 2012

soil samples collected below the 20,000-gallon UST exhibited no odors, discoloration, or organic vapor readings using a photoionization detector (PID) calibrated to hexane. The soil observed below the dispenser area at the sampling depth of approximately five feet bgs consisted of a medium to coarse grained sand with gravel. The sample collected below the dispenser exhibited a dark green/black color, a moderate hydrocarbon odor, and a PID reading of 11.8 ppm.

Soils observed below the 2,380-gallon fuel oil UST/side tank excavation at the sampling depth of approximately 12 feet bgs, consisted of slightly silty fine grained sand. The soil samples collected below the 2,380-gallon UST and side tank exhibited a black color, strong hydrocarbon odor, and a PID readings ranging from 12 ppm to 22 ppm.

No groundwater was observed within the UST excavations.

3.4 Air Monitoring

During the soil excavation activities, the stockpiled soils were monitored using a PID calibrated to hexane. PID readings ranging from 0 to 2.2 ppm were observed in the soil stockpiled from the UST areas.

3.5 Analytical Results

The analytical results for the UST, dispenser, and stockpile soil samples are presented in the following Tables 1 and 2. The results are presented in units of milligrams per kilogram (mg/kg).

Table 3 – 20,000-gallon Diesel UST Area Samples:

Table 3

Sample ID	TPH-g EPA 8015B/5035 (mg/kg)	TPH-d EPA 8015B (mg/kg)	TPH-o EPA 8015B (mg/kg)	VOCs EPA 8260B/5035 (mg/kg)
TANK1N-16'	ND <0.200	ND <1.0	ND <17.0	Acetone = 0.0136J Benzene = 0.00192J Toluene = 0.00106J
TANK1C-16'	ND <0.200	152	109	Acetone = 0.0161J Benzene = 0.00258
TANK1S-16'	ND <0.200	ND <1.0	ND <17.0	ND
DISPENSER-5'	ND <0.200	139	124	Acetone = 0.0224J Benzene = 0.00122J
STOCKPILE 1-A	ND <0.200	242	2,270	Acetone = 0.0136J Benzene = 0.00130J 1,3,5-Trimethylbenzene = 0.00146J
STOCKPILE 1-B	ND <0.200	243	103	Acetone = 0.0210J Benzene = 0.00224
PQLs	0.5 - 2.5	10.0	50.0	0.002 - 0.250

Table 2 – 2,380-gallon Fuel Oil UST Area Samples:

Sample ID	TPH-g EPA 8015B/5035 (mg/kg)	TPH-d EPA 8015B (mg/kg)	TPH-o EPA 8015B (mg/kg)	VOCs EPA 8260B/5035 (mg/kg)
TANK2N-12'	ND <1.0	50,000	12,000	n-Butylbenzene = 0.062 sec-Butylbenzene = 0.0735 Isopropylbenzene = 0.0150J Naphthalene = 0.115
TANK2S-12'	ND <1.0	40,700	16,000	ND
TANK2-SIDE-12'	ND <1.0	20,400	9,310	ND
STOCKPILE 2-A	ND <0.200	ND <1.0	584	Acetone = 0.0182J Benzene = 0.00336
STOCKPILE 2-B	ND <0.200	ND <1.0	144	Acetone = 0.0312J Benzene = 0.008 Toluene = 0.0022
PQLs	0.5 - 2.5	10.0	50.0	0.002 - 0.250

PQL – Practical Quantitation Limit

MDL – Method Detection Limit

ND – Analyte was not detected in the sample at or above the MDL

J = Indicates analyte was detected. However, analyte concentration is an estimated value which is between the MDL and the PQL

20,000-gallon Diesel UST Area

As presented in Table 1, the soil sample collected below the middle of the 20,000-gallon diesel UST (TANK1C-16') exhibited TPH-d and TPH-o concentrations of 152 mg/kg and 109 mg/kg, respectively. In addition, the soil samples collected below the middle (TANK1C-16') and north end (TANK1N-16') of the UST exhibited concentrations of acetone (0.0161J mg/kg, 0.0136J mg/kg), benzene (0.00258 mg/kg, 0.00192J mg/kg), and/or toluene (ND, 0.00106J mg/kg), respectively.

The sample collected below the dispenser (DISPENSER-5') exhibited TPH-d and TPH-o concentrations of 139 mg/kg and 124 mg/kg, respectively, and concentrations of acetone (0.0224J mg/kg) and benzene (0.00122J mg/kg).

Soil samples STOCKPILE 1-A and STOCKPILE 1-B exhibited concentrations of TPH-d (242 mg, 243 mg/kg) and TPH-o (2,270 mg/kg, 103 mg/kg), respectively. In addition, samples STOCKPILE 1-A and STOCKPILE 1-B exhibited concentrations of acetone (0.0138J mg/kg, 0.0210J mg/kg), benzene (0.00130J mg/kg, 0.00224 mg/kg), and/or 1,3,5-Trimethylbenzene (0.00146J mg/kg, ND), respectively.

2,380-gallon Fuel Oil UST Area

As presented in Table 2, the soil samples collected below the 2,380-gallon fuel oil UST and side tank (TANK2N-12', TANK2S-12', and TANK2-SIDE-12') exhibited TPH-d concentrations ranging from 20,400 mg/kg to 50,000 mg/kg, and TPH-o concentrations ranging from 9,310 mg/kg to 16,000 mg/kg. In addition,

6/2012

Table 21
Summary Soil Analytical Results, Metals

Soil Samples

Albion Dairy

ARCADIS-L0425401.TM01

Sample ID	Date Sampled	Arsenic	Lead
		Metals_6010B CAM mg/Kg	Metals_6010B CAM mg/Kg
SB-2-2.5	6/14/2012	1.29	35.2
SB-2-5	6/14/2012	<1.0	1.71
SB-3-2.5	6/15/2012	1.75	904
SB-3-5	6/15/2012	--	621
SB-4-2.5	6/15/2012	2.25	662
SB-4-5	6/15/2012	--	1.60
SB-4-10	7/17/2012	<1.0	1.60
SB-4-15	7/17/2012	<1.0	1.29
SB-4-20	7/17/2012	<1.0	1.40
SB-4-25	7/17/2012	<1.0	< 0.0100
SB-5-2.5	6/14/2012	<1.0	34.5
SB-5-5	6/14/2012	<1.0	1.10
SB-6-2.5	6/15/2012	<1.0	37.5
SB-7-2.5	6/14/2012	3.40	82.4
SB-7-5	6/14/2012	<1.0	3.82
SB-7-10	7/17/2012	<1.0	< 0.0100
SB-7-15	7/17/2012	<1.0	1.07
SB-7-20	7/17/2012	<1.0	1.11
SB-7-25	7/17/2012	<1.0	1.02
SB-8-2.5	6/15/2012	3.18	264
SB-9-2.5	6/15/2012	3.08	97.0
SB-10-2.5	6/15/2012	<1.0	14.4
SB-10-5	7/18/2012	<1.0	1.61
SB-10-10	7/18/2012	<1.0	1.00
SB-10-15	7/18/2012	<1.0	< 0.0100
SB-10-20	7/18/2012	<1.0	1.49
SB-10-22	7/18/2012	<1.0	< 0.0100
SB-11-2.5	6/15/2012	2.46	114
SB-12-2.5	6/15/2012	3.30	12.8
SB-13-2.5	6/14/2012	1.37	53.0
SB-13-5	6/14/2012	<1.0	2.01
SB-13-5	7/18/2012	<1.0	< 0.0100
SB-13-10	7/18/2012	<1.0	< 0.0100
SB-13-15	7/18/2012	<1.0	< 0.0100
SB-13-20	7/18/2012	<1.0	2.35
SB-13-23	7/18/2012	<1.0	1.51
SB-14-2.5	6/15/2012	2.6	58.2
SB-15-2.5	6/15/2012	<1.0	23.0
SB-16-2.5	6/15/2012	20.9	436
SB-16-5	7/18/2012	<1.0	11.8
SB-16-10	7/18/2012	<1.0	1.41
SB-16-15	7/18/2012	<1.0	< 0.0100
SB-16-20	7/18/2012	<1.0	< 0.0100
SB-16-25	7/18/2012	<1.0	1.17
SB-17-2.5	6/15/2012	4.04	302
SB-18-2.5	6/15/2012	8.48	4,520
SB-18-5	6/15/2012	<1.0	1.42
SB-19-2.5	6/15/2012	1.15	89.0
SB-20-2.5	6/15/2012	1.55	93.4
SB-21-2.5	6/14/2012	<1.0	31.9
SB-21-5	6/14/2012	<1.0	1.43
SB-22-2.5	6/14/2012	3.14	6.48
SB-22-5	6/14/2012	1.40	4.41
SB-22-5	7/18/2012	<1.0	1.35
SB-22-10	7/18/2012	<1.0	< 0.0100
SB-22-15	7/18/2012	<1.0	1.47
SB-22-20	7/18/2012	<1.0	2.78
SB-22-25	7/18/2012	<1.0	1.25
SB-23-2.5	6/14/2012	2.04	207
SB-23-5	6/14/2012	6.39	264

Table 2
Summary Soil Analytical Results, Metals
Soil Samples
 Albion Dairy
 ARCADIS-L0425401.TM01

Sample ID	Date Sampled	Arsenic	Lead
		Metals 6010B CAM mg/Kg	Metals 6010B CAM mg/Kg
SB-24-2.5	6/14/2012	2.24	128
SB-24-5	6/14/2012	1.93	38.7
SB-24-5	7/18/2012	1.99	195
SB-24-10	7/18/2012	<1.0	1.35
SB-24-15	7/18/2012	<1.0	1.66
SB-24-20	7/18/2012	<1.0	1.33
SB-24-25	7/18/2012	<1.0	1.07
SB-25-2.5	6/15/2012	2.40	85.5
SB-26-2.5	6/14/2012	1.88	122
SB-26-5	6/14/2012	1.84	316
TC-01-28	7/11/2012	<1.0	4.88
Statistical Summary			
Number of Samples:		205	206
Minimum Concentration:		<0.750	<0.010
Maximum Concentration:		29.4	4520
Average Concentration:		2.7	161
Standard Deviation:		3.8	516
95% UCL:		3.9	317
Remedial Goal		12	80*

Notes:

mg/Kg = Milligrams per kilogram

mg/L = Milligrams per liter

< = Not detected at or above indicated laboratory practical quantitation limit.

-- = Not Analyzed

BOLD sample IDs indicate Remedial Goal exceedance

* The remedial goal identified for lead is represented by the CHHSL. The CHHSL for lead has recently been modified to 80 mg/kg, but unlike other CHHSLs which suggest that each sample concentration should be below the CHHSL, the lead CHHSL is met as long as the 95% UCL of the dataset meets the criteria of 80 mg/kg. The 95% UCL was calculated and samples were removed until the 95% UCL was below 80 mg/kg. As such, values above 250 mg/kg were found to contribute to a 95% UCL above the CHHSL. As such, concentrations for lead were put in bold if above 250 mg/kg.

CHHSL = California Human Health Screening Level (DTSC, 2005)

Table 3
Summary Soil Analytical Results, Semi-Volatile Organic Compounds
Soil Samples
Albion Dairy

Sample ID	Date Sampled	Benzo (a) anthracene	Benzo (b) pyrene	Benzo (k) fluoranthene	Benzo (i) fluoranthene	Benzo (a,h) anthracene	Indeno (1,2,3-cd) pyrene	Benzo (b) Pyrene Equivalent	Naphthalene	All Other SVOCs
		8270C SVOCs µg/Kg	8270C SVOCs µg/Kg	8270C SVOCs µg/Kg	8270C SVOCs µg/Kg	8270C SVOCs µg/Kg	8270C SVOCs µg/Kg	Calculated µg/Kg	8270C SVOCs µg/Kg	8270C SVOCs µg/Kg
WH-1-BSMT-DEBRI-01	11/4/2011	<400	343	<400	<400	<400	<400	491	<400	ND
WH-1-BSMT-DEBRI-02	11/4/2011	446	347	<400	<400	<400	<400	520	<400	ND
WH-1-CAISSON-01-5'	11/02/2011	<200	<100	<200	<200	<200	<200	<124	<200	ND
WH-1-EX-01-01-20'	10/28/2011	<200	<100	<200	<200	<200	<200	<124	<200	ND
WH-1-EX-01-02-10'	10/28/2011	<200	<100	<200	<200	<200	<200	<124	<200	ND
WH-1-EX-01-03-6'	10/28/2011	<400	204	<400	<400	<400	<400	382	<400	ND
WH-1-EX-01-04-2'	10/28/2011	<200	<100	<200	<200	<200	<200	<124	<200	ND
WH-1-EX-01-CMF	10/28/2011	866	1,580	840	<200	<200	1,070	1,802	5,380	ND
WH-1-EX-02-01-4'	10/28/2011	<200	<100	<200	<200	<200	<200	<124	3,500	ND
WH-2-EX-01-1'	10/20/2011	531	552	413	<200	<200	320	722	<200	ND
WH-2-EX-01-3'	10/20/2011	<200	157	<200	<200	<200	<200	231	<200	ND
WH-2-EX-01-5'	10/20/2011	<200	<100	<200	<200	<200	<200	<124	<200	ND
WH-2-EX-01-6'	10/20/2011	<200	181	<200	<200	<200	<200	255	<200	ND
WH-2-EX-01-7.5'	10/20/2011	<200	<100	<200	<200	<200	<200	<124	<200	ND
WH-2-EX-01-9'	10/20/2011	<200	<100	<200	<200	<200	<200	<124	<200	ND
Site Characterization Samples										
SB-1-2.5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-1-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-1-10	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-1-15	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-1-20	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-1-25	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-2-2.5	6/14/2012	<200	113	<200	<200	<200	<200	187	<200	ND
SB-2-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-3-2.5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-4-2.5	6/15/2012	364	341	712	<200	<200	277	520	<200	ND
SB-4-5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-4-10	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-4-15	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-4-20	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-4-25	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-5-2.5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-5-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-6-2.5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-7-2.5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-7-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-7-10	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-7-15	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-7-20	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-7-25	7/17/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-8-2.5	6/15/2012	<200	300	<200	<200	<200	<200	374	<200	ND
SB-8-5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-8-2.5	6/15/2012	<200	241	231	<200	<200	259	344	<200	ND
SB-8-5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-10-2.5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-10-5	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-10-10	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-10-15	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-10-20	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-10-22	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-11-2.5	6/15/2012	331	668	604	458	<200	528	871	<200	ND
SB-11-5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-12-2.5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-13-2.5	6/14/2012	<200	153	<200	<200	<200	<200	227	<200	ND
SB-13-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-13-5	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-13-10	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-13-15	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-13-20	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-13-23	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-14-2.5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-15-2.5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-16-2.5	6/15/2012	577	782	898	<200	285	564	1,072	<200	ND
SB-16-5	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-16-10	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-16-15	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-16-20	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-16-25	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-17-2.5	6/15/2012	288	390	434	296	<200	292	540	<200	ND
SB-17-5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-18-2.5	6/15/2012	246	487	414	290	<200	343	566	<200	ND
SB-18-5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-19-2.5	6/15/2012	723	1,850	1,360	<200	<200	1,050	2,007	<200	ND
SB-19-5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-20-2.5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-21-2.5	6/14/2012	2,100	2,180	1,610	1,720	320	1,250	2,937	<200	ND
SB-21-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-22-2.5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-22-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-22-5	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-22-10	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-22-15	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-22-20	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-22-25	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-23-2.5	6/14/2012	<200	283	<200	<200	<200	<200	357	<200	ND
SB-23-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND

Table 3
Summary Soil Analytical Results, Semi-Volatile Organic Compounds
Soil Samples
Albion Dairy

Sample ID	Date Sampled	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo(e)anthracene	Indeno (1,2,3-cd) pyrene	Benzo(b)Pyrene Equivalent	Fluoranthene	All Other SVOCs
		8270C, SVOCs µg/Kg	8270C, SVOCs µg/Kg	8270C, SVOCs µg/Kg	8270C, SVOCs µg/Kg	8270C, SVOCs µg/Kg	8270C, SVOCs µg/Kg	Calculated µg/Kg	8270C, SVOCs µg/Kg	8270C, SVOCs µg/Kg
SB-24-2.5	6/14/2012	<200	184	<200	<200	<200	<200	258	<200	ND
SB-24-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-24-5	7/18/2012	218	199	<200	276	<200	<200	289	<200	ND
SB-24-10	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-24-15	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-24-20	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-24-25	7/18/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-25-2.5	6/15/2012	<200	358	<200	<200	<200	<200	432	<200	ND
SB-26-5	6/15/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-26-2.5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
SB-26-5	6/14/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
TC-01-28	7/11/2012	<200	<200	<200	<200	<200	<200	<174	<200	ND
Statistical Summary:										
Number of Samples:		198	198	198	198	198	198	198	198	198
Minimum Concentration:		50	38	50	50	50	50	38	50	--
Maximum Concentration:		7,370	14,700	10,200	7,950	4,000	9,740	18,294	5,380	--
Average Concentration:		352	336	374	346	281	359	386	357	--
Standard Deviation:		614	1,070	785	644	312	749	1,335	554	--
95% UCL:		--	--	--	--	--	--	810	3600 M	--
B(a)P Potency Equivalence Factor*		0.1	1	0.1	0.1	0.34	0.1	--	--	--
Remedial Goal		**	**	**	**	**	**	900	3,600	--

Notes:

µg/Kg = Micrograms per kilogram

< = Not detected at or above indicated laboratory practical quantitation limit.

ND = Not Detected.

*Carcinogenic PAHs are evaluated based on an evaluation of their comparative potency to benzo(a)pyrene using the benzo(a)pyrene [B(a)P] potency equivalence factor [PEF]. The PEF is then multiplied by the detected concentration of the particular carcinogenic PAH (or 1/2 of the detection limit if the particular PAH was non-detected). A B(a)P equivalent number is calculated by summing all of the carcinogenic PAHs multiplied by their respective potency equivalence factor.

** Remedial goal for carcinogenic PAHs (those left of the Benzo(a)Pyrene Equivalent column) is the regional background value for PAHs shown (as presented in a DTSC advisory on background PAHs concentrations in urban settings).

M designation for 95% UCL indicates that maximum concentration is reported; in this instance, the calculation of 95% UCL is not appropriate given that the majority (all but one) datapoints were non-detected.

Remedial Goal = EPA Region IX Regional Screening Level - Residential Soil, April 2012

-- = Not Applicable

BOLD sample IDs indicate Remedial Goal exceedance

2013

Summary of Soil Excavation Analytical Results, Total Petroleum Hydrocarbons

Confirmation Soil Samples

Albion Dairy Remediation Project

Los Angeles, CA

ARCADIS-L0460701.TM10

Table 4

Sample ID	Sample Location	Over Excavated?	Date Sampled	TPH C13 - C22 EPA Method 8015B (M) (mg/Kg)	TPH C23 - C36 EPA Method 8015B (M) (mg/Kg)
SB-19-N-2.5			3/20/2013	< 2.50	<100
SB-19-ND-2.5			3/20/2013	6.29	<100
SB-19-S-2.5			3/20/2013	22.2	355
SB-19-SD-2.5	SB-19		3/20/2013	29.9	528
SB-19-E-2.5			3/20/2013	11.2	140
SB-19-W-2.5			3/20/2013	37.1	333
SB-19-BTM-4			3/20/2013	2.76	<100
TC-5-N-3.0			3/26/2013	<1	<1
TC-5-S-3.0			3/26/2013	30.2	278
TC-5-E-3.0			3/26/2013	44.4	500
TC-5-ED-3.0	TC-5		3/26/2013	28.6	347
TC-5-W-3.0			3/26/2013	77.4	821
TC-5-BTM-5			3/26/2013	8.36	105
TC-5-BTMD-5			3/26/2013	18.2	131
Remedial Goal				1,000	10,000

Notes:

TPH = Total Petroleum Hydrocarbons

mg/Kg = Milligrams per kilogram

< = Not detected above indicated laboratory reporting limit.

BOLD sample IDs indicate Remedial Goal exceedance

8/20/2013

8/20/2013

Table 3
Summary of Soil Excavation Analytical Results, Polycyclic Aromatic HydrocarbonsConfirmation Soil Samples
Allen Dairy Remediation Project
Los Angeles, CA

ARCADIS-L0460701.M10

Sample ID	Location	Over Excavated?	Date Sampled	Remedial Goal	Biop Potency Equivalence Factor	Naphthalene	2-Methylnaphthalene	Acenaphthylene	Acenaphthene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene (1,2-Benzanthracene)	Chrysene	Benzo (b) fluoranthene (3,4-Benzofluoranthene)	Benzo (k) fluoranthene (11,12-Benzofluoranthene)	Benzo (a) pyrene (3,4-Benzopyrene)	Indeno (1,2,3-cd) pyrene	Dibenzo(a,h)anthracene (1,2,5,6-Dibenzanthracene)	Benzo (g,h,i) perylene (1,12-Benzoperylene)
WH-03-W1-2.5			3/18/2013	5,020	-	141	141	114	84.1	121	841	166	851	891	280	338	293	281	385	224	30.8	297
WH-03-W2-2.5			3/18/2013	14,400	-	371	179	483	47.2	110	1,330	245	1,250	1,510	389	466	376	332	530	314	29.5	430
WH-03-BTM1-4		Yes	3/18/2013	2,570	-	124	124	124	76.4	52.2	1,880	331	3,610	4,850	1,340	1,790	2,010	1,640	2,820	1,980	357	2,540
WH-03-BTM1-5		Yes	3/26/2013	1,610	-	49.3	129	238	76.1	151	735	139	958	1,410	378	518	424	418	714	406	157	688
WH-03-BTM2-4		Yes	3/18/2013	4,810	-	217	217	238	88.0	125	1,540	289	2,050	2,250	568	1,130	763	828	1,240	777	169	1,080
WH-03-BTM2-5		Yes	3/26/2013	7,980	-	146	146	146	88.0	125	1,540	289	2,050	2,250	568	1,130	763	828	1,240	777	169	1,080
WH-03-BTM2-5		Yes	3/26/2013	7,980	-	146	146	146	88.0	125	1,540	289	2,050	2,250	568	1,130	763	828	1,240	777	169	1,080
WH-03-BTM3-4		Yes	3/18/2013	79.3	-	20.4	20.4	20.4	42.2	65.2	570	103	627	889	225	276	285	249	427	285	48.0	274
WH-03-BTM3-4		Yes	3/18/2013	89.6	-	15.0	15.0	15.0	42.2	65.2	570	103	627	889	225	276	285	249	427	285	48.0	274
WH-03-BTM4-4		Yes	3/18/2013	85.3	-	15.0	15.0	15.0	42.2	65.2	570	103	627	889	225	276	285	249	427	285	48.0	274
WH-03-BTM4-4		Yes	3/18/2013	85.3	-	15.0	15.0	15.0	42.2	65.2	570	103	627	889	225	276	285	249	427	285	48.0	274
SB-16-W2.5		Yes	3/18/2013	47.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.1	-	30.6	30.6	30.6	62.5	108	2,070	402	2,620	2,940	97.5	1,570	1,380	1,080	1,310	781	33.3	885
SB-16-W2.5		Yes	3/18/2013	43.																		

Table 1 - Summary Soil Analytical Results
Proposed Ripple Place Import Soil Source
Former Albion Dairy Remediation Project
1739 Albion Street
Los Angeles, California

Sample ID	TPH (8015M) (mg/kg)	VOCs (8260B/5035) (ug/kg)	SVOCs (8270C) (ug/kg)	OCs (8081A) (ug/kg)	PCBs (8082) (ug/kg)	CAM 17 Metals (6010B/7470A) (mg/kg)	As/Th (8020) (mg/kg)	Hex Cr (7199) (mg/kg)	OPPs (8141A) (mg/kg)	Chlorinated Herbicides (8151A) (mg/kg)	Pb STLC (DHS WET/6010B) (mg/L)
<i>Albion Clean-up Goals</i>											
TPH-diesel: 1,000 mg/kg		tol - 2.89	El 0.12 900 ug/kg	4,4'-DDT: NA	NA	As: 12 mg/kg, Pb: 250 mg/kg	As: 12 mg/kg, Th: NA	NA	NA	NA	Pb < 5 mg/L
BS-1	ND	ND	ND	ND	ND	As - 1.75, Pb - 10.3	ND	0.536	ND	ND	—
BS-2	ND	ND	ND	ND	ND	As - 1.27, Pb - 12.5	ND	0.110	ND	ND	—
BS-3	C13-C22 - 5.04	ND	ND	ND	ND	As - 1.69, Pb - 92.4	ND	ND	ND	ND	3.02
BS-4	ND	ND	ND	ND	ND	As - 2.12, Pb - 24.0	ND	1.42	ND	ND	—
BS-5	C13-C22 - 29.1 C23-C32 - 424 C33-C36 - 187	ND	ND	4,4'-DDT - 8.18	ND	As - 5.94, Pb - 21.9	ND	0.143	ND	ND	—
BS-6	ND	tol - 2.40	ND	ND	ND	As - 1.11, Pb - 3.09	ND	0.088	ND	ND	—
BS-7	ND	ND	ND	ND	ND	As - 1.16, Pb - 3.25	ND	ND	ND	ND	—
BS-8	ND	ND	ND	ND	ND	As - 1.20, Pb - 1.51	ND	ND	ND	ND	—
BS-9	ND	ND	ND	ND	ND	As - 1.26, Pb - 3.96	ND	0.858	ND	ND	—
BS-10	ND	ND	ND	ND	ND	As - 1.11, Pb - ND	ND	0.110	ND	ND	—
BS-11	ND	ND	ND	ND	ND	As - 1.20, Pb - 2.71	ND	0.181	ND	ND	—
BS-12	ND	ND	ND	ND	ND	As - 1.04, Pb - 1.42	ND	0.361	ND	ND	—
BS-13	ND	ND	ND	ND	ND	As - ND, Pb - ND	ND	0.095	ND	ND	—
BS-14	ND	ND	ND	ND	ND	As - 1.46, Pb - 3.11	ND	0.139	ND	ND	—
BS-15	ND	ND	ND	ND	ND	As - 1.11, Pb - 1.74	ND	ND	ND	ND	—
BS-16	ND	ND	ND	ND	ND	As - 1.25, Pb - 2.62	ND	0.113	ND	ND	—
BS-17	ND	tol - 2.09	ND	ND	ND	As - ND, Pb - 1.09	ND	0.102	ND	ND	—
BS-18	ND	ND	ND	ND	ND	As - 1.10, Pb - 1.65	ND	ND	ND	ND	—
BS-19	ND	ND	ND	ND	ND	As - 1.14, Pb - 1.50	ND	0.144	ND	ND	—
BS-20	C13-C22 - 8.52	ND	ND	4,4'-DDT - 5.45	ND	As - 3.18, Pb - 72.9	As - 2.63, Th - ND	0.151	ND	ND	1.97

Notes

TPH - Total Petroleum Hydrocarbons
VOCs - Volatile Organic Compounds
SVOCs - Semi-volatile Organic Compounds
OCs - Organochlorine Pesticides
PCBs - Poly Chlorinated Biphenyls
As/Th - Arsenic/Thallium
Hex Cr - Hexavalent Chromium
OPPs - Organophosphorous Pesticides
Pb - Lead

STLC - Soluble Threshold Limit Concentration
DHS WET - State of California Department of Health Services Waste Extraction Test
mg/kg - milligrams per kilogram
ug/kg - micrograms per kilogram
mg/L - milligrams per liter
C13-C22 - TPH in the C13-C22 carbon range
ND - Not detected at or above the laboratory reporting limit
tol - toluene
NA - Not Applicable
— - not analyzed

Albion Dairy Clean-up Goals: Environmental Site Characterization, Albion Dairy Remediation Project, ARCADIS, August 23, 2012
Pb STLC Limit: Section 01440 Environmental Import/Export Material Testing
LAUSD OEHHS, January 5, 2009



Table 6

Summary of Detected VOC Concentrations in Groundwater
Former Albion Dairy
1739 Albion Street
Los Angeles, California

Groundwater

Well ID	Sample Date	Carbon disulfide µg/L	MTBE µg/L	cis-1,2-DCE µg/L	trans-1,2-DCE µg/L	TCE µg/L	Vinyl chloride µg/L
	MCL	--	13	6	10	5	0.5
MW-1	7/31/2012	<5.00	1.36	13.4	4.48	<1.00	40.0
	11/1/2012	<5.00	1.49	10.8	3.45	<1.00	37.0
	2/22/2013	<5.00 [<5.00]	1.04 [1.09]	15.0 [15.3]	2.26 [2.28]	1.21 [1.24]	30.2 [30.3]
MW-2	5/2/2013	<5.00	1.12	15.1	2.93	<1.00	48.6
	7/31/2012	<5.00	18.0	<1.00	<1.00	<1.00	<0.500
	11/1/2012	<5.00	22.5	1.16	<1.00	<1.00	<0.500
	2/22/2013	<5.00	13.3	<1.00	<1.00	<1.00	<0.500
MW-3	5/2/2013	<5.00	13.9	1.08	<1.00	<1.00	<0.500
	7/31/2012	<5.00 [<5.00]	5.90 [5.12]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<0.500 [<0.500]
	11/1/2012	12.3 [19.2]	4.32 [4.25]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<0.500 [<0.500]
	2/22/2013	<5.00	3.13	<1.00	<1.00	<1.00	<0.500
	5/2/2013	<5.00 [<5.00]	3.95 [4.14]	<1.00 [<1.00]	<1.00 [<1.00]	<1.00 [<1.00]	<0.500 [<0.500]

Notes

VOC - Volatile organic compounds analyzed using EPA Method 8260B

µg/L - micrograms per liter

MTBE - Methyl tert-butyl ether

DCE - Dichloroethene

TCE - Trichloroethene

Title 22 CCR - Title 22 of the California Code of Regulations

MCL - Maximum Contaminant Level for drinking water

Detected compounds exceeding Title 22 CCR MCLs are reported in bold.

<5.00 - Analyte not detected at or above the indicated laboratory PQL.

[Number] - Duplicate sample analytical results

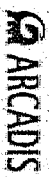


Table 3. TPH-cc Concentrations in Groundwater
Former Albion Dairy
1739 Albion Street
Los Angeles, California

Well ID	Sample Date	TPH (C4-C12) µg/L	TPH (C6-C12) µg/L	TPH (C13-C22) mg/L	TPH (C23-C36) mg/L	TPH (C23-C32) mg/L	TPH (C33-C40) mg/L
MW-1	7/31/2012	<100	NA	<0.500	<5.00	NA	NA
	11/1/2012	NA	<100	<0.500	NA	<5.00	<10.0
	2/22/2013	<100 [<100]	NA	<0.500 [<0.500]	<5.00 [5.00]	NA	NA
MW-2	5/2/2013	<100	NA	<0.500	<5.00	NA	NA
	7/31/2012	<100	NA	0.709	<5.00	NA	NA
	11/1/2012	NA	<100	<0.500	NA	<5.00	<10.0
	2/22/2013	<100	NA	<0.500	<5.00	NA	NA
MW-3	5/2/2013	<100	NA	<0.500	<5.00	NA	NA
	7/31/2012	<100 [<100]	NA	<0.500 [<0.500]	<5.00 [5.00]	NA	NA
	11/1/2012	NA	<100 [<100]	<0.500 [<0.500]	NA	<5.00 [5.00]	<10.0 [<10.0]
	2/22/2013	<100	NA	<0.500	<5.00	NA	NA
	5/2/2013	<100 [<100]	NA	<0.500 [<0.500]	<5.00 [5.00]	NA	NA

Notes:

TPH - Total petroleum hydrocarbons analyzed using EPA Method 8015B

cc - carbon chain speciation

NA - Not Analyzed

µg/L - micrograms per liter

mg/L - milligrams per liter

<100 - Analyte not detected at or above the indicated laboratory practical quantitation limit (PQL).

[Number] - Duplicate sample analytical results



Table 4. Dissolved Metal Concentrations in Groundwater
Former Albion Dairy
1739 Albion Street
Los Angeles, California

Sample Location	Sample Date	Antimony mg/L	Arsenic mg/L	Barium mg/L	Beryllium mg/L	Cadmium mg/L	Chromium mg/L	Cobalt mg/L	Copper mg/L	Lead mg/L	Mercury mg/L	Molybdenum mg/L	Nickel mg/L	Selenium mg/L	Silver mg/L	Titanium mg/L	Vanadium mg/L	Zinc mg/L
Dissolved Metals MCL (mg/L)		0.006	0.010	1.0	0.004	0.005	0.05	-	-	0.015	0.002	-	0.1	0.05	-	0.002	-	-
MW-1	7/31/2012	<0.0200	<0.0100	0.0867	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
	11/1/2012	<0.0200	<0.0100	0.1010	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	0.0159	<0.0100	<0.0100	<0.0100	<0.0200
	2/22/2013	<0.0200	<0.0100	0.106	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
MW-2	5/2/2013	<0.0200	<0.0100	0.113	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
	7/31/2012	<0.0200	<0.0100	0.136	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
	11/1/2012	<0.0200	<0.0100	0.126	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	0.0189	<0.0100	<0.0100	<0.0100	<0.0200
MW-3	5/2/2013	<0.0200	<0.0100	0.126	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
	7/31/2012	<0.0200	<0.0100	0.131	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
	11/1/2012	<0.0200	<0.0100	0.112	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
MW-3	5/2/2013	<0.0200	<0.0100	0.154	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	0.0477	<0.0100	<0.0100	<0.0100	<0.0200
	7/31/2012	<0.0200	<0.0100	0.154	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	0.0321	<0.0100	<0.0100	<0.0100	<0.0200
	11/1/2012	<0.0200	<0.0100	0.171	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
MW-3	5/2/2013	<0.0200	<0.0100	0.179	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
	7/31/2012	<0.0200	<0.0100	0.180	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200
	11/1/2012	<0.0200	<0.0100	0.154	<0.00500	<0.00500	<0.0100	<0.0100	<0.0100	<0.0100	<0.001	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.0200

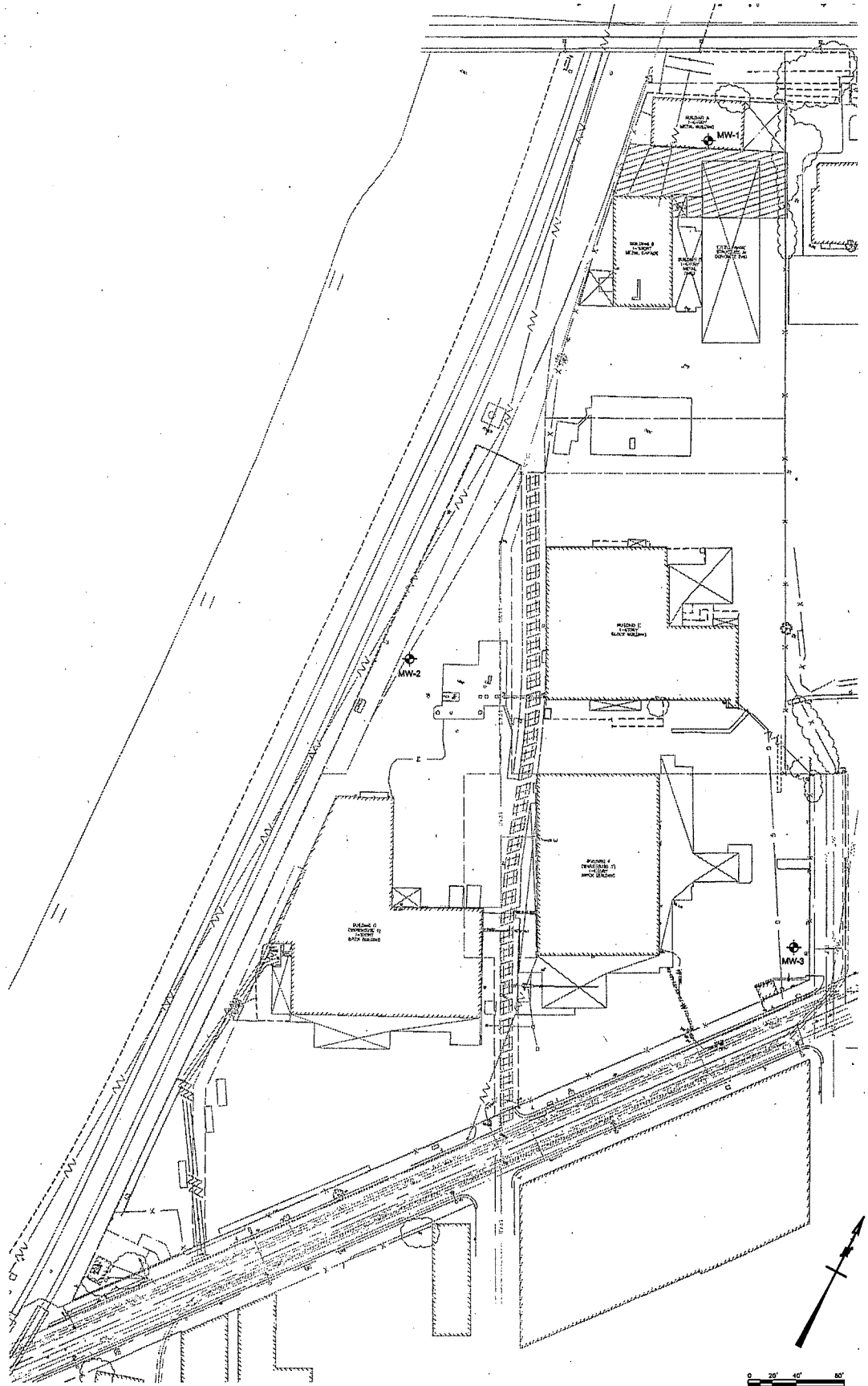
Notes:
Metal results by EPA Method 200.7/245.1. Results are from laboratory filtered samples.
mg/L - milligrams per liter
Title 22 CCR - Title 22 of the California Code of Regulations
MCL - Maximum Contaminant Level for drinking water
- - published data does not exist
-<0.0200 - Analyte not detected at or above the indicated laboratory practical quantitation limit (PQL).
[Number] - Duplicate sample analytical results

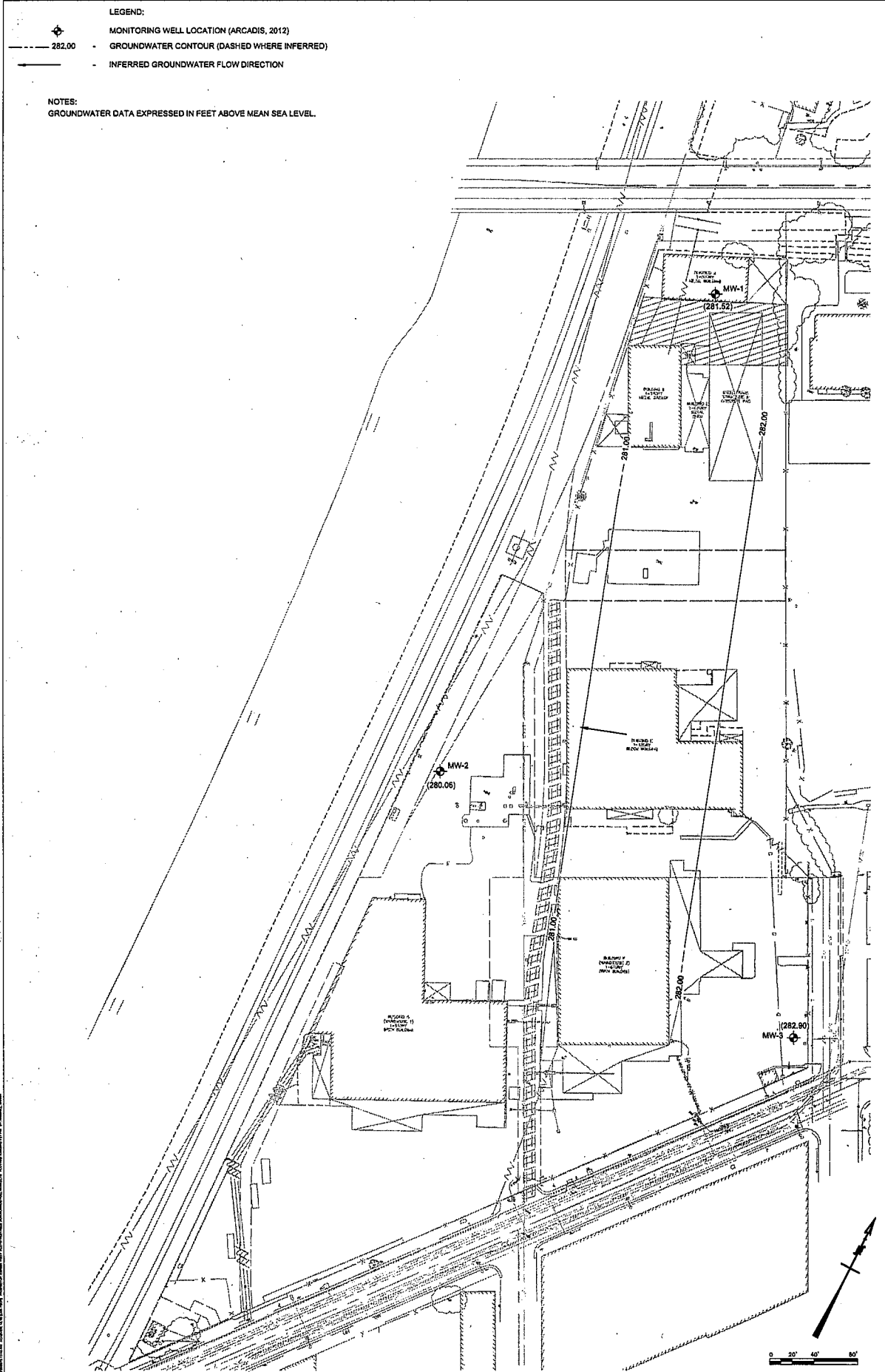


Table 5.

Notes
SVOC - Semi-volatile organic compounds analyzed using EPA Method 8270C
µg/L - micrograms per liter
Title 22 CCR - Title 22 of the California Code of Regulations
MCL - Maximum Contaminant Level for drinking water
Detected compounds exceeding Title 22 CCR MCLs are reported in bold.
<LOD - Analyte not detected at or above the indicated laboratory practical quantitation limit
[Number] - Duplicate sample analytical results

LEGEND:
 MONITORING WELL LOCATION (ARCADIS, 2012)





LEGEND:

MONITORING WELL LOCATION (ARCADIS, 2012)

MTBE

METHY-TERT BUTYL ETHER

MTBE ISOCONCENTRATION CONTOUR
(DASHED WHERE INFERED)

NOTES:

MTBE CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER ($\mu\text{g/L}$).

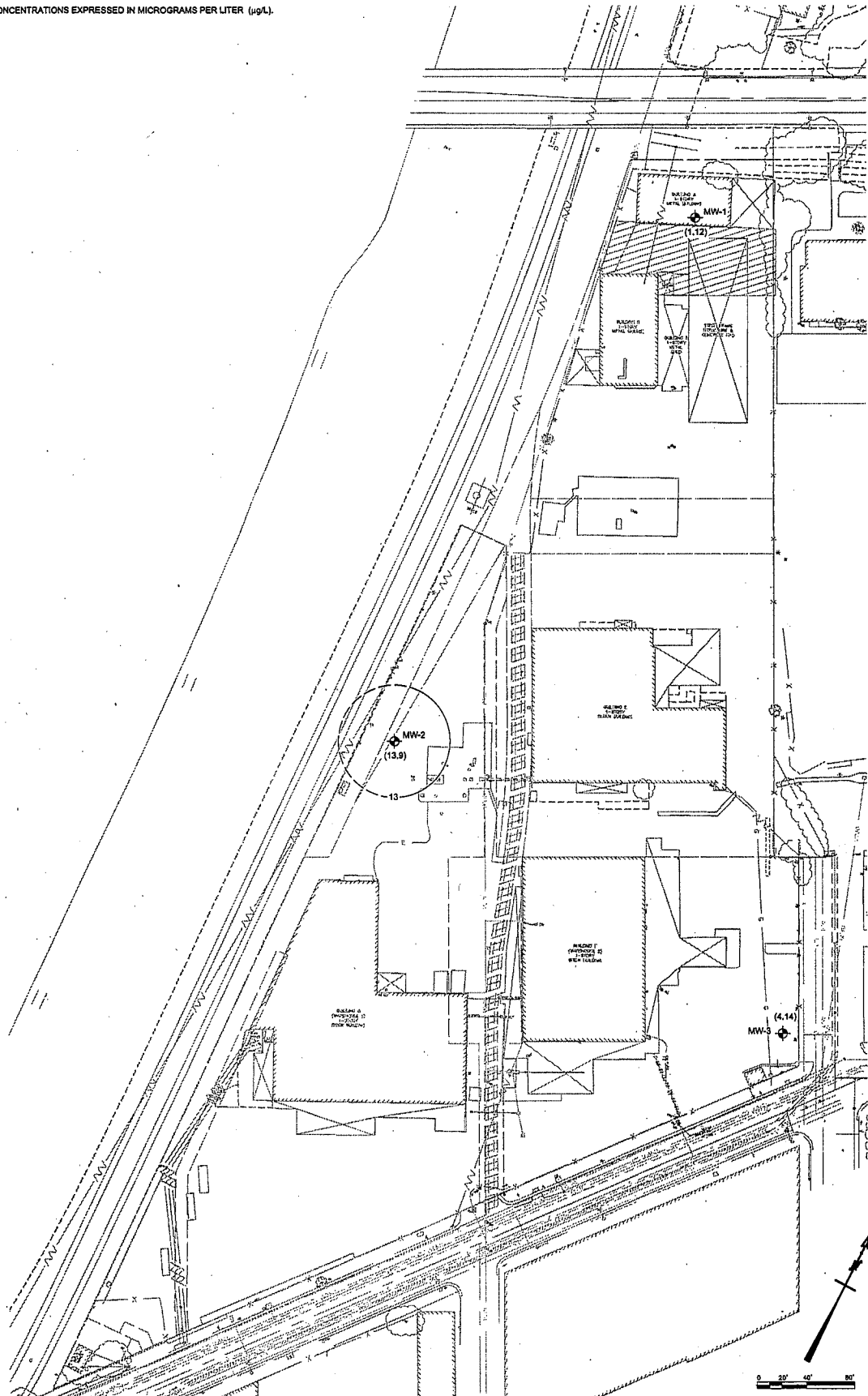
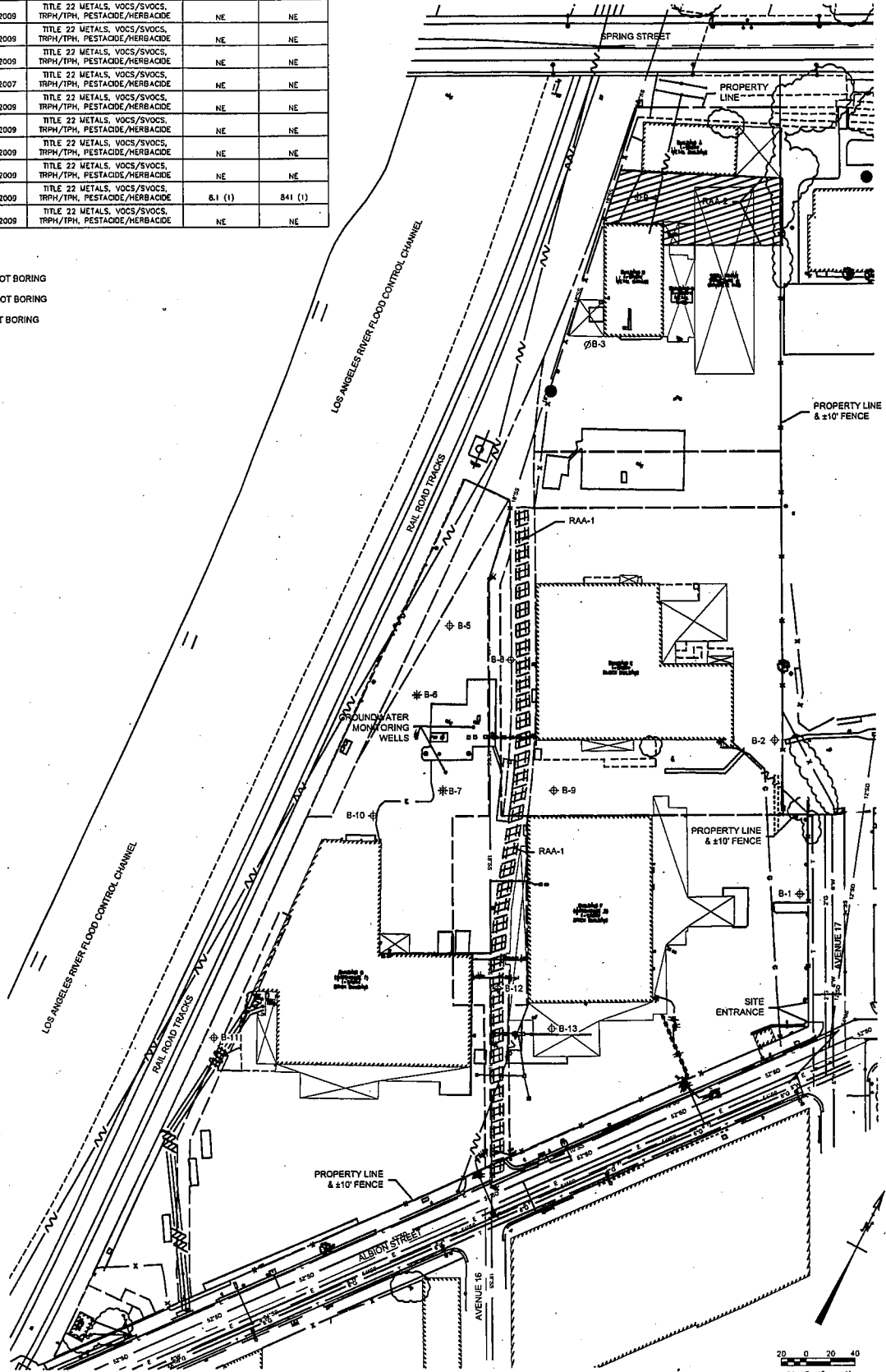


FIGURE 1 - URS PHASE II ENVIRONMENTAL SITE ASSESSMENT (DATED MAY 20, 2009) - SOIL BORINGS (RG EXCEEDANCES)

BORING ID	DATE	ANALYTE GROUPS SAMPLED	ANALYTE EXCEEDING RGS (DEPTH)	
			ARSENIC (UG/KG)	LEAD (UG/KG)
B-1	4/23/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-2	4/23/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-3	4/23/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-4	4/23/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-5	4/23/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-6	4/23/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-7	4/23/2007	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-8	4/23/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-9	4/23/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-10	4/22/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-11	4/22/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE
B-12	4/22/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	6.1 (1)	841 (1)
B-13	4/22/2009	TITLE 22 METALS, VOCS/SVOCs, TRPH/TPH, PESTACIDE/HERBACIDE	NE	NE

LEGEND:

- ⊕ 10 FOOT BORING
- * 40 FOOT BORING
- ⊙ SLANT BORING



20 0 20 40
SCALE: 1" = 40'

LEGEND:

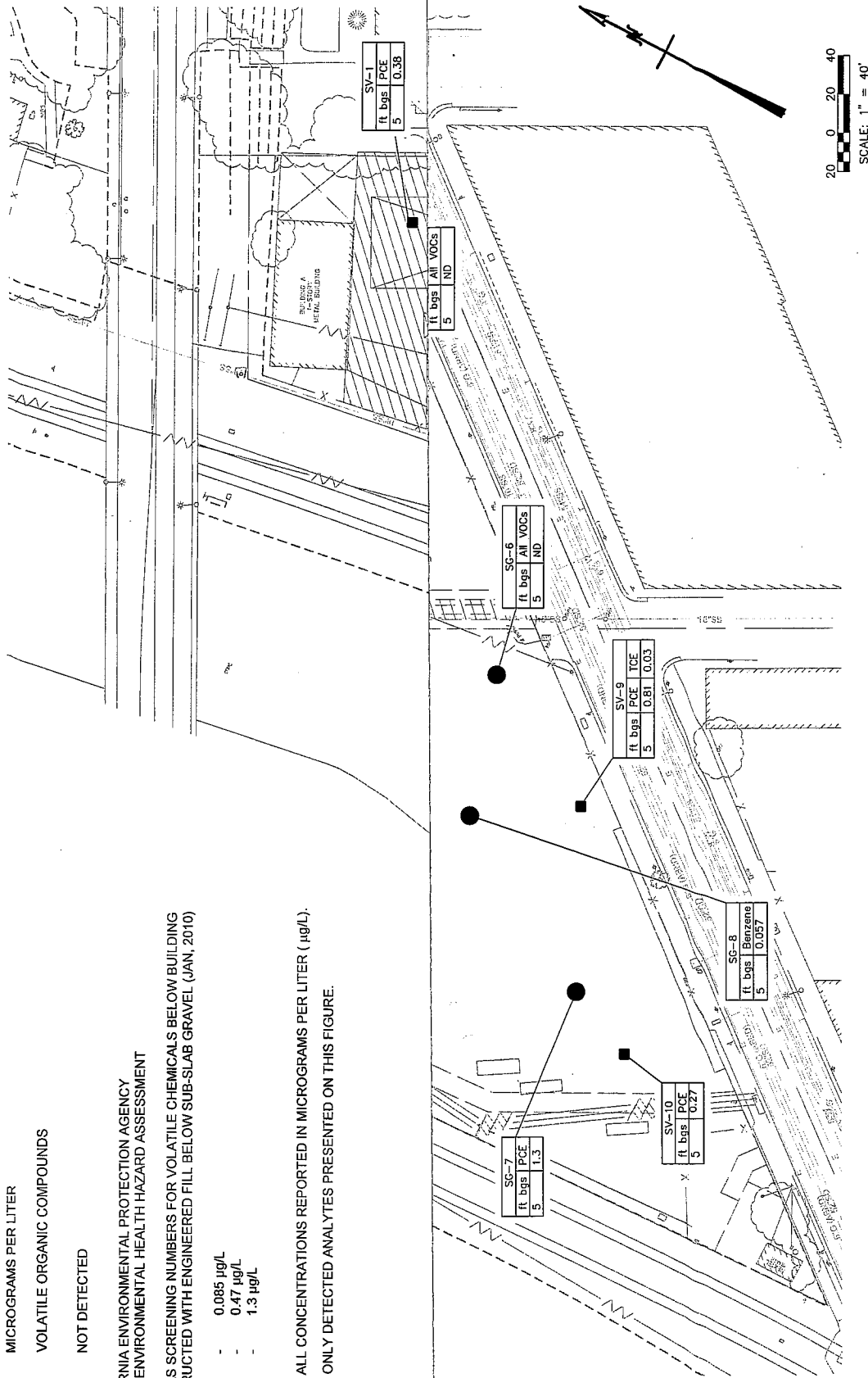
- SOIL VAPOR LOCATIONS (URS-2009)
- SOIL VAPOR SAMPLE LOCATIONS (ARCADIS-2012)
- PCE TETRACHLOROETHENE
- TCE TRICHLOROETHENE
- µg/L MICROGRAMS PER LITER
- VOCs VOLATILE ORGANIC COMPOUNDS
- ND NOT DETECTED

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
OFFICE ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

SOIL GAS SCREENING NUMBERS FOR VOLATILE CHEMICALS BELOW BUILDING
CONSTRUCTED WITH ENGINEERED FILL BELOW SUB-SLAB GRAVEL (JAN, 2010)

Benzene - 0.085 µg/L
PCE - 0.47 µg/L
TCE - 1.3 µg/L

NOTES: ALL CONCENTRATIONS REPORTED IN MICROGRAMS PER LITER (µg/L).
ONLY DETECTED ANALYTES PRESENTED ON THIS FIGURE.



Infrastructure · Water · Environment · Buildings

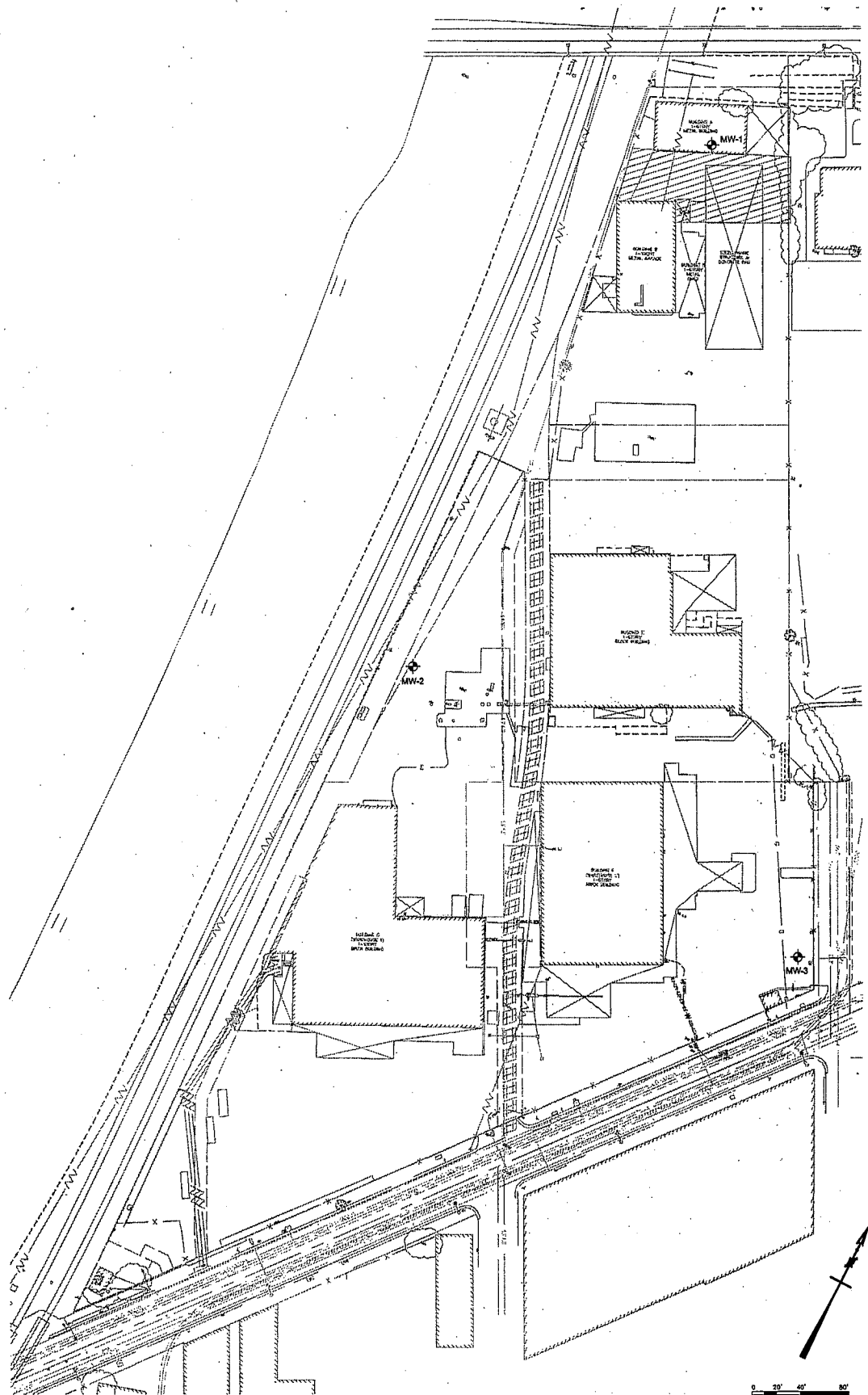
DEPARTMENT OF PUBLIC WORKS
1739 ALBION ST., LOS ANGELES, CA 90031
ALBION DAIRY
LO425401.TM01 TASK 00030

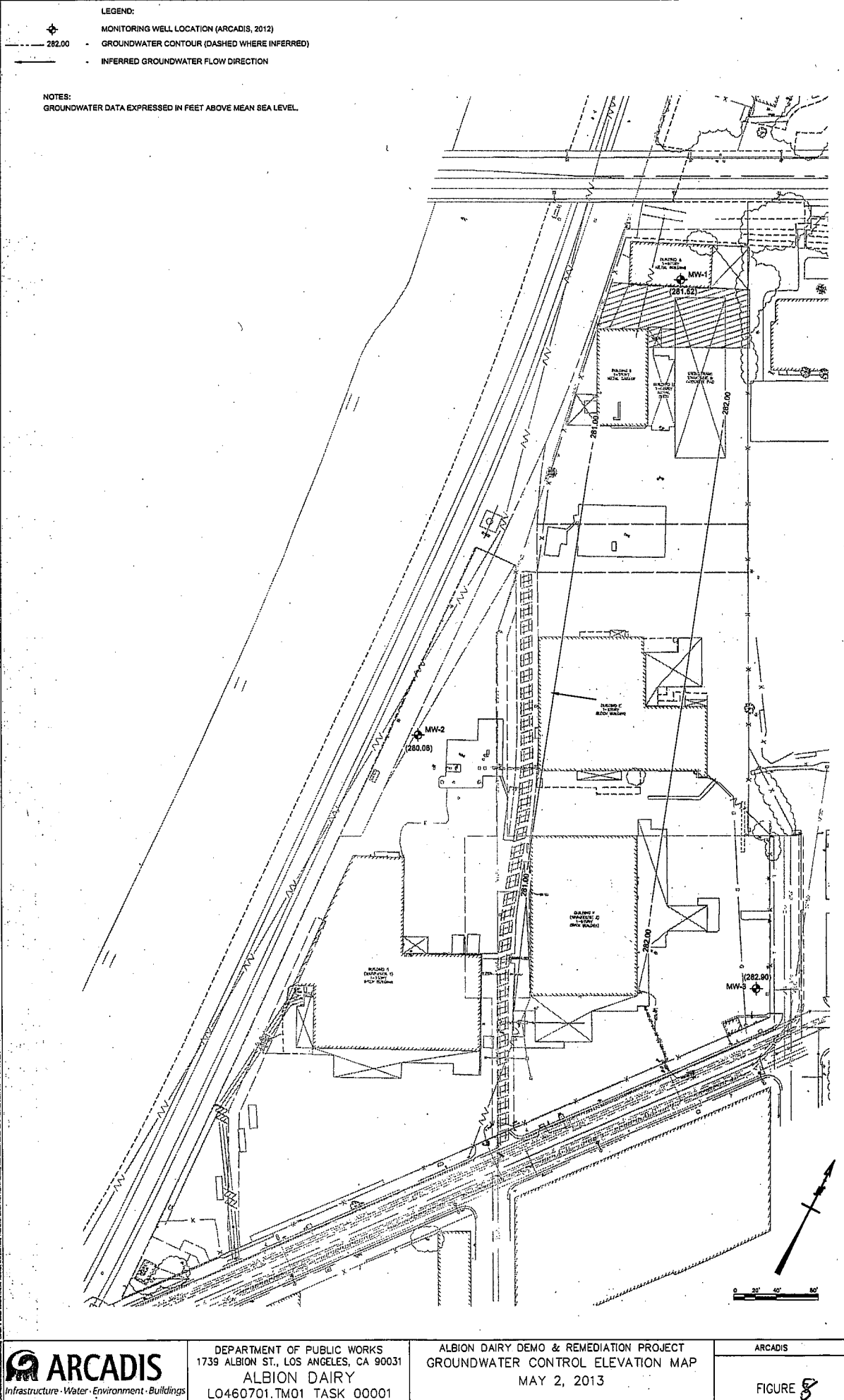
ALBION DAIRY DEMO & REMEDIATION PROJECT
SOIL VAPOR SAMPLE LOCATIONS
AND RESULTS
SCALE: 1" = 40'

ARCADIS

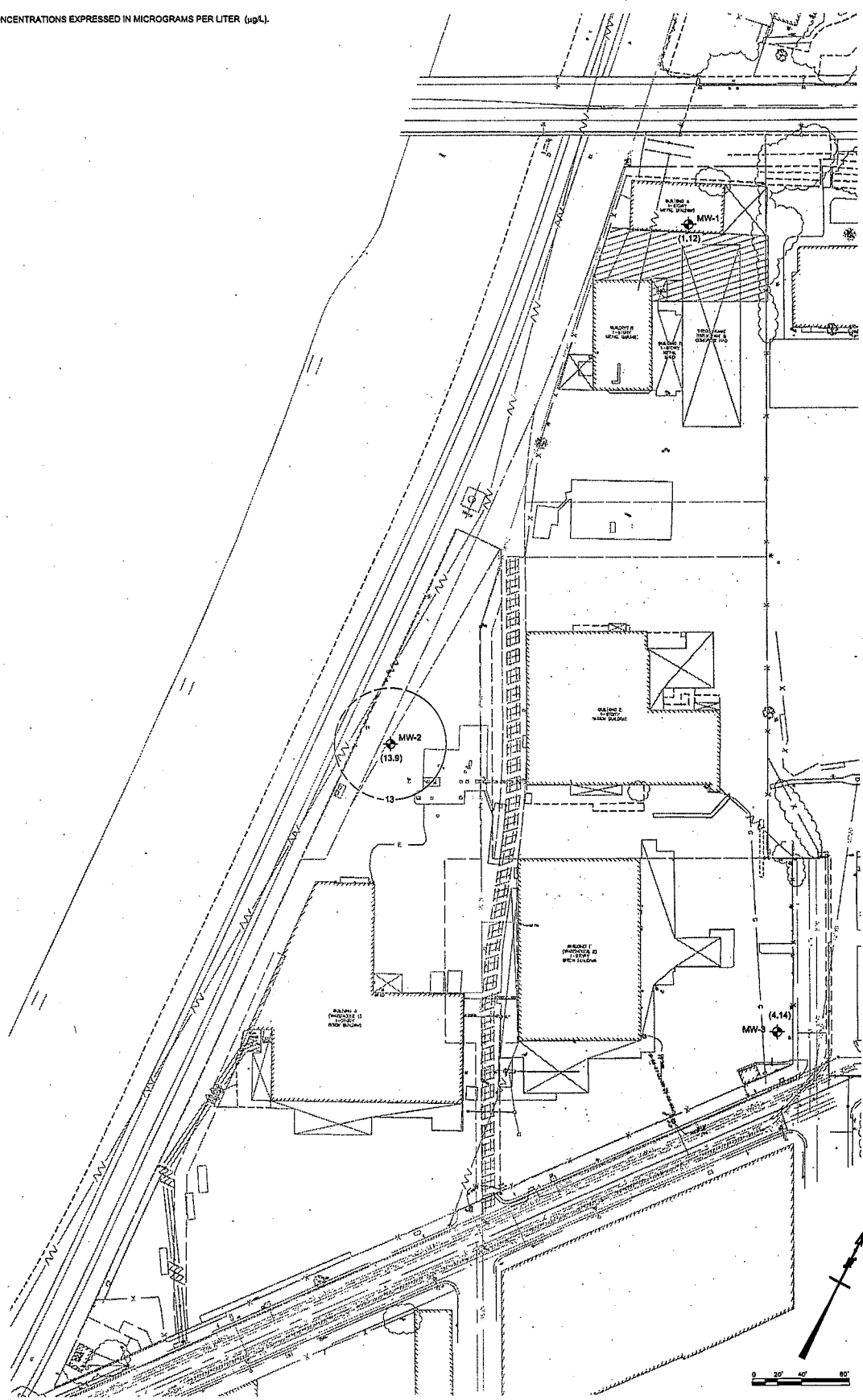
FIGURE 2

20 0 20 40
SCALE: 1" = 40'





LEGEND:
 MONITORING WELL LOCATION (ARCADIS, 2012)
 MTBE
 METHY-TERT BUTYL ETHER
 MTBE ISOCONCENTRATION CONTOUR
 (DASHED WHERE INFERED)
 NOTES:
 MTBE CONCENTRATIONS EXPRESSED IN MICROGRAMS PER LITER ($\mu\text{g/L}$).



J-12 - Smiland Paint, 620 Lamar Street

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California Regional Water Quality Control Board

Los Angeles Region



Linda S. Adams
Cal/EPA Secretary

320 W. 4th Street, Suite 200, Los Angeles, California 90013
Phone (213) 576-6600 FAX (213) 576-6640 - Internet Address: <http://www.waterboards.ca.gov/losangeles>

Arnold Schwarzenegger
Governor

January 6, 2010

Mr. Robert Smiland
Smiland Land Company
405 Monterey Road
South Pasadena, CA 91030

NO FURTHER REQUIREMENTS - SMILAND PAINT COMPANY, 620 LAMAR STREET, LOS ANGELES, CALIFORNIA (SCP NO. 1185 AND SITE ID NO. 2040245)

Dear Mr. Smiland:

We have received your site assessment report, titled *Supplemental Assessment of Free Product in Soil and Groundwater Report and Request for Site Closure* and dated August 25, 2009. The report was submitted by your consultant, Andersen Environmental, on behalf of the Smiland Paint Company (Site) to fulfill the requirements of the Regional Board's Order, dated February 5, 2009. The report documents the offsite site assessment conducted to identify the sources of free product encountered in onsite soil borings and the results of soil and groundwater investigation.

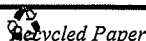
BACKGROUND

The former Smiland Paint Company is located north of downtown Los Angeles on the eastern side of Lamar Street, south of Main Street, and extending east to Clover Street. The area is characterized by industrial and warehousing businesses, as well as a Union Pacific Railroad yard to the south of the Site. The Site is situated in the Los Angeles basin, approximately 500 feet east of the Los Angeles River.

The Site is currently a vacant building complex owned by Lamar Plaza LLC, which purchased the property from Smiland Land Company (SLC) on October 31, 2007. The property is approximately 3.4 acres in size and was a former paint manufacturing facility. The facility was made up of manufacturing buildings, warehouses, chemical storage areas, drum storage areas, a label shop, a wastewater treatment system, clarifiers, underground storage tank (UST) areas, aboveground storage tank (AST) farms, offices and other structures.

Smiland Paint Company (SPC), predecessor to SLC, occupied and operated the paint manufacturing facility from approximately 1986 to 2004. SPC stopped its paint manufacturing operations in 2004 and leased the facility to Moreware Paint Company (MPC). MPC operated the facility until November 2007. After MPC discontinued its operations, the machinery, ASTs, raw materials, etc have been removed from the property. Similar operations were conducted at the Site by North American Paint Company and Valspar Corporation from approximately 1937 to 1985. The Site was occupied by residences and horse stables prior to 1937.

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SITE ASSESSMENT

Site investigations were initiated at the Site in 1985 in conjunction with the abandonment-in-place of two 7,500-gallon solvent/thinner underground storage tanks (USTs). Initially, a total of six USTs were to be removed from the Site; however, two of the USTs were ultimately abandoned in-place as they were partially located under an above-ground storage tank (AST) farm. The other USTs were removed from the same area. However, no documentation is available, detailing the process of removal and confirmation soil sampling.

Expanded site assessments were conducted onsite and offsite in 1999, 2007, 2008 and 2009. A comprehensive, site-wide soil and groundwater assessment was conducted by Andersen Environmental in 2007. This study involved a geophysical survey, a soil gas survey, soil borings and collection of soil and grab groundwater samples from the borings in all areas of concerns (AOCs) at the Site. The geophysical survey was conducted throughout the Site to identify remnant USTs and areas where USTs may have once existed. Two offsite assessments were also conducted by Andersen Environmental in 2008 and 2009 to better characterize and identify the source of free product encountered in onsite soil borings. A Phase I historical records search was also performed on neighboring properties within half-a-mile radius of the Site to identify potential sources of the free product in the soil borings.

The subsurface investigations detected low level volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and heavy metals at varying background concentrations in soil and groundwater. Total petroleum hydrocarbons (TPH) were detected in soil samples collected near the water-table. Free product was also encountered floating on the water table in the onsite and offsite soil borings.

SOIL GAS INVESTIGATION

During the soil gas survey conducted at the Site from January 29, 2007 through March 16, 2007, only three VOCs were detected in some of the soil gas samples collected. These VOCs were; 1-butanol, xylenes and ethylbenzene. 1-butanol is the most widely detected VOC with a maximum concentration of 309.9 micrograms per liter ($\mu\text{g/L}$). Xylenes and ethylbenzene were detected in just one sample. No other VOCs were detected in the soil gas samples. There are no established California Human Health Screening Levels (CHHSLs) values for 1-butanol and ethylbenzene presently. The concentration of total xylenes detected in one sample ($14.2 \mu\text{g/L}$) is significantly less than the CHHSL value for mixed xylenes ($315 \mu\text{g/L}$).

SOIL INVESTIGATION

Soil matrix sampling was conducted for UST removal in 1985 and in subsequent site assessments performed in 1999, 2007, 2008 and 2009 onsite and offsite. In the site-wide assessment conducted by Andersen Environmental in 2007, soil samples were collected from 38 soil borings, ranging in depth 10 feet to 40 feet below ground surface (bgs). The soil samples were analyzed for VOCs, SVOCs, heavy metals, and TPH and selected samples were also analyzed for polychlorinated biphenyls (PCBs), pesticides, herbicides and fungicides. VOCs such as benzene, trichloroethene (TCE) and perchloroethylene (PCE), SVOCs such as phenol and naphthalene, heavy metals such as lead and cadmium and TPH were detected in the soil samples collected from onsite locations. TCE was the only VOC which exceeded the site-specific soil screening level (SSL) developed for the Site. However, only

two samples collected at approximate depth of groundwater (20-25 feet bgs) had TCE concentrations exceeding the SSL. Other detected VOCs were below either the SSLs or other screening values such as the United States Environmental Protection Agency (USEPA) Region IX Regional Screening Levels.

No SVOCs detected in soil samples exceeded screening values such as USEPA Region IX Regional Screening Levels. Heavy metals were detected in all samples at background concentrations. PCBs, pesticides, herbicides and fungicides were not detected in any of the soil samples.

The TPH concentrations detected in many of the soil samples exceeded the SSLs. However, TPH was mostly detected in soil samples collected near or below the water-table (15-30 feet bgs). Free product was encountered floating on the water table and there is approximately a 5-foot smear zone above the water table. The free product is the likely source of TPH detected in the soil samples collected from the smear zone and below the water table.

FORENSIC GEOCHEMICAL STUDY

Pursuant to a Regional Board Order, a forensic geochemical study was performed in April 2009 on the free product encountered floating on the water-table in onsite and offsite borings. One soil sample stained with product was collected from one soil boring (B-46) located near the abandoned-in-place USTs and one free product sample was collected from offsite monitoring well (MW-3), located in up- and cross-gradient locations. Gas Chromatography/Mass Spectrometer (GC/MS) full-scan analyses were performed on the samples and the GC/MS Total Ion Chromatograms (TIC) of the samples were analyzed by a geochemist. The geochemical forensic analysis indicates that the free product is degraded heavy oil, interpreted to be likely a naturally occurring "crude oil". No petroleum product additives were identified in the samples.

GROUNDWATER INVESTIGATION

Groundwater assessment was conducted in 1999, 2007, 2008 and 2009 onsite and offsite. In the site-wide assessment conducted by Andersen Environmental in 2007, discreet grab groundwater samples were collected from the soil borings using a hydropunch. Groundwater samples were collected from shallow (20-22 feet bgs) and deep (40 feet bgs) portions of the saturated zone. Samples were analyzed for VOCs and selected samples were analyzed for heavy metals and TPH.

VOCs, heavy metals and TPH were detected in the groundwater samples. Some VOCs such as TCE, cis-1,2-dichloroethene (cis-1,2-DCE) and benzene slightly exceeded their respective California maximum contaminant levels (MCLs) by up to a factor of two. Heavy metals were detected at background concentrations. Diesel and oil range TPH were detected at maximum concentrations of 2,700 milligrams per liter (mg/L) and 2,800 mg/L, respectively. Free product was also encountered floating on the water-table. The free product is believed to be the source of TPH detected in the groundwater.

During offsite assessments conducted in 2008 and 2009, discreet grab groundwater samples were collected from the soil borings with a hydropunch. Three groundwater monitoring wells were installed offsite to determine the groundwater flow direction. TPH was detected in some of the groundwater samples. Free product was also encountered floating on the water-table.

CONCLUSIONS

Based upon the information submitted, the Regional Board has no further requirements (NFR) with respect to the soil and groundwater. The residual VOC contaminants in soil are localized, limited in mass and extent and are below the SSLs established by the Regional Board in our *Interim Site Assessment & Cleanup Guidebook, May 1996*. All other potential contaminants, such as SVOCs and heavy metals, were below the United States Environmental Protection Agency (U.S. EPA) Region IX Regional Soil Screening Levels (SSLs) for the protection of human health and groundwater or at background concentrations. The TPH contamination in the soil is mostly confined to a smear zone approximately between 15 feet and 20 feet bgs and is likely resulted from the free product floating on the water table. The free product appears to be the result of a natural condition, rather than attributed to onsite releases. The presence of naturally occurring free product has affected other previously closed Regional Board lead sites in the vicinity of the former Smiland Paint Company.

The concentrations of some of the VOCs in the groundwater, such as TCE, cis-1,2-DCE and benzene, slightly exceed their respective MCLs. However, this low concentration VOC plume is amenable to natural attenuation. Heavy metals were detected at background concentrations. The TPH in the groundwater appears to be the result of the naturally occurring free product floating on the water-table.

This determination of NFR for soils and groundwater is based on available information and the provision that the information provided to this agency was accurate and representative of site conditions. Please contact the Regional Board immediately, if additional soil and groundwater contamination is discovered during any future development activities. Future soil cleanup may be required as warranted by redevelopment or change of land use proposed at the Site.

REQUIREMENTS

Monitoring wells MW-1, MW-2, and MW-3 shall be abandoned in accordance with the guidelines provided in the California Department of Water Resources, Bulletin 74-81 and Bulletin 74-90, *California Well Standards*. In addition,

- a. Well abandonment permits must be obtained from the Los Angeles County, Department of Public Health, Environmental Health Division. Other necessary permits must be obtained from appropriate agencies prior to the start of work.
- b. Once the well abandonment work is completed, a well abandonment report shall be prepared and submitted to this Regional Board by **February 15, 2010**. This report must include, at a minimum, a site map showing well locations, a description of the well abandonment process and waste handling, abandoned well diagram showing well plugging materials, and copies of all signed permits.

Please note that you will continue to receive oversight cost invoices in the coming billing quarters from the State Water Resources Control Board for the Regional Board staff oversight charges for work associated with this NFR letter and review of the well abandonment report to be submitted by the due date specified above.

We would like to take this opportunity to thank you for your patience and full cooperation with the Regional Board during the course of the site assessment.

California Environmental Protection Agency



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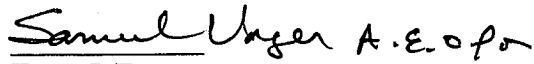
Mr. Robert Smiland
Smiland Paint Company

- 5 -

January 6, 2010

If you have any questions regarding this letter, please call Mr. Bizuayehu Ayele at (213) 576-6747 or Mr. Dixon Oriola at (213) 576-6803 of my staff.

Sincerely,



Tracy J. Egoscue
Executive Officer

cc: Mr. Mark Nitikman, Croudace & Dietrich
Mr. Matthew Rodda, Andersen Environmental
Mr. Michael Maglione, Andersen Environmental
Mr. Roger Holt, Greenburg Glusker
Ms. Soon Pak, Lamar Plaza, LLC

California Environmental Protection Agency



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J-17 - Western Brassworks, 1440 Spring Street

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UNDERGROUND STORAGE TANK LOW RISK CASE REVIEW FORM

Case reviewer: Chandra Cansler	Unit Chief: Yi Lu	Section Chief: Yue Rong	AEO: Samuel Unger	EO: Tracy J. Egoscue
Date: 9/16/09	Date: 10/7/09	Date: 10-30-09	Date: 12-30-09	Date: 12-30-09

LUSTIS File No.: 900120470		Investigation and Cleanup Priority: D-1	
Site Name/Address: Former Western Brass Works 1440 North Spring Street Los Angeles, CA 90012	Responsible parties: Mr. Kent Phillips Storm Western Development	Address: 23223 Normandie Avenue Torrance, CA 90501-5050	Phone no.: (310) 534-5232

I. CASE INFORMATION (N/A = Not Applicable)

Tank No	Size in Gallons	Contents	Closed in-place/Removed/Active?	Date
1	4,000	Fuel Oil	Removed	05/03
2	1,000	Fuel Oil	Removed	07/03
3	1,000	Fuel Oil	Removed	07/03
4	1,000	Fuel Oil	Removed	07/03
5	1,000	Fuel Oil	Removed	07/03

II. SITE CHARACTERIZATION INFORMATION (GW=groundwater)

GW Basin: Los Angeles Coastal Plan (West Coast)	Beneficial uses: Mun, Ind, Proc, Agr	Depth to drinking water aquifer: ~37 feet bgs	
Distance to nearest municipal supply well: 13,956 feet (well ID 3987A)		Vertical Distance between perched GW contamination and aquifer: unk	
GW highest depth: 30 ft bgs	GW lowest depth: 37 ft bgs	Well screen interval: 30-60 feet bgs	Flow direction: south-southeast
Soil types: silty sand, sand		Maximum soil depth sampled: 40 ft bgs	

III. SITE INSPECTION

Pre-closure site inspection: 9/29/09	Is there sensitive receptor next to the site (school, church, hospital, kindergarten etc.)? If yes, brief description: The site is located approximately 0.3 miles west of the Los Angeles River.

IV. MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS -- Initial and Latest (ND=Non-detect; NRQ=Not required)

Contaminant	Soil (mg/kg)		EPA/SLs*		Soil Screening Levels (mg/kg)** Depth to gw (ft) = 40 Type of soil = ML	Water (µg/L)		MCLs/NL (µg/L)
	Initial (7/03)	Latest (5/05)	Residential (mg/kg)	Industrial (mg/kg)		Initial (9/04)	Latest *** (7/05)	
TPH (Gas)	3.9 (5/03)	NA	NE	NE	500	NA	87.3	NE
TPH (Diesel)	7,100 (9/04)	79.2	NE	NE	1,000	6,340 (6/05)	2,310	NE
TRPH	9,360	NA	NE	NE	10,000	NA	NA	NE
Benzene	ND	ND	0.64	1.4	0.029	ND	ND	1
Toluene	ND	ND	520	520	1.6	ND	ND	150
Ethylbenzene	ND	ND	400	400	6.3	ND	ND	300
Xylenes	0.17	0.00272	270	420	16.9	ND	ND	1,750
Methyl tertiary butyl ether (MTBE)	ND	ND	32	70	0.03	1.2	ND	13 (Primary) 5 (Secondary)
Di-isopropyl ether (DIPE)	ND	ND	NE	NE	NE	ND	ND	NE
Ethyl tertiary butyl ether (ETBE)	ND	ND	NE	NE	NE	ND	ND	NE
Tertiary amyl methyl ether (TAME)	ND	ND	NE	NE	NE	ND	ND	NE
Tertiary butyl alcohol (TBA)	ND	ND	NE	NE	NE	ND	ND	12 (NL)
Tetrachloroethene (PCE)	30	NA	NE	NE	NE	NA	NA	5

* SLs = USEPA Region 9 Screening Levels

** See attached Table 4 -1

*** groundwater grab samples

NE = not established

NA = not analyzed

NL = notification level

Site Name/Address Former Western Brass Works, 1440 North Spring Street, Los Angeles	Staff Initial:

V. FREE PRODUCT

Was free product encountered? No	Has free product been totally recovered? N/A
When was free product recovery project completed? N/A	

VI. SOIL REMEDIATION

Method: Soil excavation	Duration of remediation: May 27, 2003, July 7, 2003, July 23, 2003, September 29, 2003; May 21 – July 25, 2005
Waste manifest document: Yes	Soil disposal volume: 7,398 tons

VII. GROUNDWATER REMEDIATION

Method: NA	Duration of remediation: NA

VIII. RECOMMENDED ACTION

Soil Closure only: No	Case Closure: Yes	Solvent Case? No
Additional action required (i.e.: additional site assessment, remediation, monitoring): None		

IX. COMMENTS AND JUSTIFICATION FOR RECOMMENDED ACTION

Site Background

The site is a former Western Brass Works that formerly contained five fuel oil underground storage tanks (USTs). The USTs were removed from the site in 2003. In 2006, the southern portion of the property was redeveloped with two warehouse structures. The former Western Brass building is currently occupied by a church. The two southern properties are operating as Solstice Medical Company and S.L. Food Company. In December 2007, the case was referred to the Regional Board by the City of Los Angeles Fire Department. The surrounding land use is commercial and industrial.

Site Assessment Summary

In May 2003 and July 2003, one 4,000-gallon and four 1,000-gallon underground storage tanks (USTs) were removed from the site and transported to Adams Steel facility in Anaheim, CA for disposal/recycling. Between July and September 2003, soil was excavated to a depth of 28 feet bgs to remove visually impacted soil from the USTs. Post excavation samples were collected in September 2003. Approximately 2,000 yards of impacted soil were excavated from the USTs (results seen in Table 1 – UST soil sample results May – September 2003 analysis).

In September 2004, ten soil borings (B1 through B10) were drilled to a depth of approximately 40 feet bgs in the vicinity of the former USTs (results seen in Table 3 soil analytical results). Because diesel was detected within 20 feet of groundwater, borings B1 and B-6 were bored to approximately 20 feet into the existing groundwater aquifer (approximately 60 feet bgs) and converted into groundwater monitoring wells (MW-1 and MW-2).

In May 2005, soil was excavated in the eastern corner of the property (Excavation 1) near former USTs #3, #4 and #5 and near the center of the property (Excavation 2) near former UST #1. Verification soil samples were collected from the bottom and sidewalls of the excavations. During the over-excavation water seeped in. The water was removed by a boom and vacuum truck to remove the diesel from the water. The excavation was backfilled with clean soil. Verification soil samples collected from Excavation 1 indicated up to 79.2 mg/kg TPH_D. All other fuel constituents were below the detection limit. Grab groundwater samples collected from Excavation 1 indicated up to 6,340 µg/L TPH_D, 1.26 µg/L ethylbenzene and 1.45 µg/L xylenes. All other fuel constituents were below the detection limit. Verification soil samples collected from Excavation 2 indicated up to 30.6 mg/kg TPH_D. All other fuel constituents were below the detection limit (results seen in Table 7, Table 8, Table 9 and laboratory analytical data, May 2005 and June 2005).

In July 2005, verification water samples were collected from center of Excavation 2. Up to 87.3 µg/L TPH_G and 2,310 µg/L TPH_D. All other fuel constituents were below the detection limit (results seen in Table 10 and lab analytical data, July 2005).

Subsurface Lithology

According to the boring logs, the subject site is underlain by silty sand from ground surface to about 10 feet bgs, then sand from 10 to 40 feet bgs, the maximum depth investigated.

Remediation Summary

Between May and September 2003, soil excavation was conducted. Approximately 2,000 yards of hydrocarbon-impacted soil was excavated from the former USTs.

In May 2005, soil excavation was conducted in the eastern corner and center area of the site. Verification soil samples collected from Excavation 1 detected up to 72.9 mg/kg TPH_D. Water samples collected from Excavation 1 detected up to 6,340 µg/L TPH_D, 1.26 µg/L ethylbenzene and 1.45 µg/L xylenes. Verification soil samples collected from Excavation 2 detected up to 30.6 mg/kg TPH_D. Approximately 7,398 tons of hydrocarbon-impacted soil were excavated from the former USTs area.

In July 2005, verification water samples collected from Excavation 2 detected up to 87.3 µg/L TPH_G and 2,310 µg/L TPH_D. All other fuel constituents were below the detection limit.

Groundwater Monitoring Summary

Two groundwater monitoring wells (MW-1 and MW-2) were removed during the remedial excavation in May 2005. MW-1 and MW-2 were sampled once in September 2004. During the September 2004 sampling, up to 1.2 µg/L of MTBE was detected in the groundwater. All other fuel constituents were non-detect. Depth to groundwater was measured at 30.2 to 36.7 feet bgs and the flow direction is anticipated toward the southeast direction (results seen in Table 4 – groundwater analytical results September 2004).

Contaminant Exposure Pathways Evaluation

Direct Contact

The risk of direct contact is minimal because the residual concentrations of fuel constituents in the soil were all non-detect or below the respective EPA SLs.

Protection of Drinking Water Aquifer

The subject site has minimal impact the underlying groundwater aquifer because the impacted soil has been mitigated (soil excavations) and confirmation soil samples indicate non-detect of fuel constituents.

Plume Migration

The groundwater monitoring data for the site indicate that the groundwater beneath the site has been impacted with diesel only. Other fuel constituents have not been detected in the groundwater. The diesel plume is limited to the former USTs area and therefore, there are no plume migration issue.

Vapor Intrusion

The risk of vapor intrusion from the residual soil contamination at the site is low since benzene is not detected in the confirmation soil samples.

Factors Supporting Low Risk Closure

- All USTs were removed in 2003.
- No free product has been detected in any well.
- The extent of soil contamination has been adequately defined.
- Soil contamination mitigated via soil excavation in 2003 and 2005. Soil confirmation samples advanced near the former USTs area were non-detect or below the detection limit for TPH_G, benzene and MTBE.
- MTBE and benzene were not detected during the September 2004 sampling event and May 2005 verification water samples.
- The residual soil and groundwater contamination would not cause significant human health and/or environmental risks via direct contact, drinking water ingestion, and vapor intrusion pathways.
- The nearest production well is located approximately 13,956 feet away from the site.

X. MTBE FATE & TRANSPORT PLUME LENGTH MODELING ANALYSIS

MTBE modeling was not performed because MTBE has not been detected in the groundwater.

XI. ELECTRONIC DELIVERABLE FORMAT (EDF) SUBMISSION

Has electronic data reporting requirement been met? **Yes**

10

XII. AB 681 REQUIREMENT (Land Owner Notification)

Verify property ownership <http://assessor.lacounty.gov/extranet/DataMaps/Pais.aspx> (date): 6/26/09 & 9/17/09

Have landowner or impacted site notification requirements been met? Yes

Owner(s) – Storm Western Development, 23223 Normandie Avenue, Torrance, CA 90501-5050

*The site ownership was transferred and the southern portion of the site was divided into two separate parcels with the following corresponding addresses:

- 1) 1425 Naud Street, Los Angeles, parcel # 5409004015
Owner: Wina Tran, Kam Properties, LLC, 215 West Ann Street, Los Angeles, CA 90012
- 2) 1447 Naud Street, Los Angeles, parcel #5409004011
Owner: Guang Q. Wu and Marlene B. Zheng, 1447 Naud Street, Los Angeles, CA 90012

Responsible party – Kent Philips, Western Brass Works

Pre-closure letter sent date: 10/7/09

Table 4-1: Maximum Soil Screening Levels (mg/kg) for TPH, BTEX and MTBE above Drinking Water Aquifers

Table 4-1. Maximum Soil Screening Levels (mg/kg) for TPH, BTEX and MTBE above Drinking Water Aquifers					
T P H	Distance Above Groundwater	Carbon Range			
		C4-C12	C13-C22	C23-C32	
	>150 feet	1,000	10,000	50,000	
	20-150 feet	500	1,000	10,000	
	<20 feet	100	100	1,000	
B T E X & M T B E	Distance Above Groundwater	Lithology			
		Gravel	Sand	Silt	Clay
	150 feet	B=0.044 T=2 E=8 X=23 MTBE = 0.039	B=0.077 T=4 E=17 X=48 MTBE = 0.078	B=0.165 T=9 E=34 X=93 MTBE = 0.156	B=0.8 T=43 E=170 X=465 MTBE = 0.78
	120 feet	B=0.035 T=1.57 E=6.3 X=17.9 MTBE = 0.028	B=0.058 T=3.1 E=12.7 X=36 MTBE = 0.061	B=0.123 T=7 E=25.9 X=70.3 MTBE = 0.117	B=0.603 T=32 E=128 X=351 MTBE = 0.591
	100 feet	B=0.028 T=1.3 E=5.1 X=14.4 MTBE = 0.020	B=0.046 T=2.57 E=9.86 X=28 MTBE = 0.05	B=0.094 T=5.4 E=20.4 X=55.1 MTBE = 0.091	B=0.471 T=25 E=101 X=276 MTBE = 0.464
	80 feet	B=0.022 T=1 E=4 X=11 MTBE = 0.013	B=0.033 T=2 E=7 X=20 MTBE = 0.039	B=0.066 T=4 E=15 X=40 MTBE = 0.065	B=0.34 T=18 E=73 X=200 MTBE = 0.338
	60 feet	B=0.018 T=0.72 E=2.9 X=7.9 MTBE = 0.013	B=0.026 T=1.4 E=4.9 X=13.9 MTBE = 0.03	B=0.048 T=2.8 E=10.7 X=28.4 MTBE = 0.048	B=0.241 T=13 E=52 X=141.5 MTBE = 0.247
	40 feet	B=0.015 T=0.43 E=1.8 X=4.8 MTBE = 0.013	B=0.018 T=0.87 E=2.8 X=7.8 MTBE = 0.022	B=0.029 T=1.6 E=6.3 X=16.9 MTBE = 0.03	B=0.143 T=7.5 E=30 X=83 MTBE = 0.156
	20 feet	B=0.011 T=0.15 E=0.7 X=1.75 MTBE = 0.013	B=0.011 T=0.3 E=0.7 X=1.75 MTBE = 0.013	B=0.011 T=0.45 E=2 X=5.3 MTBE = 0.013	B=0.044 T=2.3 E=9 X=24.5 MTBE = 0.065

TPH = Total petroleum hydrocarbons.

BTEX = benzene, toluene, ethylbenzene, and xylenes, respectively. MTBE = methyl tertiary butyl ether:

Respective MCLs (ppm): B=0.001, T=0.15, E=0.3, X=1.75, MTBE=0.013.

BTEX screening concentrations determined per the attenuation factor method as described in RWQCB Guidance for VOC Impacted Sites (March 1996), with a natural degradation factor of 11 for BTEX and of 3 for MTBE. Table values can be linearly interpolated between distance above groundwater and are proportional to fraction of each lithological thickness.

Values in Table 4-1 are for soils above drinking water aquifers. All groundwaters are considered as drinking water resources unless exempted by one of the criteria as defined under SWRCB Resolution 88-63 (TDS>3000 mg/L, or deliverability <200 gal/day, or existing contamination that cannot be reasonably treated). Regional Board staff will make a determination of potential water use at a particular site considering water quality objectives and beneficial uses. For non-drinking water aquifers, regardless of depth, TPH for ">150 feet" category in the table should be used;

Distance above groundwater must be measured from the highest anticipated water level. Lithology is based on the USCS scale.

In areas of naturally-occurring hydrocarbons, Regional Board staff will make determinations on TPH levels.

(revised 1/7/06)

ANDERSEN ENVIRONMENTAL

9937 Jefferson Blvd., Suite 200 Culver City, CA 90232
Toll Free: (888) 705-6300 Tel: (310) 854-6300 Fax: (310) 854-0199

April 10, 2008

RWQCB – Underground Tanks Unit
320 West 4th Street, Suite 200
Los Angeles, California 90013
Attention: Ms. Chandra Cansler

Re: Former Western Brass Site
1440 North Spring Street, Los Angeles, California
Case #: 900120470 (Priority D-1 Site)
Global ID # T0603799555

Dear Ms. Cansler,

Per your request in a letter dated March 12, 2008, enclosed you will find all available reports pertaining to the removal of USTs, Site Characterization, and Remediation. In addition, you requested additional information regarding the facility and property owner.

Upon receiving closure for this case from the Los Angeles Fire Department in a letter dated September 13, 2005 (enclosed) the remedial excavation was backfilled and the property was redeveloped with two tilt-up construction warehouse structures by Storm Properties, Inc. in 2006. The structures, each of which was on a separate legal parcel were then sold to two separate individual entities in 2006.

The properties were sold by Storm Properties, Inc. over two years ago and Storm Properties has claimed no rights or liabilities with respect to the property since the date of sale. As such, Storm Properties has no specific knowledge as to the current ownership of the property or the occupant.

Nonetheless, the reports you have requested are enclosed.

Respectfully,

Matthew Rodda
Project Manager
Andersen Environmental
9937 Jefferson Boulevard, #200
Culver City, California 90232
(310) 854-6300
mrodda@andersenenviro.com



STORM PROPERTIES, INC.

April 4, 2008

TO: California Regional Water Quality Control Board
320 W. 4th Street, #200
Los Angeles, CA 90013

RE: Change in ownership for APN 540-900-4011 and 540-900-4015

To Whom It May Concern:

Please be aware that Storm Properties transferred ownership of APN 540-900-4011 and 540-900-4015. We are aware that ownership may have changed since 2006 and that previous owners had been in the process of changing the addresses of both parcels.

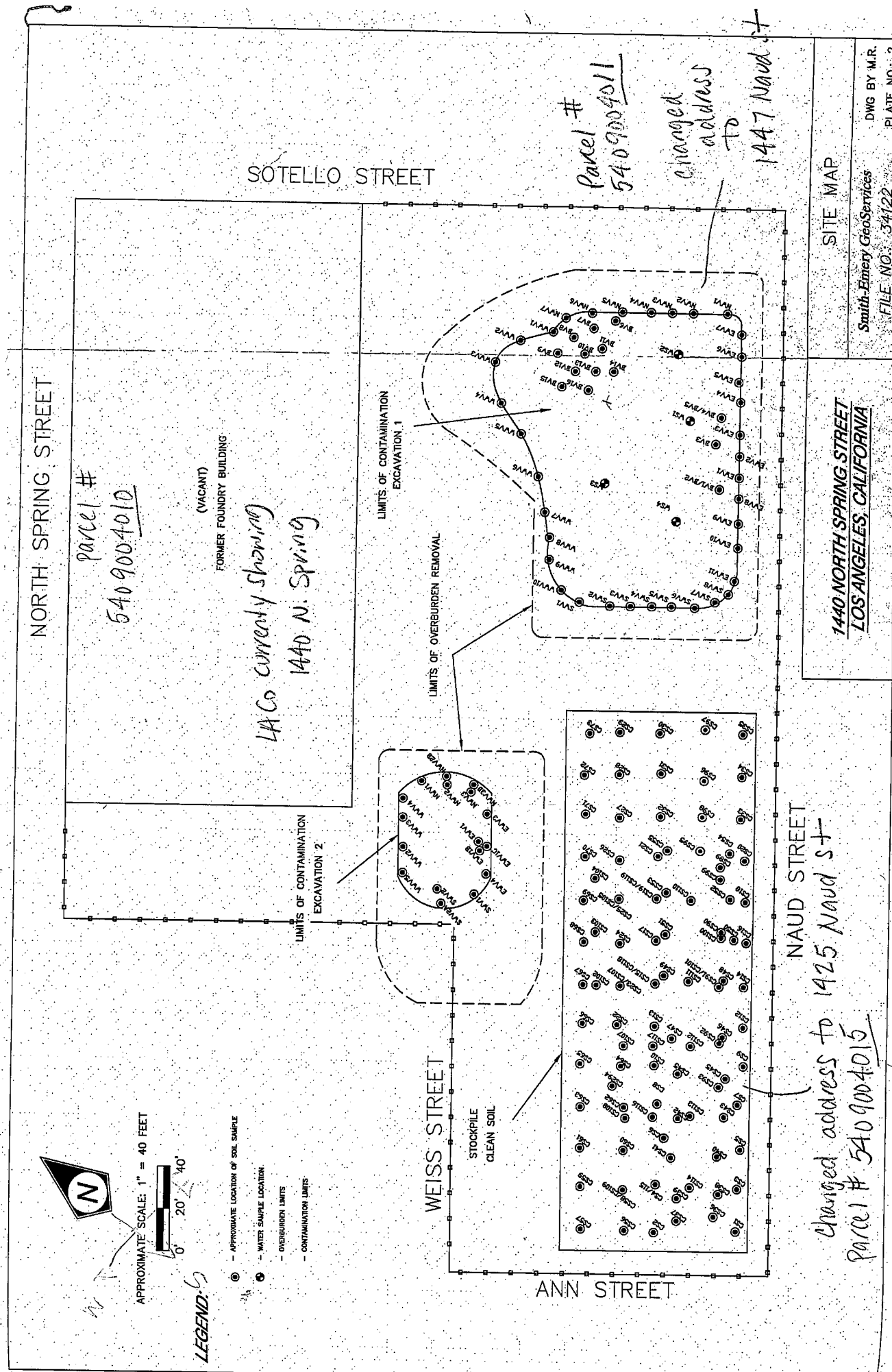
At this time Storm Properties, Inc. is not aware of the actual ownership or the outcome of the current addresses for the above referenced APN(s).

If you have any questions or comments, please do not hesitate to contact Matt Rodda at (310) 854-6300.

Sincerely,

David Simard, Esq.
Vice-President
Storm Properties, Inc.

Cc: Matt Rodda
Bennett Rheingold, Esq.
File



* entire site was addressed 1440 N. Spring St
 - transferred ownership, divided into 2 parcels
 do see attached
 LA Co Address Maps

From: "Van Nuys" <vannuys@assessor.lacounty.gov>
To: <ccansler@waterboards.ca.gov>
Date: 8/28/2009 9:14 AM
Subject: FW: Public Inquiry Form

In response to your email on 8/27/09

The parcel number and address do not match

The owner of 1440 N Spring St parcel number 5409 004 010

Owner of record: Western Brass Development Corp

Mailing address: 23223 Normandie Ave Torrance CA 90501

Van Nuys Email Desk

-----Original Message-----

From: L.A. County - Office of The Assessor

Sent: Thursday, August 27, 2009 11:30 AM

To: Van Nuys

Subject: FW: Public Inquiry Form

Assessor's Helpdesk

TS

-----Original Message-----

From: ccansler@waterboards.ca.gov [mailto:ccansler@waterboards.ca.gov]

Sent: Thursday, August 27, 2009 9:34 AM

To: L.A. County - Office of The Assessor

Subject: Public Inquiry Form

Name: Cansler, Chandra

Business Name: Los Angeles Regional Water Quality Control Board

Address: 320 W. 4th Street, Suite 200

Los Angeles, CA 90013

Email: ccansler@waterboards.ca.gov

Phone: (213) 576-6782

Fax: (213) 576-6700

Situs: 1440 North Spring Street

Los Angeles, CA 90012

AIN: 5409004011

Company Name:

Routing Index:

* THE SITE ADDRESS
FOR THIS PARCEL IS
1447 NAUD ST
LOS ANGELES, CA 90012
(See attached)

← parcel # does not match
address

From: "L.A. County - Office of The Assessor" <helpdesk@assessor.lacounty.gov>
To: <ccansler@waterboards.ca.gov>
Date: 9/17/2009 3:03 PM
Subject: RE: Public Inquiry Form

AIN: 5409-004-011

Owner of record: Wu, Guang Q and Zheng, Marlene B
Mail address same as situs

Assessor Helpdesk

/jn

-----Original Message-----

From: ccansler@waterboards.ca.gov [mailto:ccansler@waterboards.ca.gov]
Sent: Thursday, September 17, 2009 2:14 PM
To: L.A. County - Office of The Assessor
Subject: Public Inquiry Form

Name: Cansler, Chandra
Business Name: Los Angeles Regional Water Quality Control Board

Address: 320 W. 4th Street, Suite 200

Los Angeles, CA 90013

Email: ccansler@waterboards.ca.gov

Phone: (213) 576-6782

Fax: (213) 576-6700

Situs: 1447 Naud Street

Los Angeles, CA 90012

AIN: 5409-004-011

Company Name:

Routing Index:

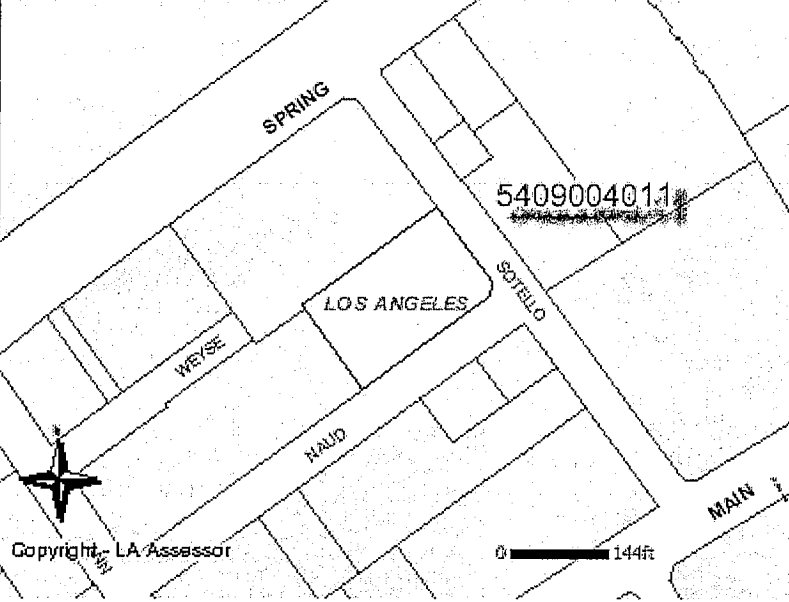
Comments: As a representative of the Regional Water Quality Control Board - Los Angeles Region, I request the property owner name, company (if any), and mailing address for the subject site in support of our Leaking Underground Storage Tank Program.

Thank you.

Chandra Cansler

[Assessor's Home Page](#) [Search Menu](#) [Feedback](#) [Help/FAQs](#) [Property Assessment](#)

**Los Angeles County**
Office of the Assessor



Copyright - LA Assessor



[Records for this property are kept at the East](#)
(How frequently is the information updated on the website)

SCAM ALERT: NO FEE NECESSARY FOR VALUATION

Property Information

Assessor's ID No.	5409-004-0
Site Address	1447 NAUD STREET LOS ANGELES, CA 90015
Property Type	Commercial / Industrial
Region / Cluster	27 / 278
Tax Rate Area (TRA)	000

[Click Here to View Assessor's Map](#)

[Click Here to View Index Map](#)

Recent Sale Information

Latest Sale Date	10/10/2006
Indicated Sale Price	\$1,144,400

[Search for Recent Sales](#)

2009 Roll Values

Recording Date	10/10/2006
Land	\$1,144,400
Improvements	\$2,184,800
Personal Property	
Fixtures	
Homeowners' Exemption	
Real Estate Exemption	
Personal Property Exemption	
Fixture Exemption	

Tax bill payment information for 2006
as well as any changes to the 2009 Roll
will be available after September 30, 2006

[Estimate Supplemental Tax](#)

Property Boundary Description

TR=28778 FOR DESC SEE ASSESSOR'S MAPS

Building Description(s)

Improvement 1	
Square Footage	18,600
Year Built / Effective Year Built	2006 / 2006
Bedrooms / Bathrooms	0 / 0
Units	

[Click Here for Another Search](#)

From: "Van Nuys" <vanuys@assessor.lacounty.gov>
To: <ccansler@waterboards.ca.gov>
Date: 8/28/2009 9:16 AM
Subject: FW: Public Inquiry Form

In response to your email on 8/27/09

Owner of record: Kam Properties LLC

Mailing address: 215 W Ann St LA CA 90012

Van Nuys Email Desk

-----Original Message-----

From: L.A. County - Office of The Assessor
Sent: Thursday, August 27, 2009 11:37 AM
To: Van Nuys
Subject: FW: Public Inquiry Form

Assessor's Helpdesk
TS

-----Original Message-----

From: ccansler@waterboards.ca.gov [mailto:ccansler@waterboards.ca.gov]
Sent: Thursday, August 27, 2009 9:40 AM
To: L.A. County - Office of The Assessor
Subject: Public Inquiry Form

Name: Cansler, Chandra
Business Name: Los Angeles Regional Water Quality Control Board

Address: 320 W. 4th Street, Suite 200

Los Angeles,

Email: ccansler@waterboards.ca.gov

Phone: (213) 576-6782

Fax: (213) 576-6700

Situs: 1440 North Spring Street

Los Angeles, CA 90012

AIN: 5409004015

Company Name:

Routing Index:

Comments: I have different APN/AIN#'s for the same property address.

As a representative of the Regional Water Quality Control Board - Los Angeles Region, I request the property owner name, company (if any), and

* SITE ADDRESS FOR THIS
PARCEL IS
1425 NAUD ST
LOS ANGELES, CA 90012
(see attached)

Assessor's Home Page Search Menu Feedback Help/FAQs
Property Assessment

Records for this property are kept at the East
(How frequently is the information updated on...)

SCAM ALERT: NO FEE NECESSARY FOR VALUATION

Property Information

Assessor's ID No.	5409-004-0
Site Address	1425 NAUD STREET LOS ANGELES, CA 90015
Property Type	Commercial / Industrial
Region / Cluster	27 / 278
Tax Rate Area (TRA)	000

[Click Here to View Assessor's Map](#)

[Click Here to View Index Map](#)

Recent Sale Information

Latest Sale Date
Indicated Sale Price

[Search for Recent Sales](#)

2009 Roll Values

Recording Date	10/31/2008
Land	\$2,252,400
Improvements	\$3,280,900
Personal Property	
Fixtures	
Homeowners' Exemption	
Real Estate Exemption	
Personal Property Exemption	
Fixture Exemption	

Tax bill payment information for 2009
as well as any changes to the 2009 Roll
will be available after September 30

[Estimate Supplemental Tax](#)

Property Boundary Description
POR OF LOT 1 TR=28778 AND EX OF STS LOTS
LOT 8 BLK 2 M R 5-197

Building Description(s)

	Improvement 1
Square Footage	31,500
Year Built / Effective Year Built	2006 / 2006
Bedrooms / Bathrooms	0 / 0
Units	

[Click Here for Another Search](#)

From: "L.A. County - Office of The Assessor" <helpdesk@assessor.lacounty.gov>
To: <ccansler@waterboards.ca.gov>
Date: 8/19/2009 2:31 PM
Subject: RE: Public Inquiry Form

RE: Situs: 1440 North Spring Street

Los Angeles, CA 90012

AIN 5409-004-010

Owner of record: Western Brass Development Corp
Mail address: 23223 Normandie Avenue
Torrance CA 90501 5050

Assessor Helpdesk

/jn

-----Original Message-----

From: ccansler@waterboards.ca.gov [mailto:ccansler@waterboards.ca.gov]
Sent: Wednesday, August 19, 2009 2:22 PM
To: L.A. County - Office of The Assessor
Subject: Public Inquiry Form

Name: Cansler, Chandra
Business Name: Los Angeles Regional Water Quality Control Board

Address: 320 W. 4th Street, Suite 200

Los Angeles, CA 90013

Email: ccansler@waterboards.ca.gov

Phone: (213) 576-6782

Fax: (213) 576-6700

Situs: 1440 North Spring Street

Los Angeles, CA 90012

AIN: 5409-004-010

Company Name:

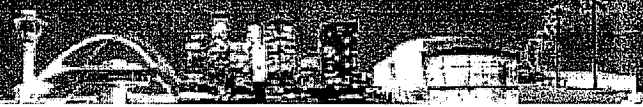
Routing Index:

Comments: As a representative of the Regional Water Quality Control Board - Los Angeles Region, I request the property owner name, company (if any), and mailing address for the subject site in support of our

Assessor's Home Page Search Menu Feedback Help/FAQs
Property Assessment



Los Angeles County
Office of the Assessor







Records for this property are kept at the [\[Link\]](#)
(How frequently is the information update)

SCAM ALERT: NO FEE NECESSARY FOR

Property Information

Assessor's ID No.	5409-00
Site Address	1440 N SPI LOS ANGE
Property Type	Commercial
Region / Cluster	27 /
Tax Rate Area (TRA)	

[Click Here to View Assessor](#)
[Click Here to View Index M](#)

Recent Sale Information

Latest Sale Date
Indicated Sale Price

[Search for Recent Sale](#)

2009 Roll Values

Recording Date	04/07
Land	\$69
Improvements	\$69
Personal Property	
Fixtures	
Homeowners' Exemption	
Real Estate Exemption	
Personal Property Exemption	
Fixture Exemption	

Tax bill payment information for
as well as any changes to the 2009
will be available after September

[Estimate Supplemental](#)

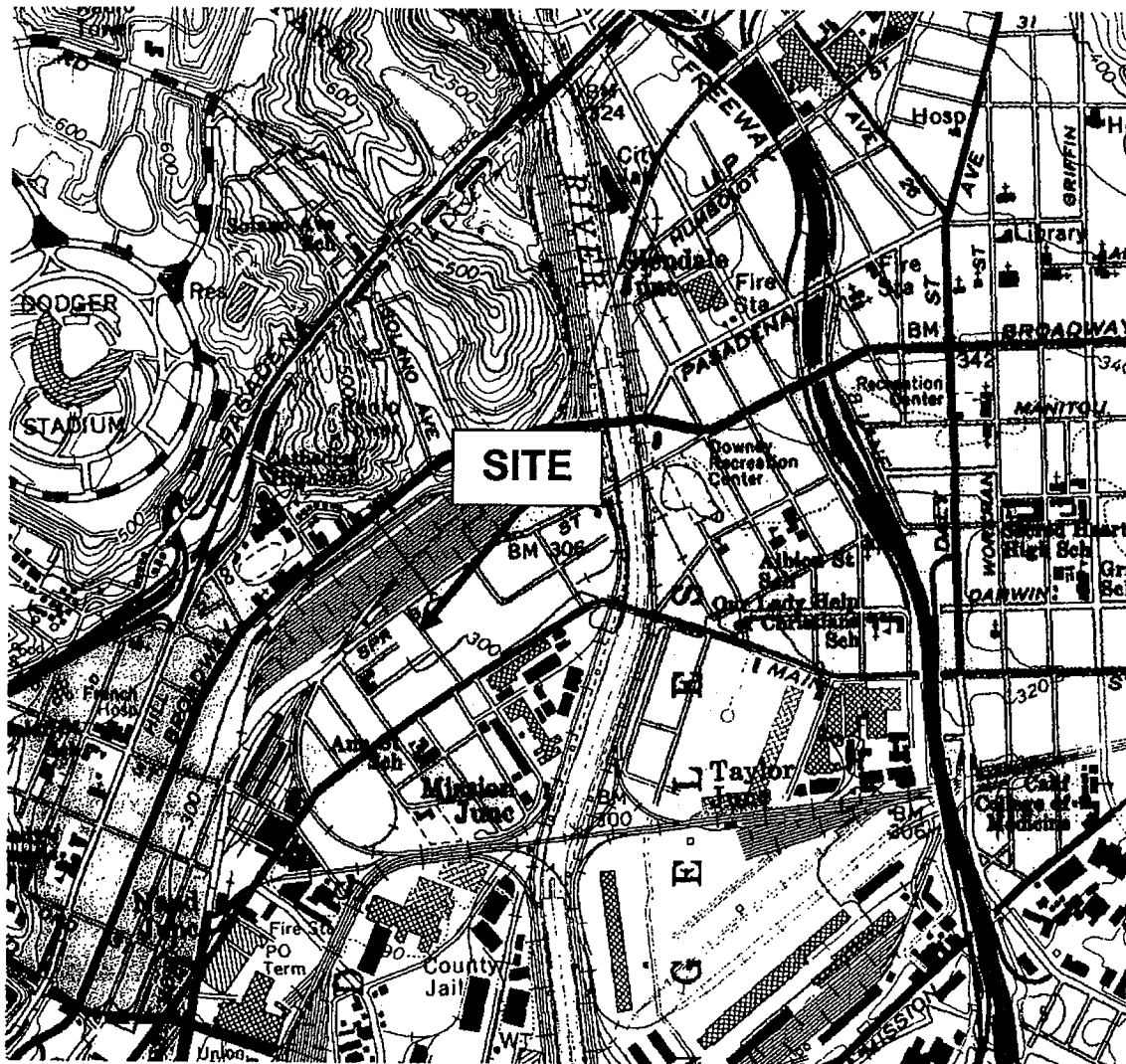
Property Boundary Description
TR=28778 FOR DESC SEE ASSESSOR'S MA

Building Description(s)

	Improvement 1
Square Footage	
Year Built / Effective Year Built	1943
Bedrooms / Bathrooms	
Units	
	Improvement 2
Square Footage	
Year Built / Effective Year Built	1966
Bedrooms / Bathrooms	
Units	
	Improvement 3



APPROXIMATE SCALE: 1" = 840'



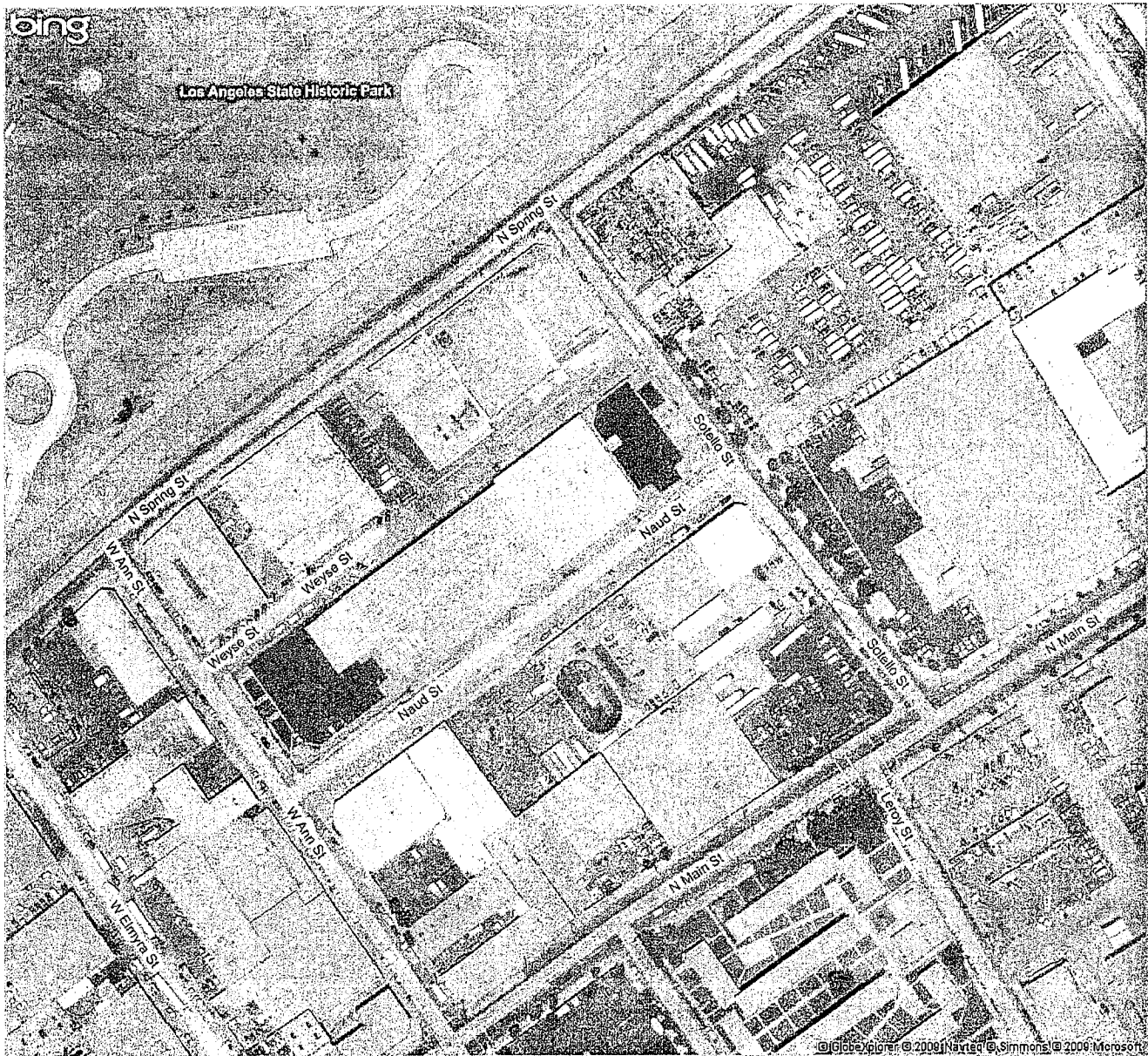
REFERENCE
U.S. GEOLOGICAL SURVEY
HOLLYWOOD QUADRANGLE
LOS ANGELES COUNTY, CALIFORNIA

1440 NORTH SPRING STREET
LOS ANGELES, CALIFORNIA

VICINITY MAP

Smith-Emery GeoServices
FILE NO.: 34122-1

DWG BY E.T.
PLATE NO.: 1

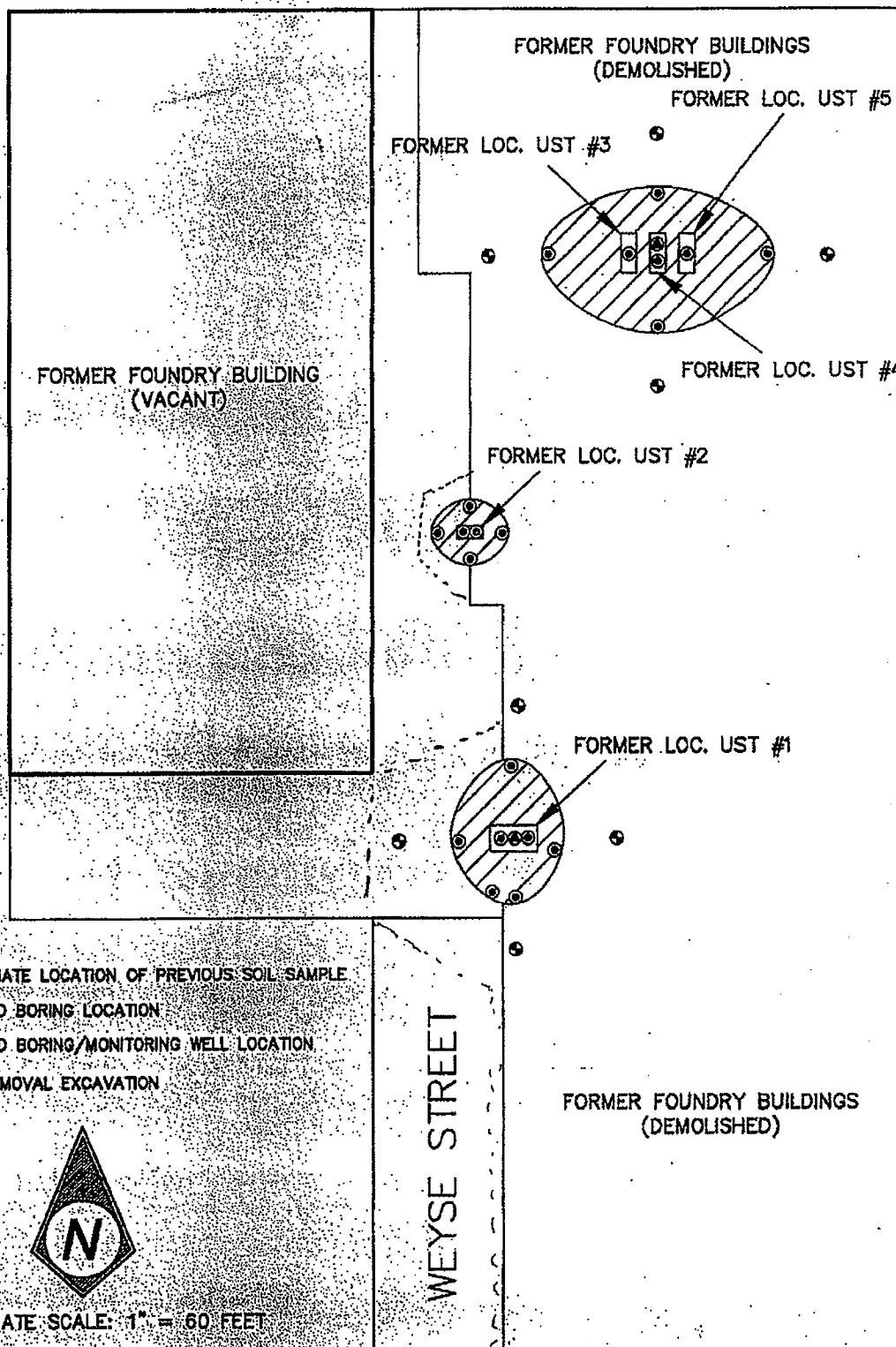


1440 N. Spring St
Los Angeles

SOTELLO STREET

NORTH SPRING STREET

NAUD STREET

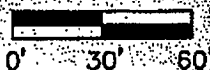


LEGEND:

- - APPROXIMATE LOCATION OF PREVIOUS SOIL SAMPLE
- - PROPOSED BORING LOCATION
- - PROPOSED BORING/MONITORING WELL LOCATION
- - UST REMOVAL EXCAVATION



APPROXIMATE SCALE: 1" = 60 FEET



**1440 NORTH SPRING STREET
LOS ANGELES, CALIFORNIA**

PLOT PLAN

Smith-Emery GeoServices
File No.: 34122-1

DWG BY P.G.
PLATE NO.: 2

TANK REMOVAL

MAY - SEPT 2003

TABLE 1

UST SOIL SAMPLE RESULTS

UST Number	Sample Number and Description	Sample Date	8015M TPH-Gas	8015M TPH-Diesel	418.1 TRPH	8260B VOCs (µg/Kg)
UST #1	299-2082-UST-1 East Invert	5/28/03	ND	2.5 mg/Kg	NA	ND
UST #1	299-2082-UST-2 West Invert	5/28/03	ND	5.2 mg/Kg	NA	2.6 µg/Kg - 1,2,4-Trimethylbenzene 1.7 µg/Kg - Xylenes, Total ND - All Other Analytes
UST #1	299-2082-UST-3 East Side Wall	5/28/03	ND	2.2 mg/Kg	NA	ND - All Analytes
UST #1	299-2082-UST-4 South Side Wall	5/28/03	3.9 mg/Kg	70 mg/Kg	NA	22 µg/Kg - 1,2,4-Trimethylbenzene 7.4 µg/Kg - 1,3,5-Trimethylbenzene 7.9 µg/Kg - n-Butylbenzene 35 µg/Kg - Naphthalene 3.9 µg/Kg - p-Isopropyltoluene ND - All Other Analytes
UST #1	299-2082-UST-5 North Side Wall	5/28/03	ND	2.0 mg/Kg	NA	ND - All Analytes
UST #1	299-2082-UST-19 West Side Wall	7/23/03	ND	173 mg/Kg	216 mg/Kg	ND - All Analytes
UST #1	299-2082-UST-20 South Side Wall	7/23/03	ND	ND	ND	ND - All Analytes
UST #1	299-2082-UST-24 East Bottom	9/29/03	ND	4,300 mg/Kg	NA	848 µg/Kg - 1,2,4-Trimethylbenzene 299 µg/Kg - 1,3,5-Trimethylbenzene 378 µg/Kg - n-Butylbenzene 209 µg/Kg - p-Isopropyltoluene 170 µg/Kg - Xylenes, Total ND - All Other Analytes
UST #1	299-2082-UST-25 West Bottom	9/29/03	ND	3,200 mg/Kg	NA	919 µg/Kg - 1,2,4-Trimethylbenzene 325 µg/Kg - 1,3,5-Trimethylbenzene 521 µg/Kg - n-Butylbenzene 1,790 µg/Kg - Naphthalene 188 µg/Kg - p-Isopropyltoluene 142 µg/Kg - Xylenes, Total ND - All Other Analytes
UST #1	299-2082-UST-26 South Side Wall	9/29/03	ND	38 mg/Kg	NA	ND - All Analytes

MAY - SEPT 2003

TABLE 1

UST SOIL SAMPLE RESULTS

UST No.	Sample Number and Description	Sample Date	8015M TPH-Gas	8015M TPH-Diesel	418.1 TRPH	8260B VOCs (µg/Kg)
UST #2	299-2082-UST-9 Middle Invert	7/08/03	ND	ND	ND	ND - All Analytes
UST #2	299-2082-UST-10 North Side Wall	7/08/03	ND	ND	ND	1.0 µg/Kg - Tetrachloroethene ND - All Other Analytes
UST #2	299-2082-UST-11 West Side Wall	7/08/03	ND	ND	ND	1.9 µg/Kg - 1,2,4-Trimethylbenzene 3.1 µg/Kg - Tetrachloroethene ND - All Other Analytes
UST #2	299-2082-UST-12 South Side Wall	7/08/03	ND	ND	ND	ND - All Analytes
UST #2	299-2082-UST-13 East Side Wall	7/08/03	ND	ND	ND	8.3 µg/Kg - Tetrachloroethene ND - All Other Analytes
UST #2	299-2082-UST-27 Bottom Center	9/29/03	ND	2 mg/Kg	NA	ND - All Analytes
UST #3, 4, 5	299-2082-UST-14 East Middle Invert	7/08/03	3.3 mg/Kg	5,500 mg/Kg	9,360 mg/Kg	280 µg/Kg - 1,2,4-Trimethylbenzene 2,170 µg/Kg - Naphthalene 359 µg/Kg - p-Isopropyltoluene 30,000 µg/Kg - ~~Tertiary butyl alcohol~~ 293 µg/Kg - Trichloroethene ND - All Other Analytes
UST #3, 4, 5	299-2082-UST-15 West Middle Invert	7/08/03	ND	300 mg/Kg	3,600 mg/Kg	2,690 µg/Kg - Naphthalene ND - All Other Analytes
UST #3	299-2082-UST-28 Bottom Center	9/29/03	ND	705 mg/Kg	NA	17 µg/Kg - 1,2,4-Trimethylbenzene 2.4 µg/Kg - 1,3,5-Trimethylbenzene 4.0 µg/Kg - n-Butylbenzene 1.6 µg/Kg - n-propylbenzene 6.4 µg/Kg - p-Isopropyltoluene 11 µg/Kg - Xylenes, Total ND - All Other Analytes
UST #4	299-2082-UST-29 Bottom Center	9/29/03	ND	6 mg/Kg	NA	ND - All Analytes
UST #5	299-2082-UST-30 Bottom Center	9/29/03	ND	5 mg/Kg	NA	ND - All Analytes

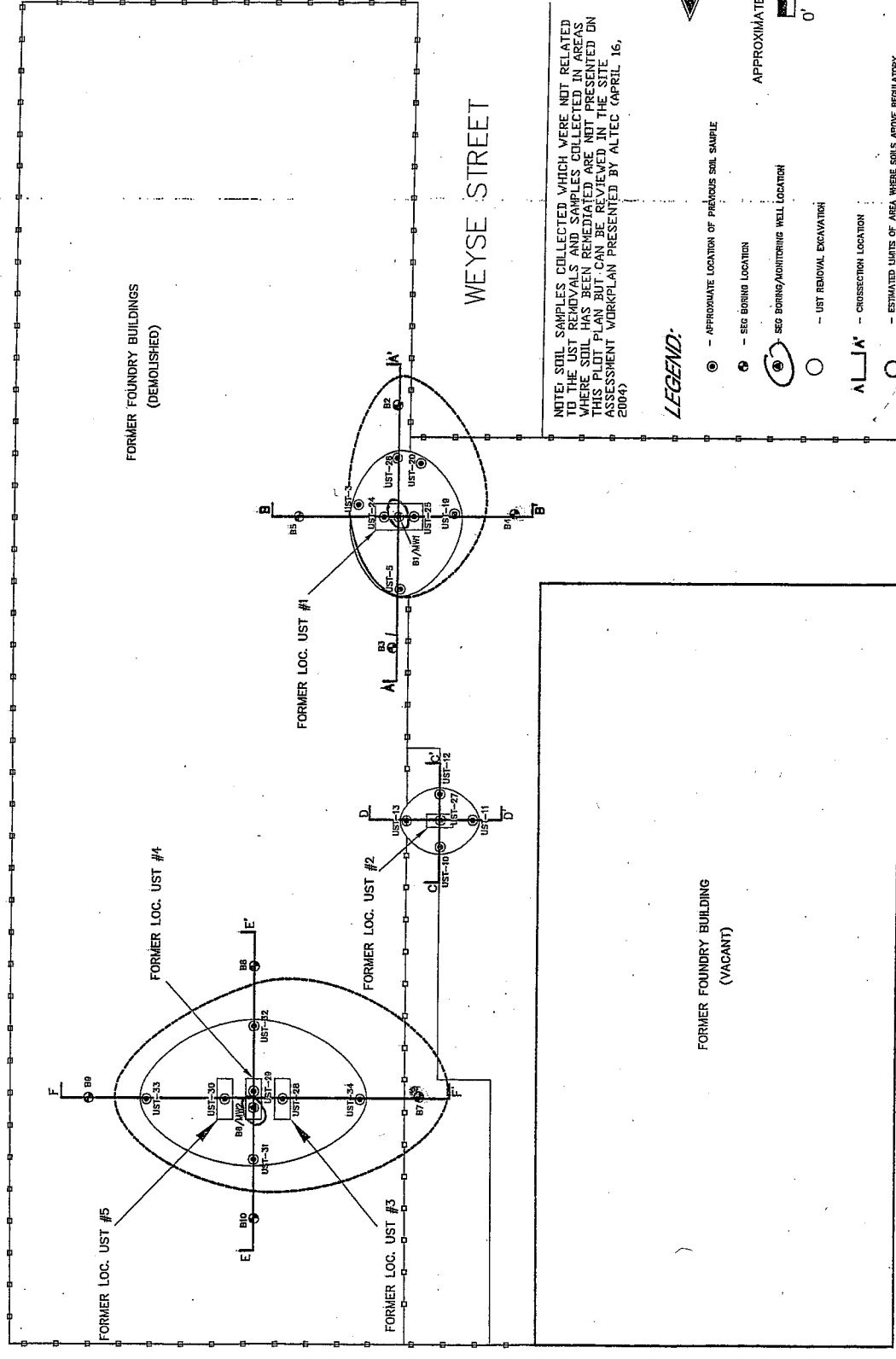
Tetrachloroethene (see lab analysis)

NAUD STREET

SOTELLO STREET

WEYSE STREET

NORTH SPRING STREET



NOTE: SOIL SAMPLES COLLECTED WHICH WERE NOT RELATED TO THE UST REMOVALS AND SAMPLES COLLECTED IN AREAS WHERE SOIL HAS BEEN REMEDIATED ARE NOT PRESENTED ON THIS PLOT PLAN BUT CAN BE REVIEWED IN THE SITE ASSESSMENT WORKPLAN PRESENTED BY ALTEC (APRIL 16, 2004)

LEGEND:

- - APPROXIMATE LOCATION OF PREVIOUS SOIL SAMPLE
- - SOIL BORING LOCATION
- - SOIL BORING/MONITORING WELL LOCATION
- - UST REMOVAL EXCAVATION
- ALJA' - CROSSSECTION LOCATION
- - ESTIMATED LIMITS OF AREA WHERE SOILS ABOVE REGULATORY ACTION LEVELS FOR DIESEL (1,000 PPM) REMAIN

APPROXIMATE SCALE: 1" = 40 FEET
0' 20' 40'

1308 EL PASO ROAD
SAN DIEGO COUNTY, CALIFORNIA

SITE MAP

Smith-Emery GeoServices
FILE NO.: 32742-1
DWG BY M.R.
PLATE NO.: 2

1446 N. Spring
Los Angeles, CA

B1-B6

The sample was collected using a new disposable Teflon[®] bailer. No free product or diesel sheen was observed on the groundwater surface. The samples were immediately placed on blue ice in a cooler and transported in accordance with current EPA protocol to Positive Lab Service, of Los Angeles, California a State certified analytical laboratory. Appropriate labeling and chain-of-custody procedures were followed. Laboratory analytical reports and chain of custody sheets are found in Appendix A.

ANALYTICAL RESULTS

SOIL SAMPLES

Selected soil samples were analyzed by the laboratory for gasoline, BTEX and fuel oxygenates including MTBE by EPA method 5035/8260B and for diesel by EPA method 8015B. Routine laboratory quality assurance/quality control (QA/QC) procedures include matrix spikes, matrix spike duplicates, equipment blanks, and surrogate recoveries are presented with the signed laboratory analytical data, included as Appendix A. The results of the laboratory analyses are presented in Table 3.

SEPT 2004

TABLE 3
SOIL ANALYTICAL RESULTS

SAMPLE ID	EPA 8015B Gasoline (mg/kg)	EPA 8260B BTEX & Oxygenates (ug/kg)	EPA 8015B Diesel (mg/kg)
B1-1-5'	ND	ND	ND
B1-2-10'	ND	ND	ND
B1-3-15'	ND	ND	1,000
B1-4-20'	ND	ND	ND
B1-5-25'	ND	ND	ND
B1-6-30'	ND	ND	ND
B1-7-35'	ND	ND	3,300
B1-8-40'	ND	ND	60

1440 N. Spring
October 20, 2004

SMITH-EMERY GEOSERVICES

SEG File No.: 34122-1-1
SEG Report No.: G-04-6847

SOIL DATA - SEPT 2004

B2-1-5'	ND	ND	ND
B2-2-10'	ND	ND	ND
B2-3-15'	ND	ND	ND
B2-4-20'	ND	ND	ND
B2-5-25'	ND	ND	ND
B2-6-30'	ND	ND	ND
B2-7-35'	ND	ND	3,700
B2-8-40'	ND	ND	ND
B3-1-5'	ND	ND	ND
B3-2-10'	ND	ND	ND
B3-3-15'	ND	ND	ND
B3-4-20'	ND	ND	ND
B3-5-25'	ND	ND	ND
B3-6-30'	ND	ND	ND
B3-7-35'	ND	ND	ND
B3-8-40'	ND	ND	ND
B4-1-5'	ND	ND	ND
B4-2-10'	ND	ND	ND
B4-3-15'	ND	ND	ND
B4-4-20'	ND	ND	ND
B4-5-25'	ND	ND	ND
B4-6-30'	ND	ND	ND
B4-7-35'	ND	ND	ND
B4-8-40'	ND	ND	ND
B5-1-5'	ND	ND	ND
B5-2-10'	ND	ND	ND
B5-3-15'	ND	ND	ND
B5-4-20'	ND	ND	ND
B5-5-25'	ND	ND	ND
B5-6-30'	ND	ND	ND
B5-7-35'	ND	ND	ND
B5-8-40'	ND	ND	ND
B6-1-10'	ND	ND	ND
B6-2-15'	ND	ND	ND
B6-3-20'	ND	ND	ND
B6-4-25'	ND	ND	ND
B6-5-30'	ND	ND	ND
B6-6-35'	ND	ND	ND
B6-7-40'	ND	ND	ND
B7-1-10'	ND	ND	ND
B7-2-15'	ND	ND	ND
B7-3-20'	ND	ND	ND

SOIL DATA - SEPT 2004

B7-4-25'	ND	ND	ND
B7-5-30'	ND	ND	ND
B7-6-35'	ND	ND	7,100
B7-7-40'	ND	ND	13
B8-1-5'	ND	ND	ND
B8-2-10'	ND	ND	ND
B8-3-15'	ND	ND	ND
B8-4-20'	ND	ND	ND
B8-5-25'	ND	ND	ND
B8-6-30'	ND	ND	ND
B8-7-35'	ND	ND	ND
B8-8-40'	ND	ND	ND
B9-1-5'	ND	ND	ND
B9-2-10'	ND	ND	ND
B9-3-15'	ND	ND	ND
B9-4-20'	ND	ND	ND
B9-5-25'	ND	ND	ND
B9-6-30'	ND	ND	ND
B9-7-35'	ND	ND	ND
B9-8-40'	ND	ND	ND
B10-1-10'	ND	ND	ND
B10-2-15'	ND	ND	ND
B10-3-20'	ND	ND	ND
B10-4-25'	ND	ND	ND
B10-5-30'	ND	ND	ND
B10-6-35'	ND	ND	ND
B10-7-40'	ND	ND	ND

ND - Analytes were non-detect above minimum detection limits

ND* - Analytes were non-detect above minimum detection limits or detected below regulatory limits.

ug/kg - micrograms per kilogram/parts per billion

mg/kg - milligrams per kilogram or parts per million

- Sample was not tested for this analyte

No gasoline, BTEX, MTBE, or other fuel oxygenates, were detected in any of the samples analyzed. Concentrations of diesel were detected up to 7,100 parts per million (ppm) in three borings (B1, B2, and B7) at 35-feet below ground surface. Diesel was also detected in boring B1 at 15-feet below ground surface at 1,000 ppm and in borings B1 and B7 at 40-feet below ground surface at 60 ppm and 13 ppm respectively.

pg 3 of 4

GROUNDWATER SAMPLES

Water samples collected were analyzed by the laboratory for BTEX and fuel oxygenates including MTBE by EPA method 8260B and for diesel by EPA method 8015B. The results of the laboratory analyses are presented in Table 4.

SEPT 2004

TABLE 4
GROUNDWATER ANALYTICAL RESULTS

Sample ID	EPA 8015B Diesel (mg/l)	EPA 8260B BTEX & Fuel Oxygenates (µg/l)
MW-1	ND	ND
MW-2	ND	MTBE – 1.2 ND*

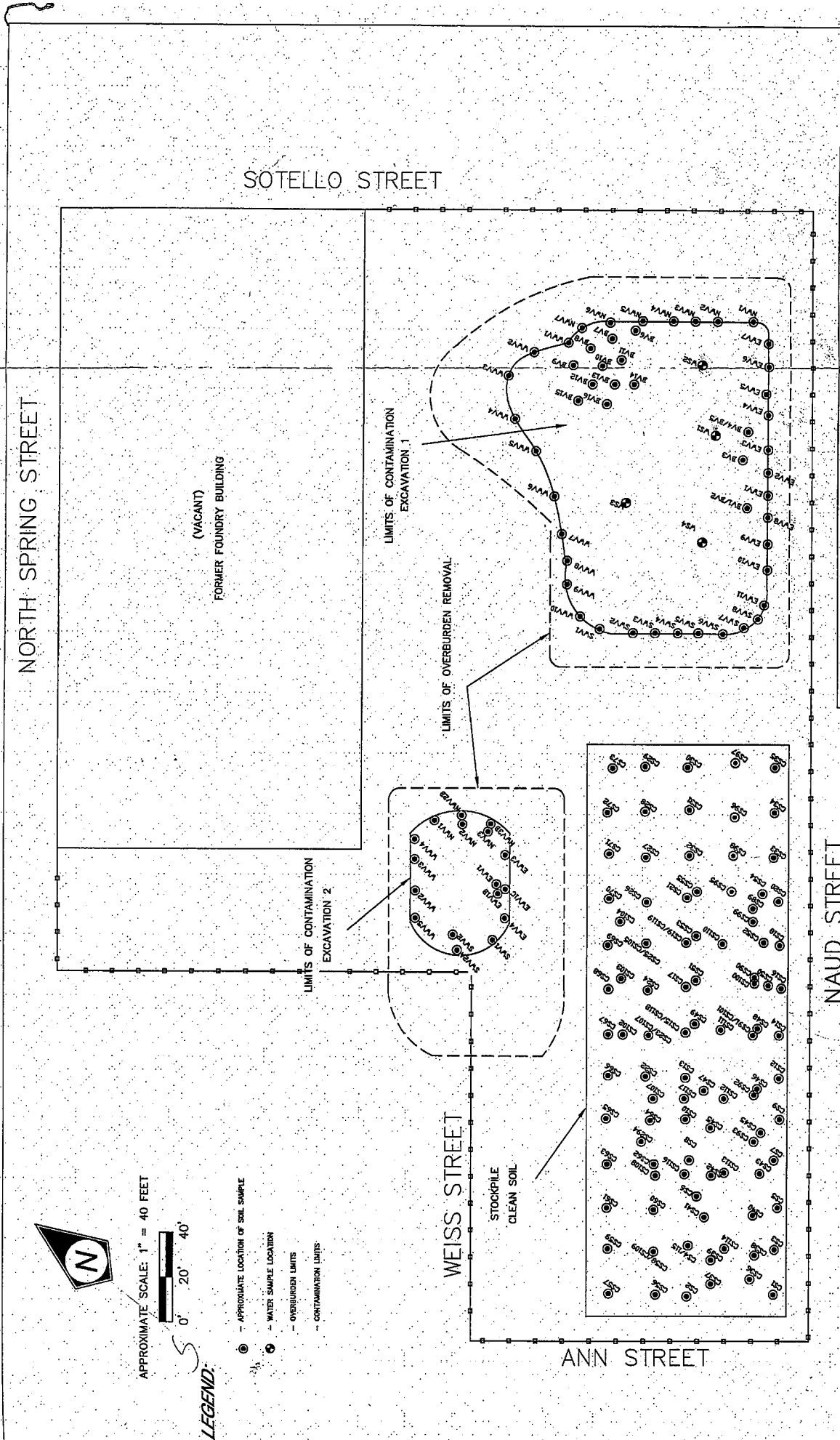
mg/l milligrams per liter or parts per million (ppm).
µg/l micrograms per liter or parts per billion (ppb).
ND not detected or below method detection limits.
ND* ND for all other analytes.

No diesel or BTEX was detected in any of the groundwater samples. MTBE was detected in MW-2 at 1.2 ppb. No other fuel oxygenates were detected in the samples analyzed.

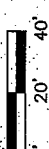
SUMMARY AND CONCLUSIONS

This report presents the findings of the soil and groundwater sampling conducted at 1440 North Spring Street in the City of Los Angeles, California. SEG advanced a total of 10 soil borings (B1 thru B10) at the site up to 40-feet in depth, sampled at approximate five foot intervals, and converted two borings (B1 and B6) to groundwater monitoring wells (MW1 and MW2). Concentrations of diesel were detected up to 7,100 parts per million (ppm) in three borings (B1, B2, and B7) at 35-feet below ground surface. Diesel was also detected in boring B1 at 15-feet below ground surface at 1,000 ppm and in borings B1 and B7 at 40-feet below ground surface at 60 ppm and 13 ppm respectively. Based on the close proximity of

SOIL EXCAVATION - MAY 2005



APPROXIMATE SCALE: 1" = 40 FEET



LEGEND:

- - APPROXIMATE LOCATION OF SOIL SAMPLE
- - WATER SAMPLE LOCATION
- - - OVERBURDEN LIMITS
- - - CONTAMINATION LIMITS

SITE MAP

1440 NORTH SPRING STREET
LOS ANGELES, CALIFORNIA

Smith-Emery GeoServices
FILE NO.: 34122
DWG BY M.R.
PLATE NO.: 2

SOIL - MAY 2005

pg 1 of 3

TABLE 7
SOIL SAMPLE ANALYTICAL RESULTS
EXCAVATION 1

Sample Number	Diesel EPA 8015B (mg/kg)	BTEX EPA 8260B (ug/kg)	Fuel Oxygenates EPA 8260B (ug/kg)
NWV@35' (confirmation NWV2)	1,050	ND	ND
NWV2@35'	ND	ND	ND
NWV3@35'	ND	ND	ND
NWV4@35'	ND	ND	ND
NWV5@35'	ND	ND	ND
NWV6@35'	ND	ND	ND
NWV7@35'	ND	ND	ND
NWV8@35'	ND	ND	ND
SWV1@35'	ND	ND	ND
SWV2@35'	ND	ND	ND
SWV3@35'	ND	ND	ND
SWV4@35'	ND	ND	ND
SWV5@35'	ND	ND	ND
SWV6@35'	ND	ND	ND
SWV7@35'	ND	ND	ND
SWV8@35'	ND	ND	ND
EWV1@30'	ND	ND	ND
EWV2@30'	ND	ND	ND
EWV3@35'	ND	ND	ND
EWV4@35'	ND	ND	ND
EWV5@35'	60.1	ND	ND
EWV6@35'	ND	ND	ND
EWV7@35'	ND	ND	ND
EWV8@35'	ND	ND	ND
EWV9@35'	ND	ND	ND
EWV10@35'	ND	ND	ND
EWV11@35'	ND	ND	ND
WWV1@35'	ND	ND	ND
WWV2@35'	ND	ND	ND
WWV3@35'	ND	ND	ND
WWV3B@35'	ND	ND	ND
WWV4@35'	ND	ND	ND
WWV5@35'	ND	ND	ND
WWV6@35'	ND	ND	ND
WWV7@35'	ND	ND	ND
WWV8@35'	ND	ND	ND

1440 North Spring Street
September 7, 2005

SMITH-EMERY GEOSERVICES

SEG File No.: 34122-1
SEG Report No.: G-05-7826

Sample Number	Diesel EPA 8015B (mg/kg)	BTEX EPA 8260B (ug/kg)	Fuel Oxygenates EPA 8260B (ug/kg)
WWV9@35'	ND	ND	ND
WWV10@35'	ND	ND	ND
BV1@32' (confirmation BV2)	137	ND	ND
BV2@33'	79.2	BTE - ND X - 2.12	ND
BV3@33'	ND	BTE - ND X - 2.72	ND
BV6@36'	ND	ND	ND
BV7@36'	ND	ND	ND
BV8@36'	ND	ND	ND
BV9@36'	ND	ND	ND
BV10@36'	ND	ND	ND
BV11@36'	ND	ND	ND
BV12@36'	ND	ND	ND
BV13@36'	ND	ND	ND
BV14@36'	ND	ND	ND
BV15@36'	ND	ND	ND
BV16@36'	ND	ND	ND
BV17@36'	ND	ND	ND

ND - Analytes were non-detect above minimum detection limits.

ug/kg - micrograms per kilogram/parts per billion.

mg/kg - milligrams per kilogram or parts per million.

In two of the final verification soil samples obtained from excavation #1, low concentrations of diesel (60.1 mg/kg and 79.2 mg/kg) and total xylenes (2.12 ug/kg and 2.72 ug/kg) were detected. These concentrations are below the maximum soil screening levels for contaminants within 20 feet of groundwater, as listed in Table 4-1 of the RWQCB Cleanup Guide of 100 parts per million for diesel. No fuel oxygenates were detected in any of these soil samples.

1440 North Spring Street
September 7, 2005

SMITH-EMERY GEOSERVICES

SEG File No.: 34122-1
SEG Report No.: G-05-7826

In only two of the final verification soil samples obtained from excavation #2, low concentrations of diesel were detected. The levels of diesel were 19.1 mg/kg and 30.6 mg/kg. The diesel concentrations are below the soil screening levels of 100 parts per million for diesel established by the RWQCB.

TABLE 9
WATER SAMPLE ANALYTICAL RESULTS
EXCAVATION 1

Sample Number	Diesel EPA 8015B (mg/kg)	BTEX EPA 8260B (ug/kg)	Fuel Oxygenates EPA 8260B (ug/kg)
WS1	3.41	B - ND T - ND E - ND X - 1.39	ND
WS2	ND	B - ND T - ND E - 1.26 X - 1.45	ND
WS3	3.72	ND	ND
WS4	6.34	ND	ND

lab
sampled
5/05

lab
sampled
6/05

ND - Analytes were non-detect above minimum detection limits.
ug/kg - micrograms per kilogram/parts per billion.
mg/kg - milligrams per kilogram or parts per million.

TABLE 10
WATER SAMPLE ANALYTICAL RESULTS
EXCAVATION 2

lab
sampled 7/05

Sample Number	Diesel EPA 8015B (mg/kg)	BTEX EPA 8260B (ug/kg)	Fuel Oxygenates EPA 8260B (ug/kg)
EX2WS-1	2.31	ND	ND

ND - Analytes were non-detect above minimum detection limits.
ug/kg - micrograms per kilogram/parts per billion.
mg/kg - milligrams per kilogram or parts per million.

87.3 mg/L TPH_G

SDIL - MAY 2005

TABLE 8
SOIL SAMPLE ANALYTICAL RESULTS
EXCAVATION 2

Sample Number	Diesel EPA 8015B (mg/kg)	BTEX EPA 8260B (ug/kg)	Fuel Oxygenates EPA 8260B (ug/kg)
WWV-1@34' confirmation WWV-1	495	ND	ND
WWV-1B@35'	ND	ND	ND
WWV-2@34'	ND	ND	ND
WWV-3@34'	ND	ND	ND
WWV-4@34'	ND	ND	ND
WWV-5	ND	ND	ND
EWV-1@35' Confirmation EWB-1B	2,040	ND	ND
EWV-1B @34' Confirmation EWB-1C	210	ND	ND
EWV-1C	30.6	ND	ND
EWV-2@35' Confirmation EWB-2B	13,200	BT - ND E - 2.33 X - 25.7	Tert-butyl - 9.31 Remaining - ND
EWV-2B@34'	ND	ND	ND
EWV-3@34'	ND	ND	ND
EWV-4	ND	ND	ND
NWV-1@34'	ND	ND	ND
NWV-2@34' Confirmation NWV-2B	314	ND	ND
NWV-2B	ND	ND	ND
NWV-3@34' Confirmation NWV-3B	737	ND	ND
NWV-3B	ND	ND	ND
SWV-1	ND	ND	ND
SWV-2	139	ND	ND
SWV-2A	19.1	ND	ND

ND - Analytes were non-detect above minimum detection limits.

ug/kg - micrograms per kilogram/parts per billion.

mg/kg - milligrams per kilogram or parts per million.

SOIL JULY 2003

Order #: 444244

Client: Altec Testing & Engineering

Matrix: SOLID

Client Sample ID: 299-2082-UST-14

Date Sampled: 07/08/2003

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
Methylene chloride	ND	175	875.0	ug/Kg	07/11/03 LB
n-Butylbenzene	ND	175	875.0	ug/Kg	07/11/03 LB
n-Propylbenzene	ND	175	875.0	ug/Kg	07/11/03 LB
Naphthalene	2170	175	875.0	ug/Kg	07/11/03 LB
p-Isopropyltoluene	359 J	175	875.0	ug/Kg	07/11/03 LB
Pentachloroethane	ND	175	875.0	ug/Kg	07/11/03 LB
Propionitrile	ND	175	875.0	ug/Kg	07/11/03 LB
sec-Butylbenzene	ND	175	875.0	ug/Kg	07/11/03 LB
Styrene	ND	175	875.0	ug/Kg	07/11/03 LB
Tert-amylmethylether (TAME)	ND	175	1750.0	ug/Kg	07/11/03 LB
tert-Butylbenzene	ND	175	875.0	ug/Kg	07/11/03 LB
Tertiary butyl alcohol (TBA)	ND	175	8750.0	ug/Kg	07/11/03 LB
Tetrachloroethene	30000	175	875.0	ug/Kg	07/11/03 LB
Toluene	ND	175	875.0	ug/Kg	07/11/03 LB
trans-1,2-Dichloroethene	ND	175	875.0	ug/Kg	07/11/03 LB
trans-1,3-Dichloropropene	ND	175	875.0	ug/Kg	07/11/03 LB
trans-1,4-Dichloro-2-butene	ND	175	875.0	ug/Kg	07/11/03 LB
Trichloroethene	293 J	175	875.0	ug/Kg	07/11/03 LB
Trichlorofluoromethane	ND	175	875.0	ug/Kg	07/11/03 LB
Vinyl acetate	ND	175	8750.0	ug/Kg	07/11/03 LB
Vinyl chloride	ND	175	875.0	ug/Kg	07/11/03 LB
Xylenes, total	ND	175	875.0	ug/Kg	07/11/03 LB

Surrogates		Units	Control Limits
Surr1 - Dibromofluoromethane	115	%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	125	%	70 - 130
Surr3 - Toluene-d8	93	%	70 - 130
Surr4 - p-Bromofluorobenzene	101	%	70 - 130

8015M - Gasoline

Gasoline	3.3	1	3	mg/Kg	07/09/03 LT
Surrogates					
a,a,a-Trifluorotoluene	110			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 466519

Client: Altec Testing & Engineering

SEPT 2003

Matrix: SOLID

Client Sample ID: 299-2082-UST-24

Date Sampled: 09/29/2003

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst

8015 TEPH Diesel

TEPH Diesel	4300	50	50.0	mg/Kg	10/06/03	AF
Surrogates				Units	Control Limits	
o-Terphenyl (sur)	158			%	55 - 200	

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	100	500.0	ug/Kg	10/01/03	AM
1,1,1-Trichloroethane	ND	100	500.0	ug/Kg	10/01/03	AM
1,1,2,2-Tetrachloroethane	ND	100	500.0	ug/Kg	10/01/03	AM
1,1,2-Trichloroethane	ND	100	500.0	ug/Kg	10/01/03	AM
1,1,2-Trichlorotrifluoroethane	ND	100	500.0	ug/Kg	10/01/03	AM
1,1-Dichloroethane	ND	100	500.0	ug/Kg	10/01/03	AM
1,1-Dichloroethene	ND	100	500.0	ug/Kg	10/01/03	AM
1,1-Dichloropropene	ND	100	500.0	ug/Kg	10/01/03	AM
1,2,3-Trichlorobenzene	ND	100	500.0	ug/Kg	10/01/03	AM
1,2,3-Trichloropropane	ND	100	500.0	ug/Kg	10/01/03	AM
1,2,4-Trichlorobenzene	ND	100	500.0	ug/Kg	10/01/03	AM
1,2,4-Trimethylbenzene	848	100	500.0	ug/Kg	10/01/03	AM
1,2-Dibromo-3-chloropropane	ND	100	500.0	ug/Kg	10/01/03	AM
1,2-Dibromoethane	ND	100	500.0	ug/Kg	10/01/03	AM
1,2-Dichlorobenzene	ND	100	500.0	ug/Kg	10/01/03	AM
1,2-Dichloroethane	ND	100	500.0	ug/Kg	10/01/03	AM
1,2-Dichloropropane	ND	100	500.0	ug/Kg	10/01/03	AM
1,3,5-Trimethylbenzene	299 J	100	500.0	ug/Kg	10/01/03	AM
1,3-Dichlorobenzene	ND	100	500.0	ug/Kg	10/01/03	AM
1,3-Dichloropropane	ND	100	500.0	ug/Kg	10/01/03	AM
1,4-Dichlorobenzene	ND	100	500.0	ug/Kg	10/01/03	AM
1,4-Dioxane	ND	100	20000.0	ug/Kg	10/01/03	AM
1-Chlorohexane	ND	100	500.0	ug/Kg	10/01/03	AM
2,2-Dichloropropane	ND	100	500.0	ug/Kg	10/01/03	AM
2-Butanone (MEK)	ND	100	10000.0	ug/Kg	10/01/03	AM
2-Chloroethyl vinyl ether	ND	100	500.0	ug/Kg	10/01/03	AM
2-Chlorotoluene	ND	100	500.0	ug/Kg	10/01/03	AM
2-Hexanone	ND	100	500.0	ug/Kg	10/01/03	AM
4-Chlorotoluene	ND	100	500.0	ug/Kg	10/01/03	AM
4-Methyl-2-Pentanone	ND	100	500.0	ug/Kg	10/01/03	AM

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 466528

Client: Altec Testing & Engineering

SOIL SAMPLING DATA

Matrix: SOLID

Client Sample ID: 299-2082-UST-33

(SEPT 2003)

Date Sampled: 09/29/2003

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
p-Isopropyltoluene	ND	100	500.0	ug/Kg	10/01/03 AM
Pentachloroethane	ND	100	500.0	ug/Kg	10/01/03 AM
Propionitrile	ND	100	500.0	ug/Kg	10/01/03 AM
sec-Butylbenzene	ND	100	500.0	ug/Kg	10/01/03 AM
Styrene	ND	100	500.0	ug/Kg	10/01/03 AM
Tert-amylmethylether (TAME)	ND	100	1000.0	ug/Kg	10/01/03 AM
tert-Butylbenzene	ND	100	500.0	ug/Kg	10/01/03 AM
Tertiary butyl alcohol (TBA)	ND	100	5000.0	ug/Kg	10/01/03 AM
Tetrachloroethene	607	100	500.0	ug/Kg	10/01/03 AM
Toluene	ND	100	500.0	ug/Kg	10/01/03 AM
trans-1,2-Dichloroethene	ND	100	500.0	ug/Kg	10/01/03 AM
trans-1,3-Dichloropropene	ND	100	500.0	ug/Kg	10/01/03 AM
trans-1,4-Dichloro-2-butene	ND	100	500.0	ug/Kg	10/01/03 AM
Trichloroethene	ND	100	500.0	ug/Kg	10/01/03 AM
Trichlorofluoromethane	ND	100	500.0	ug/Kg	10/01/03 AM
Vinyl acetate	ND	100	5000.0	ug/Kg	10/01/03 AM
Vinyl chloride	ND	100	500.0	ug/Kg	10/01/03 AM
Xylenes, total	ND	100	500.0	ug/Kg	10/01/03 AM

Surrogates		Units	Control Limits
Surr1 - Dibromofluoromethane	103	%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	107	%	70 - 135
Surr3 - Toluene-d8	100	%	70 - 135
Surr4 - p-Bromofluorobenzene	105	%	70 - 135

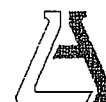
8015M - Gasoline

Gasoline	ND	1	3	mg/Kg	10/01/03 LT
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	92			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report





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Smith-Emery GeoServices
791 East Washington Blvd.
Los Angeles, CA 90021

Attn: Mr. Matt Rodda

Phone: (213) 745-5333 FAX: (213) 746-0744

Project: No. 34122-1, 1440 N. Spring Street (Mobile Lab 5/25/05)

File #: 73100

Reported: 06/09/05 15:47

Submitted: 05/25/05

PLS Report No.: 5050189

Sample ID: BV2 @ 33' Soil (5050189-01) Sampled 05/25/05 08:15 Received 05/25/05 16:54											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Diesel	79.2		1	mg/kg	5.00	10.0	EPA 3550B	EPA 8015B	05/25/05	05/25/05	rp BF50916
Surrogate: n-Tetracosane	117 %			44-148			EPA 3550B	EPA 8015B	05/25/05	05/25/05	rp BF50916
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Benzene	ND		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Toluene	ND		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Ethylbenzene	ND		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Xylenes (total)	2.12		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Methyl tert-butyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Di-isopropyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Ethyl tert-butyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Tert-amyl methyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Tert-butyl alcohol	ND		1	ug/kg	10.0	20.0	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Surrogate: Dibromofluoromethane	95.8 %			59-137			EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Surrogate: Toluene-d8	104 %			60-141			EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Surrogate: 4-Bromofluorobenzene	104 %			70-149			EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Sample ID: BV3 @ 33' Soil (5050189-02) Sampled 05/25/05 09:34 Received 05/25/05 16:54											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Diesel	ND		1	mg/kg	5.00	10.0	EPA 3550B	EPA 8015B	05/25/05	05/25/05	rp BF50916
Surrogate: n-Tetracosane	121 %			44-148			EPA 3550B	EPA 8015B	05/25/05	05/25/05	rp BF50916
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Benzene	ND		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Toluene	ND		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Ethylbenzene	ND		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Xylenes (total)	2.72		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Methyl tert-butyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Di-isopropyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Ethyl tert-butyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Tert-amyl methyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Tert-butyl alcohol	ND		1	ug/kg	10.0	20.0	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Surrogate: Dibromofluoromethane	102 %			59-137			EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Surrogate: Toluene-d8	104 %			60-141			EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Surrogate: 4-Bromofluorobenzene	103 %			70-149			EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821
Sample ID: BV4 @ 33' Soil (5050189-03) Sampled 05/25/05 09:30 Received 05/25/05 16:54											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Diesel	225		1	mg/kg	5.00	10.0	EPA 3550B	EPA 8015B	05/25/05	05/25/05	rp BF50916
Surrogate: n-Tetracosane	108 %			44-148			EPA 3550B	EPA 8015B	05/25/05	05/25/05	rp BF50916
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Benzene	ND		1	ug/kg	2.00	2.00	EPA 5035B	EPA 8260B	05/25/05	05/25/05	rp BF50821



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Smith-Emery GeoServices
791 East Washington Blvd.
Los Angeles, CA 90021

File #: 73100
Reported: 07/11/05 07:35
Submitted: 07/05/05
PLS Report No.: 5070025

Attn: Mr. Matt Rodda Phone: (213) 745-5333 FAX: (213) 746-0744

Project: No. 34122-1, 1440 N. Spring Street (Mobile Lab 7/5/05)

Sample ID: FWV-1C Soil (5070025-03) Sampled: 07/05/05 08:46 Received: 07/05/05 14:30											
Di-Isopropyl ether	ND	1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	07/05/05	07/05/05	rp	BG50716
Ethyl tert-butyl ether	ND	1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	07/05/05	07/05/05	rp	BG50716
Tert-amyl methyl ether	ND	1	ug/kg	2.00	4.00	EPA 5035B	EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: Dibromofluoromethane	92.7 %			59-137		EPA 5035B	EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: Toluene-d8	98.0 %			60-141		EPA 5035B	EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: 4-Bromofluorobenzene	102 %			70-149		EPA 5035B	EPA 8260B	07/05/05	07/05/05	rp	BG50716
Diesel	30.6	1	mg/kg	5.00	10.0	EPA 3550B	EPA 8015B	07/05/05	07/05/05	rp	BG50724
Surrogate: n-Tetracosane	94.6 %			44-148		EPA 3550B	EPA 8015B	07/05/05	07/05/05	rp	BG50724

Sample ID: FWV-4 Soil (5070025-04) Sampled: 07/05/05 10:18 Received: 07/05/05 14:30											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/kg	2.00	2.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Toluene	ND		1	ug/kg	2.00	2.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Ethylbenzene	ND		1	ug/kg	2.00	2.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Xylenes, total	ND		1	ug/kg	2.00	2.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Methyl tert-butyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Tert-butyl alcohol	ND		1	ug/kg	5.00	20.0	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Di-Isopropyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Ethyl tert-butyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Tert-amyl methyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: Dibromofluoromethane	92.7 %			59-137			EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: Toluene-d8	98.4 %			60-141			EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: 4-Bromofluorobenzene	102 %			70-149			EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Diesel	ND		1	mg/kg	5.00	10.0	EPA 3550B EPA 8015B	07/05/05	07/05/05	rp	BG50724
Surrogate: n-Tetracosane	117 %			44-148			EPA 3550B EPA 8015B	07/05/05	07/05/05	rp	BG50724

Sample ID: FWV-1 Soil (5070025-05) Sampled: 07/05/05 10:21 Received: 07/05/05 14:30											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/kg	2.00	2.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Toluene	ND		1	ug/kg	2.00	2.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Ethylbenzene	ND		1	ug/kg	2.00	2.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Xylenes, total	ND		1	ug/kg	2.00	2.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Methyl tert-butyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Tert-butyl alcohol	ND		1	ug/kg	5.00	20.0	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Di-Isopropyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Ethyl tert-butyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Tert-amyl methyl ether	ND		1	ug/kg	2.00	4.00	EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: Dibromofluoromethane	92.9 %			59-137			EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: Toluene-d8	98.3 %			60-141			EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Surrogate: 4-Bromofluorobenzene	103 %			70-149			EPA 5035B EPA 8260B	07/05/05	07/05/05	rp	BG50716
Diesel	ND		1	mg/kg	5.00	10.0	EPA 3550B EPA 8015B	07/05/05	07/05/05	rp	BG50724



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GROUNDDWATER
SEPT 2004

CERTIFICATE OF ANALYSIS

Smith-Emery GeoServices

09/21/04

File# 73100

791 East Washington Blvd.

Los Angeles, CA 90021

Storm Prop., 1440 N. Spring St.

Attn: Matt Rodda

Phone: (213) 745-5333

Fax: (213) 746-0744

Sample#: 20042235-001

Collector: Client

Method: Picked up by PLS

Received: 09/14/2004

Sampling Date/Time: 09/14/2004 2:45:00 PM

Type: Water

I.D.: MW1-Monitoring Well

Parameter	Prep/Test Method	Result	Unit	POL
Prep Date: 09/20/2004 Analysis Date: 09/21/2004				
TPH-Diesel	EPA 3510C EPA 8015B	ND	mg/l	1
Surrogates	EPA 3510C EPA 8015B	*		
N-Tetracosane	EPA 3510C EPA 8015B	116	Percent	
Prep Date: 09/16/2004 Analysis Date: 09/16/2004				
Benzene	EPA 5030B EPA 8260B	ND	ug/l	1
Toluene	EPA 5030B EPA 8260B	ND	ug/l	1
Ethyl benzene	EPA 5030B EPA 8260B	ND	ug/l	1
Xylene (Total)	EPA 5030B EPA 8260B	ND	ug/l	1
MTBE	EPA 5030B EPA 8260B	ND	ug/l	1
Di-isopropyl ether	EPA 5030B EPA 8260B	ND	ug/l	1
tert- Butyl ethyl ether	EPA 5030B EPA 8260B	ND	ug/l	1
tert-Amyl methyl ether	EPA 5030B EPA 8260B	ND	ug/l	1
tert-Butyl alcohol	EPA 5030B EPA 8260B	ND	ug/l	5
Surrogates	EPA 5030B EPA 8260B	*		
Dibromofluoromethane	EPA 5030B EPA 8260B	102	Percent	
Toluene D-8	EPA 5030B EPA 8260B	102	Percent	
4-Bromofluorobenzene	EPA 5030B EPA 8260B	125	Percent	
Prep Date: 09/21/2004 Analysis Date: 09/21/2004				
Methanol	EPA 8015B EPA 8015B	ND	mg/l	1
Ethanol	EPA 8015B EPA 8015B	ND	mg/l	1

Sample#: 20042235-002

Collector: Client

Method: Picked up by PLS

Received: 09/14/2004

Sampling Date/Time: 09/14/2004 4:30:00 PM

Type: Water

I.D.: MW2-Monitoring Well

Parameter	Prep/Test Method	Result	Unit	POL
Prep Date: 09/20/2004 Analysis Date: 09/21/2004				
TPH-Diesel	EPA 3510C EPA 8015B	ND	mg/l	1
Surrogates	EPA 3510C EPA 8015B	*		
N-Tetracosane	EPA 3510C EPA 8015B	98	Percent	
Prep Date: 09/16/2004 Analysis Date: 09/16/2004				
Benzene	EPA 5030B EPA 8260B	ND	ug/l	1
Toluene	EPA 5030B EPA 8260B	ND	ug/l	1
Ethyl benzene	EPA 5030B EPA 8260B	ND	ug/l	1
Xylene (Total)	EPA 5030B EPA 8260B	ND	ug/l	1
MTBE	EPA 5030B EPA 8260B	1.2	ug/l	1
Di-isopropyl ether	EPA 5030B EPA 8260B	ND	ug/l	1

WATER - MAY 2005



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Smith-Emery GeoServices
791 East Washington Blvd.
Los Angeles, CA 90021

Attn: Mr. Phil Gilchrist

Phone: (213) 745-5333 FAX: (213) 746-0744

Project: No. 34122-1, 1440 N. Spring Street

File #: 73100

Reported: 05/31/05 09:15

Submitted: 05/27/05

PLS Report No.: 5050202

Sample ID: WS1 Water (5050202-01) Sampled: 05/27/05 11:02 Received: 05/27/05 11:27											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/l	0.100	1.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Toluene	ND		1	ug/l	0.100	1.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Ethylbenzene	ND		1	ug/l	0.100	1.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Xylenes (total)	1.39		1	ug/l	0.100	1.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Methyl tert-butyl ether	ND		1	ug/l	0.100	1.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Di-isopropyl ether	ND		1	ug/l	0.100	1.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Ethyl tert-butyl ether	ND		1	ug/l	0.100	1.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Tert-amyl methyl ether	ND		1	ug/l	0.100	5.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Tert-butyl alcohol	ND		1	ug/l	0.100	5.00	EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Surrogate: Dibromofluoromethane	100 %				80-120		EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Surrogate: Toluene-d8	101 %				80-120		EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Surrogate: 4-Bromofluorobenzene	102 %				80-120		EPA 5030B EPA 8260B	05/27/05	05/27/05	al	BE52721
Diesel	3.41		1	mg/L	0.250	0.500	EPA 3510C EPA 8015B	05/27/05	05/27/05	rp	BE52711
Surrogate: n-Tetracosane	72.4 %				54-139		EPA 3510C EPA 8015B	05/27/05	05/27/05	rp	BE52711



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File #: 73100
Reported: 06/14/05 14:17
Submitted: 06/02/05
PLS Report No.: 5060024

Attn: Mr. Matt Rodda Phone: (213) 745-5333 FAX: (213) 746-0744

Project: No. 34122-1, 1440 N. Spring Street (Mobile Lab 06/02/05)

Sample ID: WS2-Water (5060024-01) Sampled: 06/02/05 12:15 Received: 06/02/05 13:05											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Diesel	ND		1	mg/L	0.250	0.500	EPA 3510C EPA 8015B	06/02/05	06/02/05	rp	BF51017
Surrogate: n-Tetracosane	97.4 %			54-139			EPA 3510C EPA 8015B	06/02/05	06/02/05	rp	BF51017
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method	Prepared	Analyzed	By	Batch
Benzene	ND		1	ug/l	0.500	1.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Toluene	ND		1	ug/l	0.500	1.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Ethylbenzene	1.26		1	ug/l	0.500	1.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Xylenes, total	1.45		1	ug/l	0.500	1.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Methyl tert-butyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Tert-butyl alcohol	ND		1	ug/l	0.500	5.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Di-isopropyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Ethyl tert-butyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Tert-amyl methyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Surrogate: Dibromofluoromethane	80.3 %			80-120			EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Surrogate: Toluene-d8	106 %			80-120			EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021
Surrogate: 4-Bromofluorobenzene	104 %			80-120			EPA 5030B EPA 8260B	06/02/05	06/02/05	rp	BF51021



781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

WATER - JUN 2005

Page 2 of 4

Certificate of Analysis

Smith-Emery GeoServices
791 East Washington Blvd.
Los Angeles, CA 90021

Attn: Mr. Matt Rodda

Phone: (213) 745-5333 FAX: (213) 746-0744

File #: 73100

Reported: 06/17/05 10:32

Submitted: 06/10/05

PLS Report No.: 5060103

Project: No. 34122-1, 1440 N. Spring Street (Mobile Lab 6/10/05)

Sample ID: W54 Water (5060103.01) Sampled: 06/10/05 09:20 Received: 06/10/05 09:50											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Benzene	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Toluene	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Ethylbenzene	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Xylenes (total)	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Methyl tert-butyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Di-isopropyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Ethyl tert-butyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Tert-amyl methyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Tert-butyl alcohol	ND		1	ug/l	0.500	5.00	EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Surrogate: Dibromofluoromethane	88.1 %			80-120			EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Surrogate: Toluene-d8	106 %			80-120			EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Surrogate: 4-Bromofluorobenzene	109 %			80-120			EPA 5030B	EPA 8260B	06/10/05	06/10/05	rp BF51534
Diesel	6.34		1	mg/L	0.250	0.500	EPA 3510C	EPA 8015B	06/10/05	06/10/05	rp BF51535
Surrogate: n-Tetracosane	96.2 %			54-139			EPA 3510C	EPA 8015B	06/10/05	06/10/05	rp BF51535



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WATER - JUL 2005

Page 2 of 4

Certificate of Analysis

Smith-Emery GeoServices
791 East Washington Blvd.
Los Angeles, CA 90021

Attn: Mr. Matt Rodda

Phone: (213) 745-5333 FAX: (213) 746-0744

File #: 73100
Reported: 07/08/05 10:35
Submitted: 07/07/05
PLS Report No.: 5070035

Project: No. 34122-1, 1440 N. Spring Street

Sample ID: EX2WS-1 Water (5070035-01) Sampled: 07/07/05 09:35 Received: 07/07/05 09:35											
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Benzene	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Toluene	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Ethylbenzene	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Xylenes (total)	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Methyl tert-butyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Di-isopropyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Ethyl tert-butyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Tert-amyl methyl ether	ND		1	ug/l	0.500	1.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Tert-butyl alcohol	ND		1	ug/l	0.500	5.00	EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Surrogate: Dibromofluoromethane	110 %			80-120			EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Surrogate: Toluene-d8	94.7 %			80-120			EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Surrogate: 4-Bromofluorobenzene	104 %			80-120			EPA 5030B	EPA 8260B	07/07/05	07/07/05	ai BG50723
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Gasoline	87.3		1	ug/l	50.0	50.0	EPA 5030B	EPA 8015B	07/07/05	07/07/05	mb BG50725
Surrogate: a,a,a-Trifluorotoluene	97.3 %			42-160			EPA 5030B	EPA 8015B	07/07/05	07/07/05	mb BG50725
Analyte	Results	Flag	D.F.	Units	MDL	PQL	Prep/Test Method		Prepared	Analyzed	By Batch
Diesel	2.31		1	mg/L	0.250	0.500	EPA 3510C	EPA 8015B	07/07/05	07/07/05	lk BG50722
Surrogate: n-Tetracosane	36.9 %			54-139			EPA 3510C	EPA 8015B	07/07/05	07/07/05	lk BG50722

FILL

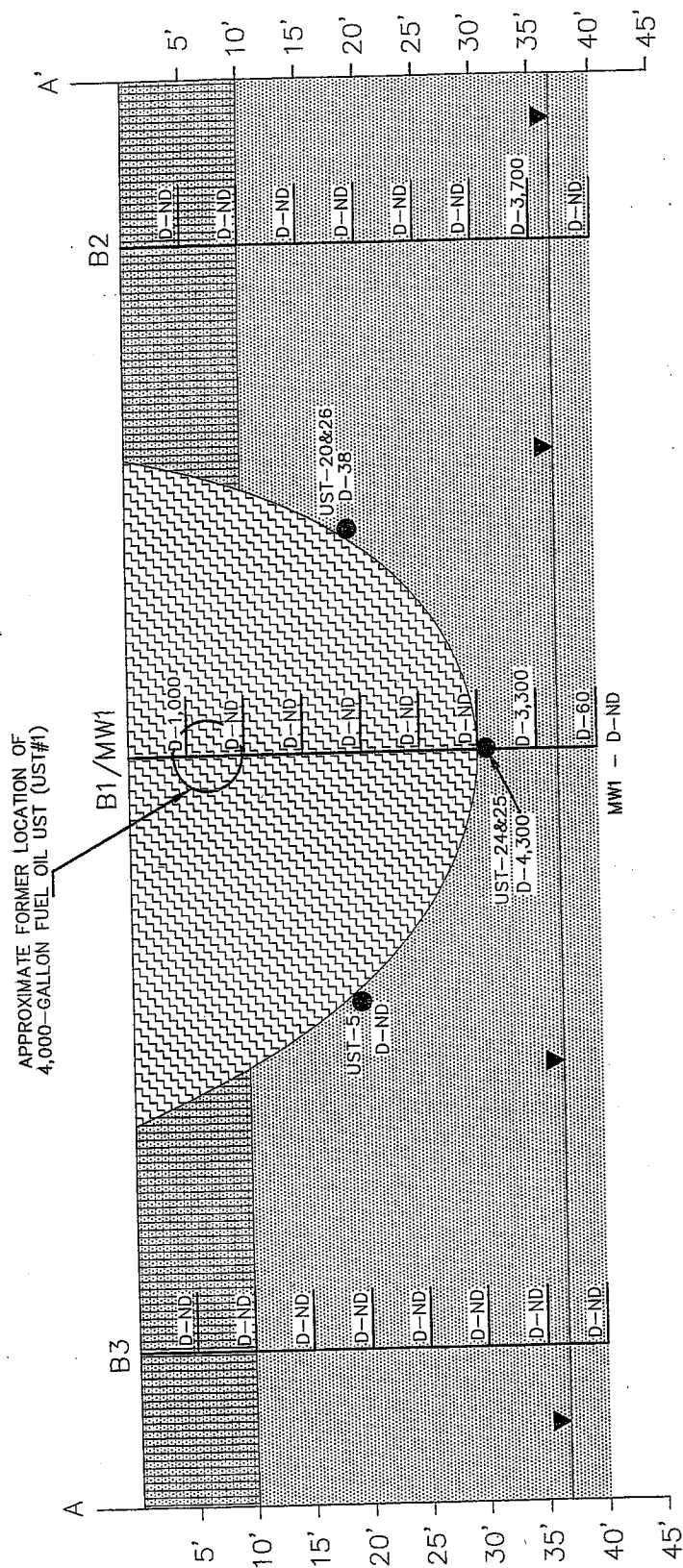
- (SP) POORLY GRADED SAND

- (SM) SILTY SAND

- DEPTH TO GROUNDWATER (MEASURED IN WELLS)

ANALYTICAL DATA:

D-DIESEL



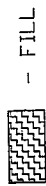
CROSS SECTION A-A'

1440 NORTH SPRING STREET
LOS ANGELES, CALIFORNIA

Smith-Emery GeoServices

FILE NO.: 34122-1
PLATE NO.: 3

LEGEND:



- FILL



- (SP) POORLY GRADED SAND



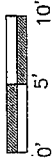
- (SM) SILTY SAND

▼ - DEPTH TO GROUNDWATER (MEASURED IN WELLS)

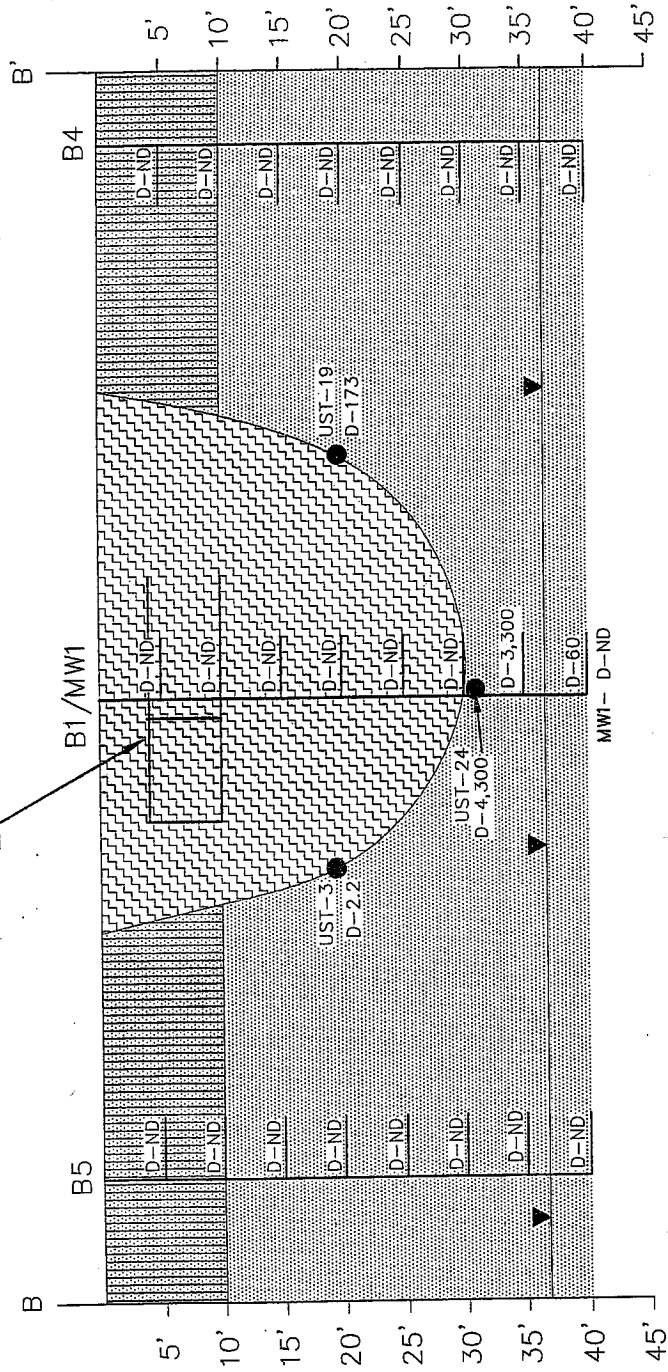
ANALYTICAL DATA:

D-DIESEL

SCALE: 1" = 10 FEET



APPROXIMATE FORMER LOCATION OF
3,000-GALLON FUEL OIL UST (UST#1)



CROSS SECTION B-B'

1440 NORTH SPRING STREET
LOS ANGELES, CALIFORNIA

Smith-Emery GeoServices

DWG BY M.R.

FILE NO.: 34122-1

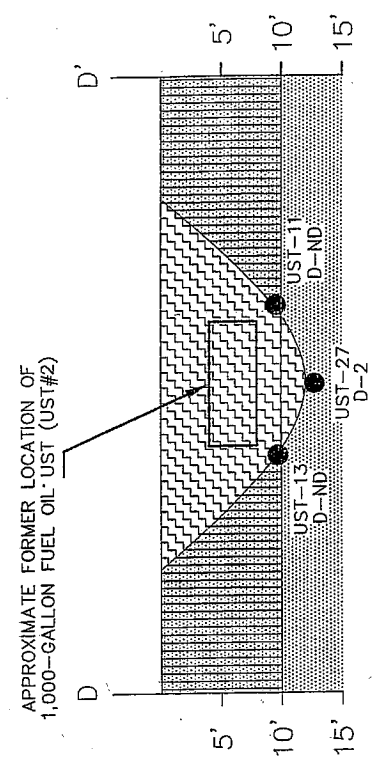
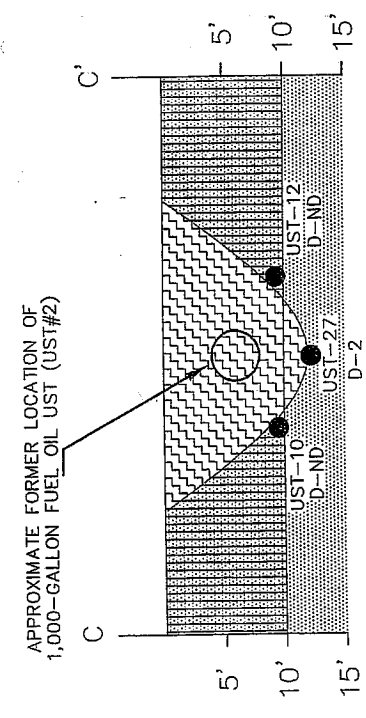
PLATE NO.: 4

LEGEND:

-  - FILL
-  - (SP) POORLY GRADED SAND
-  - (SM) SILTY SAND

ANALYTICAL DATA:
D-DIESEL

SCALE: 1" = 10 FEET
0' 5' 10'

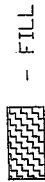


**1440 NORTH SPRING STREET
LOS ANGELES, CALIFORNIA**

CROSS SECTION C-C' AND D-D'

Smith-Emery GeoServices
FILE NO.: 34122-1
DWG BY M.R.
PLATE NO.: 5

LEGEND:



- FILL



- (SP) POORLY GRADED SAND



- (SM) SILTY SAND

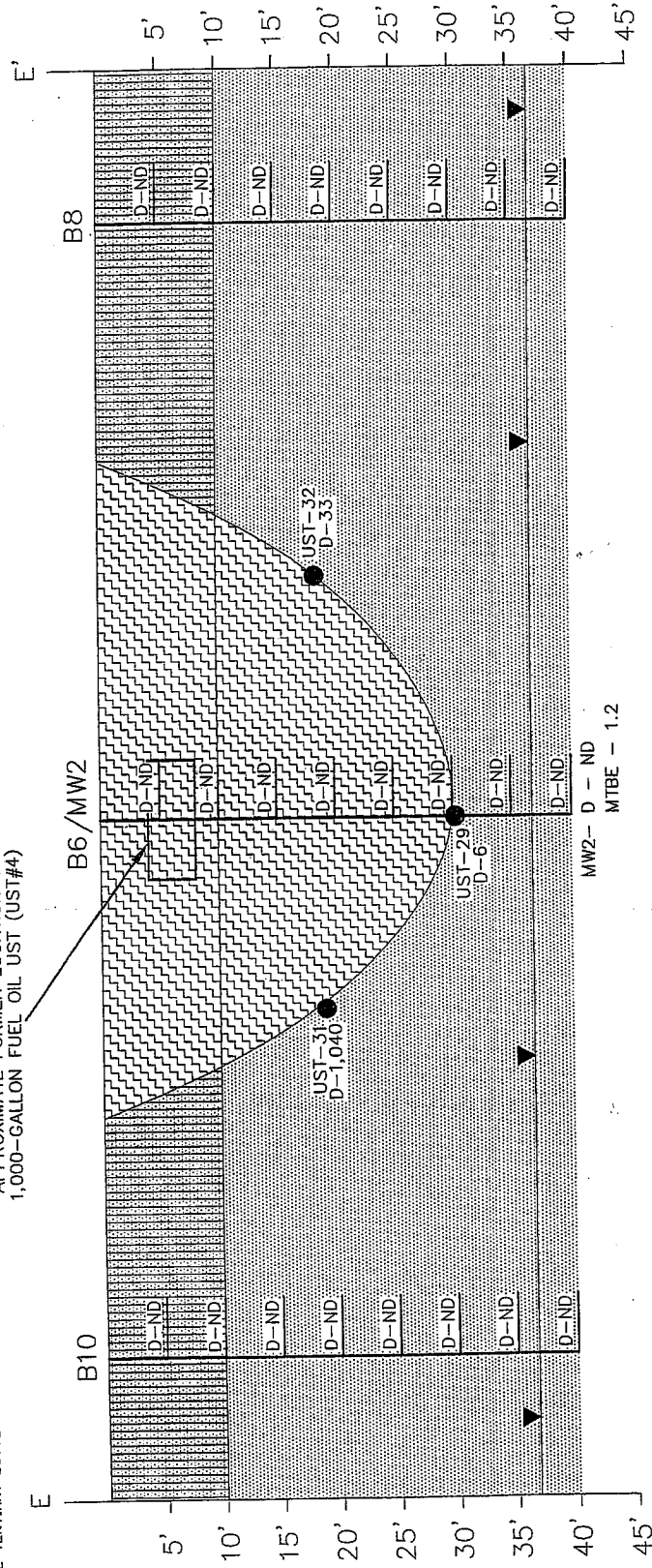
▼ - DEPTH TO GROUNDWATER (MEASURED IN WELLS)

ANALYTICAL DATA:

D-DIESEL

MTBE-METHYL TERTIARY BUTYL ETHER

APPROXIMATE FORMER LOCATION OF
1,000-GALLON FUEL OIL UST (UST#4)



**1440 NORTH SPRING STREET
LOS ANGELES, CALIFORNIA**

CROSS SECTION E-E'

Smith-Emery GeoServices

DWG BY M.R.

FILE NO.: 34122-1

PLATE NO.: 6

GEOTECHNICAL TEST DATA

DEPTH IN FEET					
0					
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
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16					
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47					
48					
49					
50					

BORING B1

SURFACE ELEVATION: Approximately 300-feet

ELEVATION DATUM: MSL

SAMPLE	SYMBOL	USCS	DESCRIPTION
			6" ASPHALT
■		SM	FILL - Brown SILTY SAND, dense, moist. No odor or staining observed.
■			
■			
■			
■			
■			
■			
■			
■			
■			
■		SP	Fine grained SAND, poorly graded, moderately dense. No odor or staining observed.
■			
■			
■			
■			

BORING TERMINATED @ 40 FEET ON 09/08/04
GROUNDWATER ENCOUNTERED AT APPROX. 37-FEET

LOG OF BORING

BORING B6

SURFACE ELEVATION: Approximately 300-feet

ELEVATION DATUM: MSL

GEOTECHNICAL TEST DATA

DEPTH IN FEET

0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50

SAMPLE

SYMBOL

USCS

DESCRIPTION

SM

FILL -- Brown SILTY SAND, dense, moist.
No odor or staining observed.

SP

Fine grained SAND, poorly graded, moderately dense.
No odor or staining observed.

BORING TERMINATED @ 40 FEET ON 09/08/04
GROUNDWATER ENCOUNTERED AT APPROX. 37-FEET

LOG OF BORING

1440 NORTH SPRING STREET

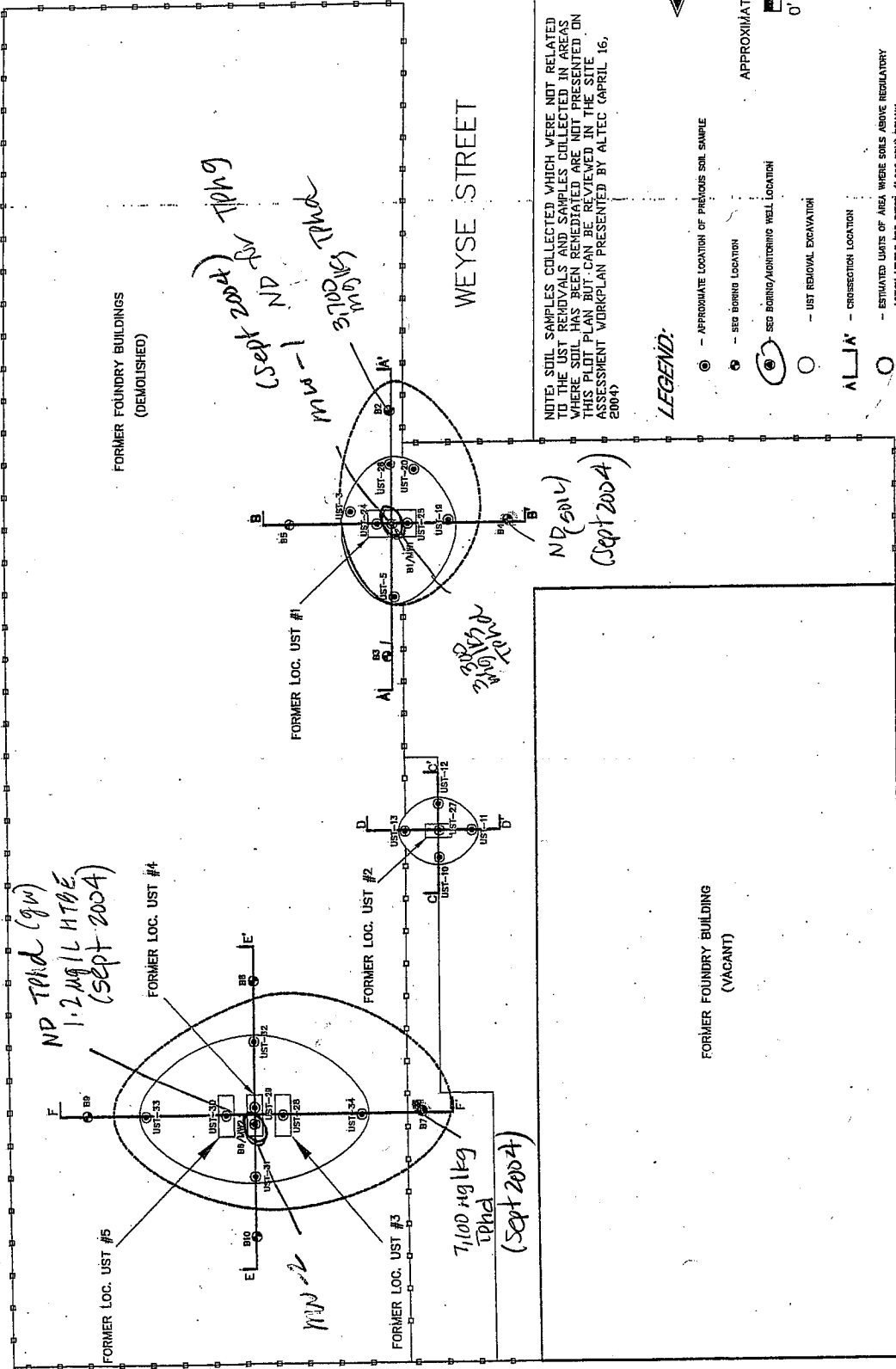
FILE NO.: 34122-1

LOGGED BY: E.T.

Smith-Emery GeoServices

PLATE NO.: 15

NAUD STREET



NOTE: SOIL SAMPLES COLLECTED WHICH WERE NOT RELATED TO THE UST REMOVALS AND SAMPLES COLLECTED IN AREAS WHERE SOIL HAS BEEN REMEDIATED ARE NOT PRESENTED ON THIS PLAT PLAN BUT CAN BE REVIEWED IN THE SITE ASSESSMENT WORKPLAN PRESENTED BY ALTEC (APRIL 16, 2004)

LEGEND:

- - APPROXIMATE LOCATION OF PREVIOUS SOIL SAMPLE
- - SOIL BORING LOCATION
- - SOIL BORING/MONITORING WELL LOCATION
- - UST REMOVAL EXCAVATION
- ALIN - CROSSSECTION LOCATION
- - ESTIMATED LIMITS OF AREA WHERE SOILS ABOVE REGULATORY ACTION LEVELS FOR DIESEL (1,000 PPB) REMAIN



NORTH SPRING STREET

1308 EL PASEO ROAD
SAN DIEGO COUNTY, CALIFORNIA

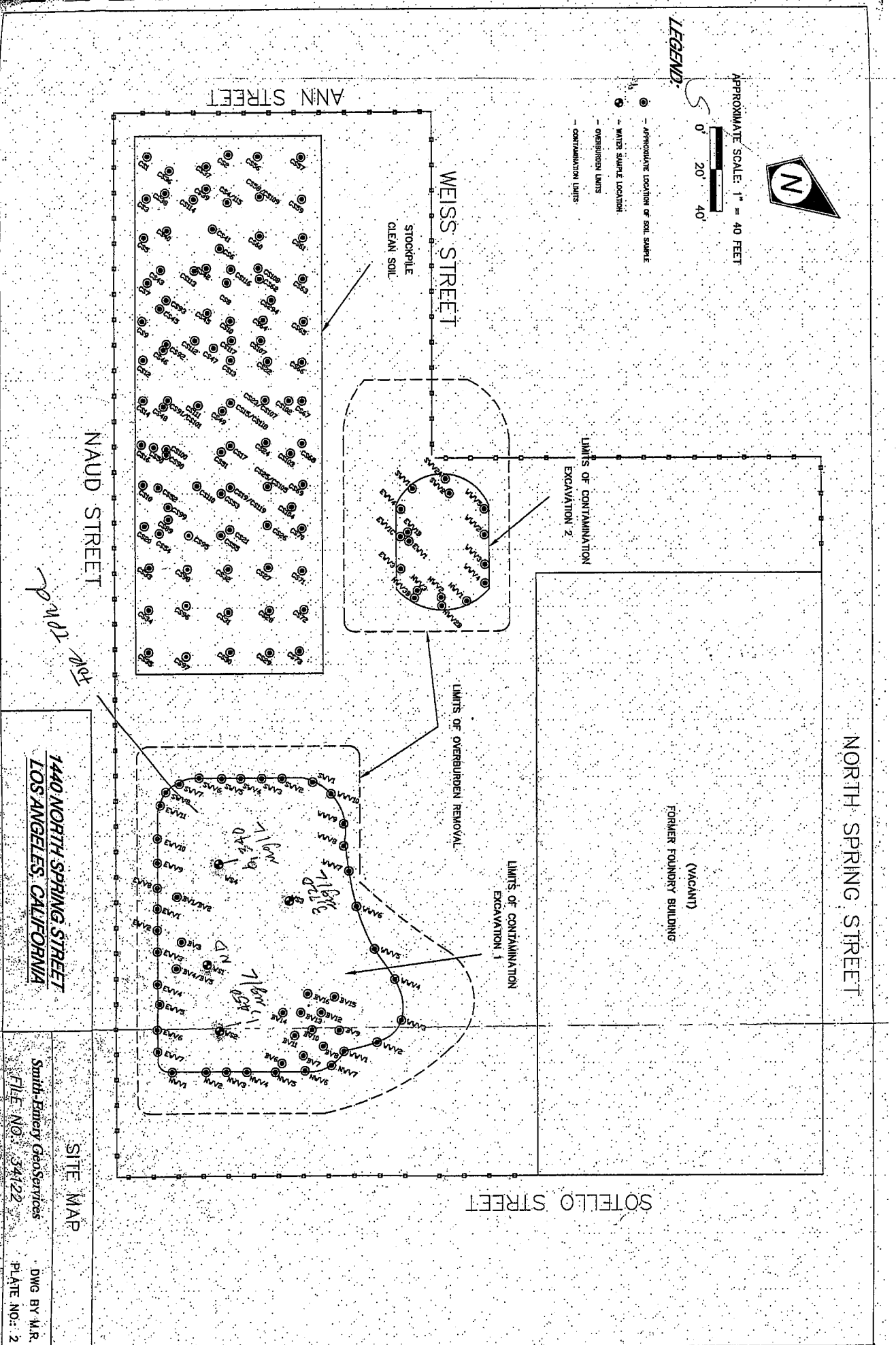
SITE MAP

Smith-Emery GeoServices
FILE NO.: 32742-1
DWG BY M.R.
PLATE NO.: 2

1440 N. Spring
Los Angeles, CA

B1-B6

MAY 2005



1440 North Spring Street
September 7, 2005

SMITH-EMERY GEOSERVICES

SEG File No.: 34122-1
SEG Report No.: G-05-7826

In only two of the final verification soil samples obtained from excavation #2, low concentrations of diesel were detected. The levels of diesel were 19.1 mg/kg and 30.6 mg/kg. The diesel concentrations are below the soil screening levels of 100 parts per million for diesel established by the RWQCB.

TABLE 9
WATER SAMPLE ANALYTICAL RESULTS
EXCAVATION 1

Sample Number	Diesel EPA 8015B (mg/kg)	BTEX EPA 8260B (ug/kg)	Fuel Oxygenates EPA 8260B (ug/kg)
WS1	3.41	B - ND T - ND E - ND X - 1.39	ND
WS2	ND	B - ND T - ND E - 1.26 X - 1.45	ND
WS3	3.72	ND	ND
WS4	6.34	ND	ND

lab
sampled
5/05

lab
sampled
6/05

ND - Analytes were non-detect above minimum detection limits.
ug/kg - micrograms per kilogram/parts per billion.
mg/kg - milligrams per kilogram or parts per million.

TABLE 10
WATER SAMPLE ANALYTICAL RESULTS
EXCAVATION 2

lab
sampled 7/05

Sample Number	Diesel EPA 8015B (mg/kg)	BTEX EPA 8260B (ug/kg)	Fuel Oxygenates EPA 8260B (ug/kg)
EX2WS-1	2.31	ND	ND

ND - Analytes were non-detect above minimum detection limits.
ug/kg - micrograms per kilogram/parts per billion.
mg/kg - milligrams per kilogram or parts per million

87.3 mg/L TPH_g

J-21 - M.O.R.E Oil Company, 645 South Avenue 21

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TOXIC SUBSTANCES CONTROL DIVISION
REPORT OF HAZARDOUS WASTE SITE CLEANUP

Name of Site Cleaned Up: M.O.R.E. Oil Company

Date Cleanup Completed: 5/29/85

Location of Site: 645 South Ave. 21, L.A. Ca

Site AKA (if any): Roland Escherich Construction (property owner)

Is this a Superfund Site? No

Brief History of the Site:

M.O.R.E Oil "Mikhile Finkel" abandoned 500 drums of hazardous waste at above location. Spillage of acid and waste oil waste onto asphalt material.

Cleanup/Remedial Action Taken:

545 drums of hazardous waste solids, 28 crushed drums, 3,150 gallons of waste oil were removed. The property was steam cleaned and tested by Crosby & Overton.

State Role in Cleanup (include number of state staff involved and activity performed in the cleanup):

SCS issued NDV's to responsible parties. The case was referred by SCS to the City Attorney for prosecution against More Oil and Carlson. SCS monitored clean up.

Cleanup Cost (estimate if actual cost not presently known): \$60,000

Name, Address, and Telephone Number and any relevant contact information of the responsible party:

1) Steve Carlson 1920 N. Main Street Los Angeles, CA	3) Mikhile Finkel "M.O.R.E. Oil" 366 N. Sierra Bonita # 201 Los Angeles (213) 931-7328
2) Escherich Construction Acet & Perrechet lawyers (213) 826-8288 c/o Nicholas Toghia	

DHS Staff Person

Involved in Cleanup: Megan Robinson
Southern California Section
Toxic Substances Control Division

Section Chief:


Signature

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J-22 - Witco Allied Kelite, 1250 N. Main Street

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APR 1994
RECEIVED
H&S
APR 19 1994

**STATE OF CALIFORNIA
ENVIRONMENTAL PROTECTION AGENCY
DEPARTMENT OF TOXIC SUBSTANCES CONTROL**

In the Matter of:	)	Docket No. HSA 94\95 - 029
	)	
Witco Corporation	)	
Allied Kelite Division	)	Preliminary Endangerment
1250 North Main Street	)	Assessment Agreement
Los Angeles, CA 90012	)	
	)	
Project Proponent:	)	Health and Safety Code
	)	Section 25201.9
Witco Corporation	)	
850 Morton Avenue	)	
Richmond, CA 94806	)	
_____	)	

I. INTRODUCTION

1.1. Parties. The California Environmental Protection Agency, Department of Toxic Substances Control (DTSC) hereby enters into this Preliminary Endangerment Assessment Agreement (Agreement) with Witco Corporation (Project Proponent).

1.2. Site. The site which is the subject of this agreement (Site) is located at and comprised of the following address: 1250 North Main Street, Los Angeles, County of Los Angeles, California 90012. The Site is also identified by the Los Angeles County Tax Assessor as Parcel 32, Map Book 5409, Page 10. A Site Location Map is attached as Exhibit A. A Site Plan is attached as Exhibit B.

1.3. Jurisdiction. Health and Safety Code (H&SC) section 25201.9 authorizes DTSC to enter into an agreement pursuant to

3.3. Payment.

3.3.1. Project Proponent agrees to pay all costs incurred by DTSC in reviewing the documents described above and providing comments thereon pursuant to this Agreement.

3.3.2. In anticipation of services to be rendered, Project Proponent will make an advance payment of \$8,175.00 to DTSC. That payment will be made no later than fifteen (15) days after this Agreement is executed. If the Project Proponent's advance payment does not cover all costs incurred prior to as well as after the effective date of this Agreement, the Project Proponent agrees to pay the additional costs upon receipt of a bill from DTSC.

3.3.3. All payments made by Project Proponent pursuant to this Agreement will be by cashier's or certified check payable to the "Department of Toxic Substances Control", and bear on its face the project code for the Site (Site # 300553) and the Docket No. of the Agreement (Docket # 94\95-029). Payments should be sent to:

Attn: Karen Poon
Accounting/Cashier
Department of Toxic Substances Control
400 P Street, 4th Floor
P.O. Box 806
Sacramento, California 95812-0806

A photocopy of any/all payment checks shall be sent to the Regional Branch Chief, at the address designated in section 3.7.1.

3.3.4. If the advance payment exceeds the total actual costs, DTSC will refund the difference within ninety (90) days after expiration of this Agreement. DTSC will provide an

5/11/95
Date

Lawrence B. Nelson DAP
Lawrence B. Nelson
Group Vice President
Corporate Technology

5/16/95
Date

Hamid Saebfar
Hamid Saebfar, Chief
Site Mitigation Operations Branch
Southern California Regions 3 & 4

Exhibits:

- A: Site Location Map
- B: Site Plan

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J-25 - Blossom Plaza, 900 N Broadway

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21 November 2013

Ms. Mia Hunt
Project Manager
Brownfields and Environmental Restoration Program
Department of Toxic Substances Control
9211 Oakdale Avenue
Chatsworth, California 91311

**Subject: Response to Comments
Human Health Risk Evaluation and Risk Management Plan
Blossom Plaza Development Project
900 North Broadway, Los Angeles, California (Site)**

Dear Ms. Hunt:

Transmitted with this letter is our response to your comments as communicated in your letter to Mr. Frank Frallicciardi, Project Manager for Forest City Blossom, dated 8 November 2013. Our response consists of several exhibits including:

- Response to comments matrix;
- Groundwater Contour Map , September 11, 2013;
- Revised Human Health Risk Evaluation Report; and,
- Revised Draft Final Risk Management Plan.

Results of the revised Human Health Risk Evaluation (HHRE) show that risk to human health from volatile organic compounds (VOCs) at the Site are less than a non-cancer hazard index of 1 and equal to or less than a cancer risk of 1×10^{-6} considering the proposed land use. Based on this finding, Forest City, and its consultants, has concluded that mitigation specific to the VOCs is not necessary, although mitigation for methane gas is required. Forest City is proceeding with incorporating a methane mitigation system, approved by the Los Angeles Department of Building Safety, into the building design. As your toxicologist Mr. CY Jeng pointed out, the methane mitigation system will also effectively serve to mitigate the potential for vapor intrusion from the other VOCs in the soil vapor beneath the Site. In addition, Forest City is evaluating the feasibility of installing passive barometric vent probes into the subsurface to help mitigate the formation of hydrogen sulfide gas, as recommended by your geologist, Ms. Alice Campbell. Forest City is considering this action even though hydrogen sulfide has not been detected to date in the soil gas beneath the Site.

Ms. Mia Hunt
California Department of Toxic Substances Control
November 13, 2013
Page 2

While the operating capacity of the ventilation system is more than 5 air exchanges per hour, the actual operation will be less than operating capacity due to the intermittent operation. To provide a more realistic estimate of the operating capacity, a factor of 1.5 air exchanges per hour was used as an assumption for estimating human health risks associated with vapor intrusion.

- 2. Page 5: Please provide supporting information on the assumption of 4-ft low-permeability engineered fill beneath the foundation in the site-specific modeling, or an alternative analysis can be performed using 1 foot of engineered fill and 3 feet of loamy sand (similar to those used in the default building modeling).**

An analysis using a 0.5 foot of engineered fill was conducted and is intended to represent site-specific conditions and the proposed development. However, the loamy sand layer was not added to this scenario. The soil vapor samples were collected in the sandy silt layer rather than the more shallow loamy sand material that will be excavated when the subterranean garage is installed. Specifically, the revised site-specific modeling scenario is 15 feet of sand, underlain by 0.5 foot of engineered fill, and 3 feet of native soil, for Stratum A, B, and C, respectively (Attachment A-1). Default OEHHA parameters for sand and engineered fill were used in the model. For the native sandy silt (Stratum C), soil classifications were matched with the corresponding soil type in the J&E model. Default total porosities based on silt loam and sandy loam and site-specific soil physical measurements (dry bulk density and moisture content) were used to estimate air and water-filled porosities (Attachment A-2). The average porosities for six samples were then used to characterize native soil. The results of the revising the analysis (for this comment and comment #3 below) indicate that the estimated total noncancer HI is 0.2 and the cancer risk is 1×10^{-6} for the future resident in the proposed multi-level building, which are at or below acceptable risk levels. The revised HHRE is attached for reference.

- 3. Page 6: HERO does not support the air flow transfer factor of 7% that was used in the site-specific modeling, as it is just an average value from a Minnesota multifamily building study (CEE 2004) and may not represent the worse-case scenario. The CEE study mentioned several factors that affect inter-floor and inter-unit air flow, including thermal stack effect, elevator shaft as a conduit, and utility layout/penetrations, which led to significant variability of air flows among different building units. For a more protective screening evaluation, HERO used a value of 26% reported for three new 3-story buildings in the Pacific Northwest from another study cited in the CEE report. This would increase the estimated risks by approximately 4 folds in the site-specific scenarios, but they are still at or below the target risk thresholds and would not alter the conclusions of the HHRE.**

An analysis using a value of 26% for inter-floor air flow was conducted in conjunction with the analysis performed in response to Comment #2 above. As previously discussed, the total noncancer HI and cancer risk are still below target risk thresholds.

Response to Comments on the AMEC, Inc. Soil Vapor Sampling Report, October 2013; Mactec, Inc., Draft Risk Management Plan, October 2013; and Vapor AMEC, Inc. Intrusion Human Health Risk Evaluation (HHRE), 11 October 2013
Proposed Blossom Plaza Residential/Mixed Use Development, 900 N Broadway St, Los Angeles, California 90012

Soil Vapor Sampling Report					
Responses to DTSC Comments, dated 31 October 2013					
Item	Section	Page	Par	Comments	Responses
Comments from Alice Campbell, PG, CEG, CHg and Craig Christmann, PG					
1	Site Background	2	3	Mat foundation, not matte foundation.	<i>Comment is acknowledged. The document was left unchanged in response to this comment.</i>
2		2		Were the water wells measured in September? What were the water levels?	Groundwater levels were measured in five existing monitoring wells on September 11, 2013, as indicated in the Soil Vapor Sampling Results report (AMEC, 2013). Groundwater levels are shown on the figure attached to this letter.
3	Tables			Review of Table 1 indicates that soil gas in the locations sampled differs from normal soil gas by having greatly reduced oxygen and greatly increased carbon dioxide, and although not shown, enriched nitrogen. This pattern is not typical of biogenic methane, but is characteristic of degraded petrogenic gas. The enrichment in nitrogen is the key: normal air is 79% nitrogen. The six samples had calculated nitrogen levels of 80% to nearly 90%. Since nitrogen is inert, this anomaly needs some explanation. The explanation lies in assuming the gas (SV8) is a mixture of about 75% atmospheric air and 25% pure methane, which has oxidized and lost its methane, but produced carbon dioxide. The carbon dioxide percentage, 9% makes up to only half of the oxygen loss; the rest is consumed by oxidizing iron in the soil. It is this inorganic oxygen loss that increases the relative proportion of nitrogen by 10 percent, accounting for the oxygen loss. Thus the soil gas results show that the site has a substantial methane source, but the gas flux is low enough that it can be broken down in the soil before it reaches hazardous levels. However, this situation depends much on factors such as the height of the water table and rainwater recharge, and is likely to vary substantially over the lifetime of the building.	DTSC GSU's comment is acknowledged. AMEC agrees that methane concentrations in soil vapor are likely to fluctuate over time and with varying subsurface conditions. Forest City Blossom has incorporated an LADBS-approved methane mitigation system into the project which will provide mitigation for the range of expected methane concentrations. The document was not revised in response to this comment.

Draft Risk Management Plan					
Responses to DTSC Comments, dated 31 October 2013					
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Item	Section	Page	Par	Comments	Responses
Comments from Alice Campbell, PG, CEG, CHg and Craig Christmann, PG					
4				Groundwater. GSU reiterates that the site is in the Los Angeles Narrows portion of the Los Angeles River watershed, and is not actually within the Coastal Plain, which begins south of Downtown near Interstate 10. Law-Crandall, later Mactec, located the fault that separates the Los Angeles Narrows from the Los Angeles Forebay in that vicinity, which is in accord with the topographic Elysian Hills (Metro Blue Line Extension into east LA). The site is located along the west edge	<i>Section 2.2 of the RMP has been revised to address DTSC's comment and to incorporate updated information regarding the hydrogeologic conditions.</i>

Response to Comments on the AMEC, Inc. Soil Vapor Sampling Report, October 2013; Mactec, Inc., Draft Risk Management Plan, October 2013; and Vapor AMEC, Inc. Intrusion Human Health Risk Evaluation (HHRE), 11 October 2013
Proposed Blossom Plaza Residential/Mixed Use Development, 900 N Broadway St, Los Angeles, California 90012

Draft Risk Management Plan

Responses to DTSC Comments, dated 31 October 2013

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				of the main channel area in a transitional area between slope alluvium and colluvium and river flood and overbank deposits. Also, the alluvium at the lower part of the site, while it contains Los Angeles River gravels, is unlikely to meet the definition of the Gaspar Aquifer (not Gaspar), which is the high-conductivity young main channel gravels of the Los Angeles River, which are located somewhat east of the site. The hydrogeologic setting is relevant, because dewatering classic Gaspar material is much more difficult than dewatering thin marginal overbank and alluvial fan deposits. The section should be revised.	
5				Groundwater flow direction. GSU previously requested a groundwater contour map be prepared using current water levels. GSU suggests using triangular linear interpolation between wells, and posting the groundwater elevations at the points used for contouring with a time-restricted dataset.	A groundwater elevation map depicting groundwater measurements collected on September 11, 2013 is attached to this letter. Groundwater elevation contours were based on an evaluation using linear triangulation, as requested by DTSC GSU.
6				Methane/Fixed gases. The Draft Methane Gas in Soils guidance by ASTM references a spreadsheet that can be used to assess the origin and composition of fixed gases and distinguish between petrogenic and biogenic origins. Using the spreadsheet, GSU has back-calculated the initial composition of one of the samples from this fall, and found that it consisted of petrogenic methane mixed with air. The lack of methane in the samples does not indicate that methane has not been present, only, as said above, that the rate of methane migration is less than the rate of its degradation in the vadose zone under current conditions.	The current investigation was performed to evaluate the potential presence or absence of methane in soil vapor at the site. The site is located within a Methane Zone as defined by the City of Los Angeles Department of Building and Safety (LADBS). LADBS has specific ordinances and requirements for construction of structures in Methane Zones and Forest City is working with LADBS to comply with those requirements. As stated above, Forest City Blossom plans incorporated an LADBS-approved methane mitigation system into the project which will provide mitigation for the range of expected methane concentrations. The RMP already documents the planned methane mitigation system and no further revisions have been made.
7	3.1.2 Foundation	15	1	Pounds per square inch is a measure of pressure or compressive strength, not density, although density in concrete is somewhat proportional to its compressive strength. Please revise.	<i>Section 3.1.2 of the RMP text has been revised to change the word from "density" to "compressive strength".</i>
8				GSU still suggests using barometric wells to inject air into the subsurface to prevent formation of hydrogen sulfide, which could happen in very wet years.	<i>We point out that from the 2 rounds of soil gas monitoring by AMEC, there has been no indication that hydrogen sulfide gas is present in the subsurface. Nonetheless, Forest City is considering installing barometric vent wells to allow air to enter the subsurface and create an aerobic condition that would limit the potential formation of hydrogen sulfide gas. If determined to be feasible, Forest City may install such wells as a voluntary measure. However, this is not a requirement of the LADBS and will not be incorporated</i>

Response to Comments on the AMEC, Inc. Soil Vapor Sampling Report, October 2013; Mactec, Inc., Draft Risk Management Plan, October 2013; and Vapor AMEC, Inc. Intrusion Human Health Risk Evaluation (HHRE), 11 October 2013
Proposed Blossom Plaza Residential/Mixed Use Development, 900 N Broadway St, Los Angeles, California 90012

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Responses to DTSC Comments, dated 31 October 2013

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Item	Section	Page	Par	Comments	Responses
					<i>in to the RMP as a required mitigation measure.</i>
9				GSU still recommends a round of groundwater sampling as previously described, to anticipate what would be found by a dewatering system.	<i>Forest City's dewatering contractor has collected a groundwater sample from well MW-5 for chemical testing and has prepared an NPDES permit application for managing the disposal of water generated from possible construction dewatering activities. As committed in our meeting of DATE, we are providing that information and the NPDES permit application package for your information as an attachment to this response.</i>
10				Note that construction dewatering will change local groundwater flow directions and may move offsite plumes to the dewatering wells. Some provision should be made for temporary treatment in the event groundwater does not meet NPDES requirements.	<i>See response to comment 9.</i>
11				Petroleum sheens: Not all sheens in groundwater are due to petroleum. Occasionally, an oily sheen is caused by anaerobic bacteria such as crenothrix or leptothrix. Because the data strongly suggests that bacteria are active in some parts of the site groundwater, and because these bacterial can leave an oily film, analytical data (TPH) should be used to verify that sheens are being caused by TPH and not by bacterial slime.	Comment noted. The RMP already documents that future decisions regarding soil handling will be based on physical properties including visual and olfactory characteristics, field instrument screening using a photoionization detector (PID), and chemical testing data; not visual observations alone.
Comments from Dr. CY Jeng, Toxicologist					
1		15		The proposed vapor barrier system without sub-slab venting does not meet all of the requirements in DTSC's Vapor Intrusion Mitigation Advisory (2011). However, the health risk estimates for the proposed buildings appear below the target risk levels even without mitigation measures (see the Vapor Intrusion HHRE below). Thus, a system is likely required only for mitigation of methane gas, which has been approved by the City of Los Angeles. Nonetheless, the methane mitigation system should provide additional protection for potential vapor intrusion from VOCs detected in soil vapor beneath the site.	Comment noted and we agree with the DTSC position. No response necessary.
2		20		The referenced Dust Control Plan and VOC Contaminated Soil Mitigation Plan should include perimeter monitoring and acceptable threshold levels for particulate matter and VOCs to ensure adequate protection of occupants in the surrounding properties during excavation and grading activities.	<i>The RMP documents that dust control and VOC mitigation will be performed in accordance with AQMD Rules 403 and 1166. Forest City and its contractors will comply with the AQMD rules, including perimeter dust monitoring for the first two weeks of excavation and rough grading. If no exceedances are observed, then perimeter dust monitoring will be discontinued. Note that the site is in a commercial district and residential receptors are not proximate to the site.</i>
3		23		For evaluating import soil quality, HERO recommends using the USEPA RSLs in conjunction with the HERO HHRA Note 3 (http://www.dtsc.ca.gov/AssessingRisk/upload/HHRA-Note-3-2.pdf). Please note	<i>The import soil criteria listed in Table 3 of the RMP has been revised to show USEPA Region 9 RSLs instead of the San Francisco Regional Water Quality Control Board ESLs.</i>

Response to Comments on the AMEC, Inc. Soil Vapor Sampling Report, October 2013; Mactec, Inc., Draft Risk Management Plan, October 2013; and Vapor AMEC, Inc. Intrusion Human Health Risk Evaluation (HHRE), 11 October 2013
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Draft Risk Management Plan Responses to DTSC Comments, dated 31 October 2013 Specific Comments					
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				that the soil import criteria listed on Table 3 are the Environmental Screening Levels published by the San Francisco Regional Water Quality Control Board, which are not endorsed by DTSC unless screening values are not available from the above sources.	

Draft Risk Management Plan Responses to DTSC Comments, dated 31 October 2013 Concluding Comments					
Item	Section	Page	Par	Comments	Responses
Comments from Alice Campbell, PG, CEG, CHg and Craig Christmann, PG					
1				GSU requests a current groundwater map, preferably made using linear triangulation, the wells and posted data shown , and date of measurement shown. Plan views of water quality data should be shown superimposed on the contours.	<i>See response to comments above and the attached map.</i>
2				GSU requests that the methane discussion be revised generally as described above to indicate the conditions that explain its composition.	<i>See response to comments above.</i>
3				GSU suggests that the remediation consider features to eliminate or reduce the formation of hydrogen sulfide, instead of only passive barriers to it.	<i>See response to comments above.</i>
4				GSU notes that observing no methane or degradation products during dry seasons does not preclude its presence during wet seasons, particularly in the presence of low soil oxygen and high carbon dioxide and nitrogen.	<i>See response to comments above.</i>

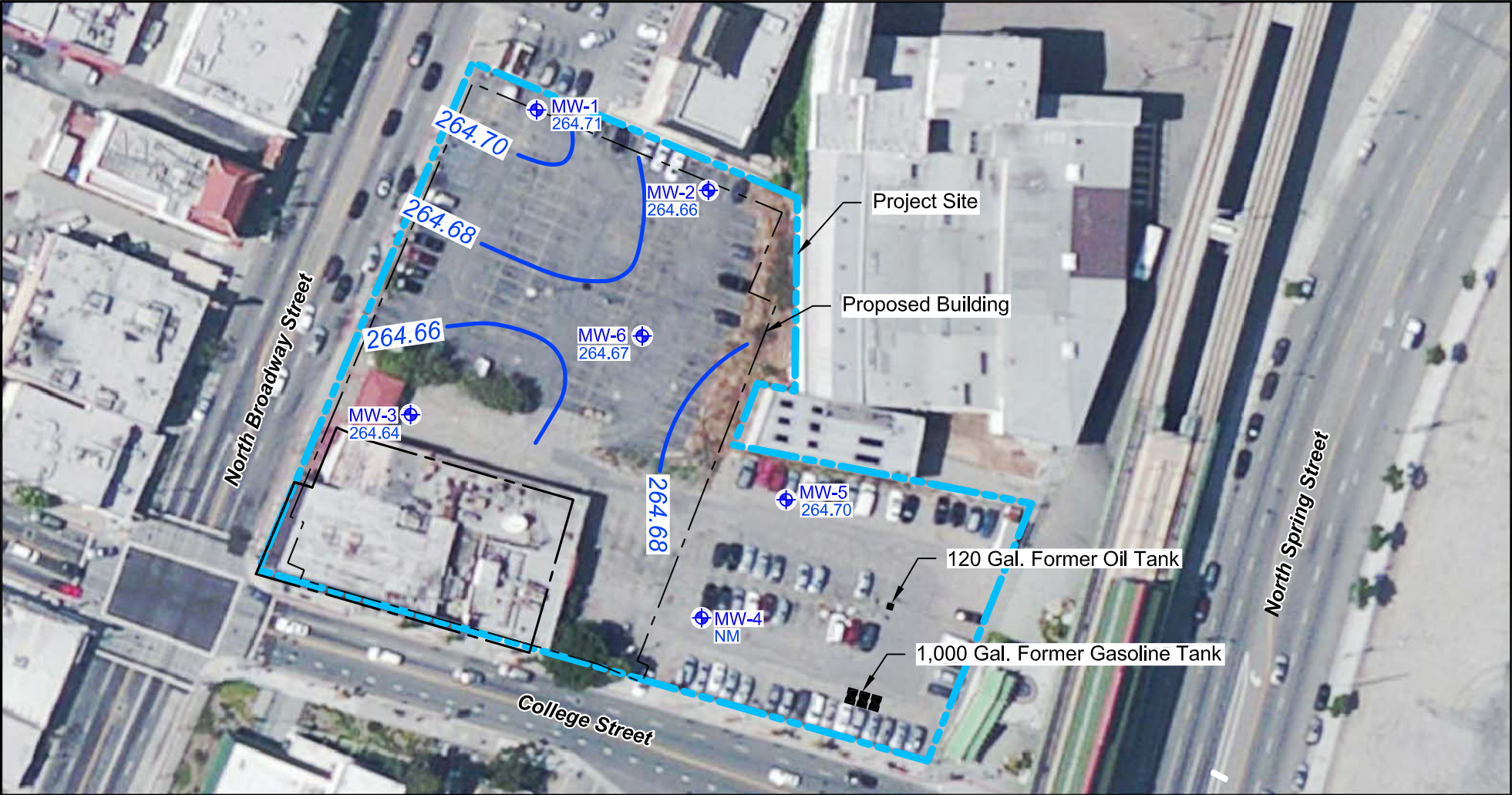
Vapor Intrusion Human Health Risk Evaluation (HHRE) Responses to DTSC Comments, dated 31 October 2013					
Item	Section	Page	Par	Comments	Responses
Comments from Dr. CY Jeng, Toxicologist					
1		2		Please elaborate on the statement "...ventilation system operation is discontinuous and actual operation will vary based on demand." Specifically, please discuss the control system that will be implemented to monitor and maintain adequate ventilation (i.e., approximately 5 air exchanges per hour) in the parking structure over time.	The ventilation system in the underground parking structure will operate intermittently based on the need to mitigate the accumulation of automobile exhaust (carbon monoxide) and methane in the parking structure. Operation of the ventilation system is interlocked with carbon monoxide and methane monitoring instruments located at various locations throughout the lowest level of parking structure. If either the carbon monoxide or methane concentrations exceed threshold levels at one of the monitoring stations, then the ventilation system is activated and will operate until the

Response to Comments on the AMEC, Inc. Soil Vapor Sampling Report, October 2013; Mactec, Inc., Draft Risk Management Plan, October 2013; and Vapor AMEC, Inc. Intrusion Human Health Risk Evaluation (HHRE), 11 October 2013
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Vapor Intrusion Human Health Risk Evaluation (HHRE)					
Responses to DTSC Comments, dated 31 October 2013					
Item	Section	Page	Par	Comments	Responses
					concentrations are reduced to the threshold levels. While the operating capacity of the ventilation system is designed to accomplish more than 5 air exchanges per hour, the actual operation will be less than the design capacity as it will only operate when triggered by the monitoring instruments. To provide a more realistic estimate of the operating capacity, a factor of 1.5 air exchanges per hour was used as an assumption for estimating human health risks associated with vapor intrusion.
2		5		Please provide supporting information on the assumption of 4-ft low-permeability engineered fill beneath the foundation in the site-specific modeling, or an alternative analysis can be performed using 1 foot of engineered fill and 3 feet of loamy sand (similar to those used in the default building modeling).	The Geotechnical engineering design report that has been approved by the LADBS specifies that a 6-inch layer of scarified and re-compacted soil be constructed beneath the foundation slab. As this will be the actual condition in which the Site will be constructed, the HHRE was revised to reflect a 6-inch layer of low permeability engineered fill beneath the foundation. The 3-1/2 feet removed from engineered fill layer was replaced with the native stratum C, the native sandy silt layer evaluated with the site-specific characteristics presented in Attachment A-2 of the revised HHRE, which has a lower permeability than the engineered fill. The soil vapor samples were collected in this layer rather than the more shallow loamy sand material that will be excavated and removed from the site when the subterranean garage is installed. The total thickness of stratum C modeled is now 6-1/2 feet instead of 3 feet. The results of the alternate analysis indicated that the estimated total non-cancer HI is 0.04 and the cancer risk is 3×10^{-7} for the future resident in the proposed multi-level building, which are below acceptable risk levels. Results of the alternate analysis have been incorporated into the revised HHRE document.
3		6		HERO does not support the air flow transfer factor of 7% that was used in the site-specific modeling, as it is just an average value from a Minnesota multifamily building study (CEE 2004) and may not represent the worse-case scenario. The CEE study mentioned several factors that affect inter-floor and inter-unit air flow, including thermal stack effect, elevator shaft as a conduit, and utility layout/penetrations, which led to significant variability of air flows among different building units. For a more protective screening evaluation, HERO used a value of 26% reported for three new 3-story buildings in the Pacific Northwest from another study cited in the CEE report. This would increase the estimated risks by approximately 4 folds in the site-specific scenarios, but they are still at or below the target risk thresholds and would not alter the conclusions of the	An alternate analysis using a value of 26% for inter-floor air flow was conducted in conjunction with the analysis performed in response to Comment #2 above. As previously discussed, the total non-cancer HI and cancer risk are still below target risk thresholds. Results of the alternate analysis have been incorporated into the revised HHRE document.

Response to Comments on the AMEC, Inc. Soil Vapor Sampling Report, October 2013; Mactec, Inc., Draft Risk Management Plan, October 2013; and Vapor AMEC, Inc. Intrusion Human Health Risk Evaluation (HHRE), 11 October 2013
Proposed Blossom Plaza Residential/Mixed Use Development, 900 N Broadway St, Los Angeles, California 90012

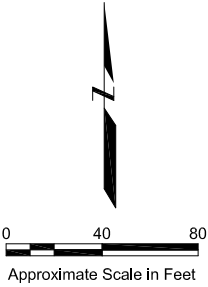
Vapor Intrusion Human Health Risk Evaluation (HHRE)					
Responses to DTSC Comments, dated 31 October 2013					
Item	Section	Page	Par	Comments	Responses
				HHRE.	
4		8		Provided that the above comments can be adequately addressed, HERO would support the key conclusion of the HHRE, i.e., the residual petroleum-related VOCs detected in soil vapor do not pose an unacceptable risk to future occupants in the proposed multi-level buildings. HERO also supports the recommendation to re-evaluate the health risks if the site would be redeveloped with slab-on-grade residential buildings as the calculated cancer risk in the default building modeling exceeds the target risk of 1E-6. Please note that the assumed thickness of soil stratus (30 feet of loamy sand and 10 feet of native soil) in the default building modeling appear arbitrary and should be modified to reflect actual soil profiles in the plan, if needed.	DTSC's comment is acknowledged. The assumed thickness of soil stratus used in the model are estimated based on cross-sections and actual soil profiles reported during previous geotechnical and environmental investigations performed at the Site. Modeling 40 feet of lithology was complex. To simplify the lithology for this hypothetical scenario within the constraints of a three-layer model, native lithology was simplified into two layers: default loamy sand and a site-specific sandy silt. As described in the HHRE report, extensive excavation will occur as part of the site development, including excavation and offsite disposal of the loamy sand material. AMEC concurs with DTSC's recommendation to re-evaluate potential vapor intrusion risks in the event that site development plans change from the conditions used in the modeling in this HHRE.



Explanation

- MW-5 264.70 — Groundwater monitoring well and groundwater elevation in feet above sea level, collected September 11, 2013
- NM — Not measured
- 264.70 — Groundwater elevation contour in feet above mean sea level

Basemap modified from ESRI World Imagery, 2013 and survey conducted February 15, 2005 by Dulin & Boynton.



GROUNDWATER CONTOUR MAP SEPTEMBER 11, 2013 Blossom Plaza Forest City Development Los Angeles, California		
By: pah	Date: 11/07/13	Project No. 4953-13-0061
amec		Figure 1

Prepared for

Forest City Blossom, LLC
875 Howard Street, Suite 330
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REVISED DRAFT RISK MANAGEMENT PLAN
PROPOSED BLOSSOM PLAZA DEVELOPMENT SITE
900 BROADWAY
LOS ANGELES, CALIFORNIA

Prepared by

Geosyntec 
consultants

engineers | scientists | innovators

1111 Broadway, 6th Floor
Oakland, California 94607

Project Number: WR1777

21 November 2013

REVISED DRAFT Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway
Los Angeles, California

Prepared by

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Randolph C. Brandt, PG
Principal

Project Number: WR1777
21 November 2013

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- Appendix B: DTSC Soil Import Advisory**

1. INTRODUCTION

This Risk Management Plan (RMP) has been prepared by Geosyntec Consultants, Inc. (Geosyntec), on behalf of Forest City Blossom LLC (Forest City) for the Blossom Plaza development, located at 900 North Broadway, Los Angeles, California (**Figure 1**), hereafter referred to as the “Site.” The Site is located in a retail/commercial area of the Chinatown District in Los Angeles. The Site consists of an approximately 83,000 square foot parcel of land that is currently occupied by a vacant single-story commercial structure, formerly used as a restaurant, and a paved surface parking lot (**Figure 2**). The structure is located on the southwest corner of the Site. The Site is bounded by North Broadway Street on the west, College Street on the south, Spring Street/Alameda Street on the east, and existing commercial structures on the north. The Metro Gold Line Chinatown Station is located along Spring Street/Alameda Street, adjacent to the eastern boundary of the Site. The Site is proposed to be redeveloped as a mixed-use project consisting of subgrade parking, commercial/retail space, and high-density residential rental units (apartments). A more detailed description of the development plan is presented in Section 1.1 of this RMP.

The Site is located within the boundary of the City of Los Angeles Methane Zone and methane gas has been detected in the subsurface soil gas at several locations across the Site. Hydrogen sulfide gas was previously identified in the air in the vicinity of two exploratory borings advanced near the southeast corner of the Site; however, previous investigations and a more recent soil gas assessment, which analyzed constituents including hydrogen sulfide, revealed no hydrogen sulfide detections in subsurface soil gas in samples collected from beneath the Site. Based on the methane gas detections, the Site will be required by the Los Angeles Building Department to incorporate methane mitigation measures into the building design. Planned methane mitigation measures are described in Section 3 of this RMP.

Previous environmental assessment/investigation activities that occurred on the Site between approximately 1999 and 2005 revealed the presence of petroleum hydrocarbons (TPH) and associated aromatic volatile organic compounds (VOCs) in soil gas, the vadose zone, and groundwater. Based on the findings of the previous environmental investigations, there is no evidence that the Site is a source or has contributed to either TPH or VOCs in groundwater.

The detections of TPH at the Site, more specifically, included refined fuel petroleum hydrocarbons, which identified in the northwest corner of the Site, and unrefined crude oil petroleum hydrocarbons, which were identified in the Southeast corner of the Site. The origin of these conditions has been identified as related to historic offsite sources. A more detailed description of Site environmental conditions is presented in Section 2 of this RMP.

As a consequence of the presence of petroleum hydrocarbons in the vadose zone and groundwater, in addition to the previously described soil gas impacts, risk management measures will be required during development construction to mitigate the potential for impacts to human health and the environment during construction and operation of the Site. Planned risk management measures to be undertaken during Site development are described in Section 4 of this RMP. The methane mitigation measures will also provide protection to future users/occupants of the development from residual volatile petroleum hydrocarbons that may remain and any hydrogen sulfide that may exist, if any, after construction has been completed.

The RMP is an essential component of the risk management and mitigation measures for the Site. It is a tool for ensuring effectiveness of the mitigation and provides a framework to manage residual constituents of concern (COCs) in soil, soil gas, and groundwater in a manner that protects construction workers and future users/occupants of the developed land. This RMP specifies pre-development, development, and post-development measures to mitigate potential risks to the environment, current and future on-site employees, future residents, construction and maintenance workers, visitors, and the public. It was prepared under the oversight of the California Department of Toxic Substance Control to provide specifications and details on how risk will be mitigated and managed during construction, operation, and maintenance phases.

1.1 Development Plan Summary

The Site is located near the foot of the Elysian Hills and has a topographic slope that trends from a high at the northwest corner to a low in the southeast corner of the Site. The highest ground surface elevation of the site is approximately 309 feet above mean sea level (MSL) and the lowest ground surface elevation is approximately 286 feet MSL.

The property is owned by the City of Los Angeles Transportation Division, which has entered into a development agreement with Forest City. Under the agreement, Forest City will execute a long-term ground lease to construct and operate the project. The proposed project is intended as a Transit-Oriented Development and includes the planned construction of a new residential/mixed use development on the Site. The development will consist of up to three levels of subgrade parking beneath the entire site and three above ground, five-story buildings (**Figure 3**). The ground floor of each building is planned for commercial and retail uses and the upper floors are planned for residential apartment uses. There will no native soil under any residential unit. In addition, at least, two levels of subgrade parking will underlie each residential unit. A public park/plaza will be constructed at the southeastern portion of the Site, adjacent to the Metro Chinatown Station (Gold Line), which will also be underlain by two levels of subgrade parking, and a promenade will run in an east-west orientation to connect North Broadway with the Plaza and Metro Chinatown Station.

The development will be constructed by excavating the entire Site to an elevation of approximately 273 feet MSL, which is roughly equivalent to a depth of 32 feet below ground surface (bgs) along North Broadway and approximately 12 feet bgs in the area adjacent to the Metro Chinatown Station. The depth may extend a little deeper in some areas to accommodate elevators or sump pits. The parking structure will be constructed below grade with the commercial and residential level starting at grade along North Broadway. The Plaza will be an elevated deck that is constructed over the parking structure on the southeastern portion of the Site (**Figure 2**).

1.2 Intended Users of the RMP

This RMP is intended for use by the following entities or their designees, who may occupy, manage, perform or oversee maintenance or construction at the Blossom Plaza development project:

- The City of Los Angeles Transportation Division (as landowner);
- The City of Los Angeles Building Department (Methane Boundary Zone);
- “Development Users” including Forest City (as master developer and ground lessee), contractors, tenants, licensees, or other entities authorized by the City to conduct operations, maintenance, construction or other activities at the Site;

- The Los Angeles Regional Water Quality Control Board (Water Board, as NPDES permitting agency); and,
- Department of Toxic Substances Control (DTSC, as environmental regulator).
- South Coast Air Quality Management District (SCAQMD, as environmental regulator).

Forest City shall provide a copy of the RMP to development users who will perform work that poses the potential for exposure to COCs on the Site. However, Forest City as ground lessee, developer, and operator retains ultimate responsibility and authority for compliance with all aspects of the RMP, as specified in the development agreement.

1.3 Regulatory Framework

The project will have three regulatory agencies involved with permitting, monitoring, and enforcing environmental regulations that are applicable to the project. Each of these is described below.

1.3.1 DTSC

The environmental risk mitigation activities documented herein are being conducted under a Voluntary Cleanup Agreement between Forest City and the DTSC. The DTSC is reviewing and providing technical guidance on environmental investigations and mitigation activities at the Site, including development of this RMP, except for implementation of local regulations as discussed below with respect to the City Building Department Methane Boundary Zone requirements. Following RMP implementation, Forest City will submit a completion report for DTSC's review and approval.

1.3.2 City of Los Angeles Department of Building and Safety (LADBS)

As stated above, the Site is located within the boundary of the City of Los Angeles Methane Zone. In 2004, the City of Los Angeles adopted an ordinance amending Section 91.106.4.1 and Division 71 of Article 1, Chapter IX of the Los Angeles Municipal Code to establish citywide methane mitigation requirements and include more current construction standards to control methane intrusion into buildings. This Ordinance sets forth the minimum requirements of the City of Los Angeles for control

of naturally-occurring methane intrusion emanating from geologic formations. The Code delegates enforcement authority to the Department of Building and Safety, Engineering, and Planning, which exercises its authority through the planning and building permit process.

1.3.3 Water Board

Because the development plan calls for the construction of subgrade parking that will require excavation to an elevation at or below current groundwater levels, construction dewatering will be required. Dewatering will be conducted in accordance with the National Pollutant Discharge Elimination System (NPDES), which is administered by the Los Angeles Regional Water Quality Control Board (Water Board) as defined in the California State Water Resource Control Board (SWRCB) General NPDES Permit No. CAG994004. In addition, management of storm water runoff will be conducted in accordance with the State General Permit, which is also administered by the Water Board as defined in the SWRCB NPDES General Permit No. CAS00002. The Water Boards authority on the project will be limited to activities associated with construction dewatering and storm water management.

1.3.4 South Coast Air Quality Management District (SCAQMD)

The SCAQMD regulates any emissions that can impact air quality, including emissions from construction-related activities. Because the soil beneath the Site contains volatile gases (see Section 2), construction excavation-related air emissions will include volatile organic compounds (VOCs) as well as fugitive dust. The SCAQMD has jurisdiction and regulates airborne particulates as defined in Rules 403 (fugitive dust) and 1166 (VOC emissions). The SCAQMD authority on the project will be limited to activities associated with dust and VOC emissions.

2. SUMMARY OF SITE CONDITIONS

The following Section presents a summary of Site conditions, including the Site history, geology/hydrogeology, environmental impacts, and potential human health risks.

2.1 Site History

The Site was developed as early as 1886 with single-family and multi-family residential dwellings and a commercial structure located in the southwest corner of the lot (Smith-Emery GeoServices, 1999; MACTEC, 2008; and AMEC, 2013a). In 1906, the commercial structure was reportedly converted into the Grand View Hotel and only one residential structure remained to the north of the hotel. The hotel was subsequently converted into an Italian grocery store and operated as such from the 1930s through the 1990s. From approximately 1930 through 1960, a gasoline service station and a greasing/tire shop also occupied the property and was located in the southeastern portion of the Site.

Historically, three 1,000-gallon underground storage tanks (USTs) containing gasoline and one 120-gallon UST containing waste oil were associated with the former service station. The USTs were reportedly removed in 1956 and the gas station is presumed to have been demolished around that same time. No analytical data or closure documentation was reportedly available from the date of closure. However, a geophysical survey was conducted in 2001 and confirmed that no USTs remained in the vicinity of the former service station. Subsurface environmental investigations conducted since 2001 have revealed no significant soil impacts associated the former USTs. Impacts to vadose zone soil, soil gas, and groundwater attributable to offsite petroleum plumes have been documented and are discussed further in Section 2.3.

2.2 Geologic and Hydrogeologic Conditions

The Site is located at the southern flank of the Elysian Hills and in the Los Angeles Narrows portion of the Los Angeles River watershed, approximately 0.5 miles to the west of the Los Angeles River. The Los Angeles Narrows is a narrow, north to northwest-trending channelized lowland bordered by the Elysian Hills to the west and the Repetto Hills to the east and adjoins with the Central Block of the Los Angeles Basin (Department of Water Resources [DWR], 1961). The Site is located along the western margin of the main Los Angeles River channel in a transitional area between

slope alluvium, colluvium, and river flood and over-bank deposits. The Los Angeles Basin and Elysian Hills are located within the northern portion of the Peninsular Ranges Geomorphic Province, which is characterized by elongated northwest trending mountain ranges separated by sediment-filled valleys. Dominant geologic features within the province include northwest to north-northwest trending folds and faults, such as the Newport-Inglewood Fault Zone located approximately 7.3 miles southwest of the Site (MACTEC, 2005c).

Previous geotechnical and environmental investigations conducted at the Site indicate that fill material is present at the surface of the Site to depths ranging from 3 to 19 feet bgs. Fill material reportedly consists primarily of silty sand, silty clay, and sandy silt. The fill is underlain by Quaternary-age alluvium and bedrock of the Miocene-age Puente Formation. Native soil underlying the fill material consists primarily of a stratified sequence of well- to poorly-graded, medium dense to dense sands, and medium stiff to very stiff silts and clays. Alluvium at the Site ranges in thickness from approximately 20 feet to greater than 65 feet. Bedrock was encountered in several borings at depths ranging from 20 and 41 feet bgs and generally consisted of interbedded sandstone and siltstone that was well-bedded to massive, and was locally well cemented (MACTEC, 2005c).

The Site is located immediately adjacent to the northernmost portion of the Los Angeles Forebay Area of the Central Groundwater Basin (AMEC, 2013a). The Site is reportedly mapped just outside and to the west of the Central Groundwater Basin, which contains the Gaspar Aquifer, the primary unconfined aquifer within the Los Angeles Forebay area. As part of an aquifer testing and dewatering investigation conducted by MACTEC (2005a), two groundwater zones were identified at the Site. A localized shallow/perched groundwater zone was reported from approximately 25 to 30 feet bgs. A deeper groundwater zone was reported from approximately 35 to 40 feet bgs. Groundwater flow beneath the Site is reported to be towards the southeast with a gradient of 0.00059 feet per foot. The flow direction observed at the Site is generally consistent with the direction of groundwater flow reported for the Gaspar Aquifer in the Site vicinity (MACTEC, 2005c, 2013).

The Site is projected to be within the southeastern portion of the Los Angeles City Oilfield. No oil wells are currently or have historically been located on the Site (MACTEC, 2005b).

2.3 Summary of Environmental Conditions

Seven subsurface environmental investigations have been conducted at the Site since 2000. Investigations conducted over this time are documented in the following reports:

- Smith-Emery GeoServices, 2000. Phase II Environmental Site Assessment, 900 North Broadway, Los Angeles, California. 13 April 2000.
- SCS Engineers, 2001. Phase II Environmental Site Assessment, 900 North Broadway, Los Angeles, California. 28 December 2001.
- MACTEC, 2004. Report of Phase II Environmental Site Assessment for Proposed Blossom Plaza Residential Mixed-Use Development, 900 North Broadway Street, Los Angeles, California. 28 April 2004.
- MACTEC, 2005a. Report for Aquifer Testing and Dewatering Consultation Services, Proposed Blossom Plaza Residential Mixed-Use Development, 900 North Broadway Street, Los Angeles, California. 6 April 2005.
- MACTEC, 2005b. Additional Methane and Hydrogen Sulfide Testing, Proposed Blossom Plaza Residential Mixed-Use Development, 900 North Broadway Street, Los Angeles, California. 11 April 2005.
- MACTEC, 2005c. Phase II Environmental Site Assessment Report, Proposed Blossom Plaza Residential Mixed-Use Development, 900 North Broadway Street, Los Angeles, California. 26 April 2005.
- AMEC, 2013b. Soil Vapor Sampling Results, Blossom Plaza Development, 900 North Broadway, Los Angeles (DRAFT). 3 October 2013.

Results of these investigations show that soil and groundwater have been impacted from offsite sources at depths greater than 30 feet bgs in two distinct areas of the Site: one area in the northwestern portion of the Site and one area in the southeastern portion of the Site (**Figure 4**). Impacts in each of these areas are attributable to separate offsite and hydraulically up gradient petroleum releases. The investigations also confirmed that the Site is located in a methane zone as defined by the City of Los Angeles' methane mitigation ordinance (Ordinance No. 175790). Soil, soil gas, groundwater, and floating

product conditions documented as a result of these investigations are summarized below.

2.3.1 Soil

Soil at the Site, primarily in the vadose zone, has been found to be impacted by total petroleum hydrocarbons (TPH) as gasoline (TPH-G), TPH as diesel (TPH-D), TPH as oil (TPH-O), and VOCs including, but not limited to, benzene, toluene, ethylbenzene, and total xylenes (collectively, known as BTEX) (**Figure 5**). Investigations conducted in the vicinity of the former gasoline service station and associated USTs in the southeastern portion of the Site revealed a single, low concentration (61 milligrams per kilogram [mg/kg]) of total recoverable petroleum hydrocarbons (TRPH). The reported concentration of TRPH was limited to one sample collected from beneath the former waste oil UST at 12 feet bgs.

Additional investigations conducted throughout the Site documented TPH and VOC impacts at depths ranging from 30 to 49 feet bgs in the southeastern and northwestern portions of the Site. Impacts generally appeared to coincide with the capillary fringe immediately above encountered groundwater. The primary constituents reported in the southeastern portion of the Site include longer-chain petroleum products such as TPH-D (260 to 715 mg/kg) and TPH-O (500 to 620 mg/kg). Due to the depth of encountered impacts and the composition of the petroleum product reported, soil impacts in the southeastern portion of the Site are not likely to have resulted from the former USTs. Instead, soil impacts in this area have been attributed to an offsite petroleum hydrocarbon plume and seasonal fluctuation in depth to groundwater, as described in greater detail in Section 2.3.3 (MACTEC, 2005c). Impacts to soil appear to be related to the presence of off-site groundwater contamination.

In contrast, the primary constituents reported in the northwestern portion of the Site include shorter-chain petroleum products, such as TPH-G (4.3 to 380 mg/kg), and VOCs, including, BTEX (benzene 0.050J to 0.42 mg/kg; toluene 1.33 to 21 mg/kg; ethylbenzene 1.08 to 9 mg/kg; and total xylenes 8.07 to 59 mg/kg). Soil impacts in this area have been attributed to an offsite gasoline plume possibly associated with two former offsite service stations located to the north-northwest of the Site at 1001 North Broadway and 900/902 North Hill Street (SCS Engineers, 2001; and MACTEC, 2005c). Additional details regarding the gasoline plume are provided in Section 2.3.3.

No fuel oxygenates have been reported at detectable concentrations in either the northwest or southeast areas and in general metals concentrations fall within background levels with the exception of isolated areas of elevated lead in the southeastern portion of the Site. No impacts to soil have been reported in the central portion of the Site.

2.3.2 Soil Gas

The Site is located within a methane zone as defined by the City of Los Angeles' methane mitigation ordinance (Ordinance No. 175790) and is projected to be within the southeastern portion of the Los Angeles City Oilfield. Soil gas investigations at the Site have reported methane concentrations ranging from 11 to 29,000 parts per million by volume (ppmv) (**Figure 6**). The second highest recorded concentration was 1,500 ppmv. In general, methane gas concentrations increase with depth with the highest concentrations generally reported between 20 and 45 feet bgs. Based on the reported 29,000 ppmv concentration, Forest City proposed compliance with Level V mitigation prior to development. Level V mitigation is the most rigorous level of mitigation as defined by the Ordinance and is reserved for properties in which the highest documented methane concentration is 12,500 ppmv or greater.

Although hydrogen sulfide gas was not reported in the soil gas samples collected at the Site, it was reported in ambient work-space air at concentrations ranging from 19 to >200 ppmv during air monitoring activities conducted in the field in 2005. The gas was reported in ambient air directly over two borings in which floating crude oil was encountered above groundwater in the southeastern corner of the property. Hydrogen sulfide gas is commonly associated with the degradation of crude oil and appears to be directly related to the floating crude oil product as described in Section 2.3.3.

VOCs including, but not limited to, ethylbenzene (150 micrograms per liter [$\mu\text{g/L}$]), toluene (1.2 $\mu\text{g/L}$), o-xylene (15 $\mu\text{g/L}$), and m,p-xylenes (590 $\mu\text{g/L}$) were reported in one soil gas sample collected in the northwestern corner of the Site (AMEC, 2013b).

2.3.3 Groundwater and Floating Product

Groundwater at the Site has been found to be impacted by TPH-G, TPH-D, TPH-O, and VOCs, including, but not limited to, BTEX. As with soil at the Site, impacts have been documented in the northwest and the southeast portions of the property (**Figure 7**). In

the northwestern portion of the Site, groundwater has been impacted primarily by TPH-G (0.87 milligrams per liter [mg/L] to 210 mg/L), BTEX (benzene 3,500 mg/L; toluene 41,900 mg/L; ethylbenzene 6.4 to 5,700 mg/L; and total xylenes 30 to 24,300 mg/L), and lesser amounts of TPH-D (0.2 to 2 mg/L). Groundwater impacts in this area are located hydraulically up gradient of the former onsite USTs and appear to be attributable to the two former offsite service stations located to the north-northwest of the Site as described in Section 2.3.1.

In the southeastern corner of the Site, groundwater is impacted by TPH-D (0.1 to 1.6 mg/L). Floating (non-aqueous phase) petroleum hydrocarbon product has also been documented above groundwater in this portion of the Site. Floating product has been documented at a thickness of 0.25 inches in at least one boring advanced in this area. Chemical analysis of the floating petroleum product indicates that the product is consistent with severely weathered California crude oil and is generally consistent with crude derived from the Los Angeles City Oilfield. It should be noted, however, that the crude oil has been described as “severely weathered” indicating that the crude beneath the Site may not be naturally occurring (i.e., “fresh” crude).

A previous investigation performed by MACTEC (formerly Law/Crandall) in March 2000 for the construction of the Metro Pasadena Gold Line Chinatown Station also found floating product in borings located adjacent to the Site. The floating product within borings advanced as part of this offsite investigation had a reported thickness ranging from a sheen to 16 inches. The presence of product in the offsite borings correlates with the presence of crude oil beneath the Site and indicates a regional hydrocarbon product plume, greater than 0.3 mile in length, has impacted the Site. The source of the product plume appears to be located offsite and hydraulically up gradient of the southeastern portion of the Site.

2.4 Summary of Potential Human Health Risks

The presence of petroleum-based volatile organic compounds (VOCs) beneath the northwest corner of the site potentially represents a complete exposure pathway assuming no engineering controls (i.e., a synthetic methane membrane and the thirty-six-inch thick concrete mat foundation – Section 3.1.2) to future occupants due to the volatilization of these compounds from the subsurface and subsequent migration into indoor air of enclosed structures. As described in Section 1.1, the proposed designs for the property include plans to construct a one to three-level subgrade parking garage.

Because building codes require highly ventilated systems to mitigate carbon monoxide associated with vehicle exhaust, the ventilation systems for the parking garage will be higher than those for occupied spaces at ground levels, which should adequately control and limit potential exposures from subsurface vapor intrusion.

AMEC evaluated the theoretical health risks from vapor intrusion to future residents and commercial workers based on the results of the most recent soil vapor investigation (AMEC, 2013b and 2013c). AMEC considered two scenarios: 1) a baseline evaluation assuming a hypothetical slab-on-grade residential and commercial building; and 2) a site-specific evaluation incorporating the proposed development for a multi-level subgrade parking garage below occupied structures.

AMEC estimated the volatilization from the subsurface to indoor air using the Johnson & Ettinger (J&E) vapor transport model and maximum concentrations of petroleum-based VOCs in soil vapor. For the baseline evaluation, AMEC assumed that a hypothetical slab-on-grade residential and commercial building overlies the vapor source. Except for site-specific soil properties, default values were used in the J&E model. For the site-specific evaluation, AMEC first estimated attenuation factors and interior garage concentrations, and then integrated a transfer factor to estimate the concentrations within the occupied spaces and associated health risks. A transfer factor of 7 percent was used by AMEC and is based on tracer gas studies to measure air flow distribution between living units in both horizontal and vertical directions of multifamily buildings (AMEC, 2013c).

For the baseline evaluation, the total noncancer hazard indices for a resident and commercial worker are below the regulatory threshold of 1.0. The theoretical excess lifetime cancer risks for a resident and commercial worker are 6×10^{-6} and 6×10^{-7} , respectively, which are within and below the regulatory risk management range of 1×10^{-6} to 1×10^{-4} . AMEC indicated that these risk estimates are likely overestimates because the analysis assumes that the source of contamination is infinite (i.e., not depleting) and no biodegradation. Field studies have indicated that biodegradation of petroleum hydrocarbons can be significant because it is generally recognized that these constituents will rapidly biodegrade in the presence of oxygen (i.e., when conditions are aerobic), resulting in reduced concentrations by several orders of magnitude and limiting the potential for vapor intrusion.

For the site-specific evaluation, the total noncancer hazard indices for a resident and commercial worker are below the regulatory threshold of 1.0. The theoretical excess lifetime cancer risk for a resident and commercial worker are 3×10^{-7} and 6×10^{-8} , respectively and are below the *de minimis* risk level of 1×10^{-6} . These estimates also are likely overestimates because they do not take into consideration the synthetic methane membrane barrier that will extend beneath the foundation and up the sidewalls to existing ground surface.

AMEC concluded that petroleum-based VOCs detected in soil vapor beneath the northwest corner of the site do not pose an unacceptable vapor intrusion health risk relative to future occupants overlying a multi-level subgrade parking garage. Further, although residential slab-on-grade structures are not currently planned, AMEC indicated that the health risks should be re-evaluated if the Site is redeveloped into such uses.

3. RISK MANAGEMENT PLAN

This RMP defines and governs two types of activities that will occur at the Site: mitigation activities required to mitigate hazardous impacts from the potential presence of COCs in the soil, soil gas, and/or groundwater; and, construction operations that will be required to minimize exposure of construction workers from COCs in the soil, soil gas, and/or groundwater that may be encountered during the course of Site development. This RMP also documents the applicable environmental permits that will be required during construction and the general process that will be implemented to comply with permit conditions.

This RMP was prepared solely for use within the Site and is not intended to be applied for the management of risks within any other area or project. Although this RMP sets forth the requirements to appropriately manage the potential risks in soil and groundwater prior to, during, and following construction completion, the RMP is not intended to catalog all other legal requirements that may apply to the property or to activities conducted under the RMP such as, worker health and safety as governed by the Occupational Safety and Health Administration (OSHA), Building Code, City Building or Encroachment Permit conditions, or other applicable laws, regulations or governmental agency requirements.

3.1 Site Mitigation

As documented in Section 2.4, potential risks to human health and/or the environment have been identified at the Site and are necessary for development of the Site, as planned. The primary risk driver is the potential presence of naturally-occurring methane associated with the Los Angeles Oil Field. The City of Los Angeles Building Department is responsible for managing risks to public health and the environment from naturally-occurring methane gas. As documented in Section 2.3.2, the site has been designated as a Level V Methane Zone Site and under such designation requires the engineering controls be incorporated into the building design to mitigate the potential for methane gas to accumulate in building air spaces at concentrations that could pose an explosion hazard.

In addition to methane, ethylbenzene, an aromatic VOC associated with gasoline range petroleum hydrocarbons, is present beneath the northwest corner of the property at concentrations that could pose a potential health threat under certain conditions. To

preclude the occurrence of such conditions, the DTSC has recommended that engineering controls be incorporated into the building design to mitigate the potential for ethylbenzene to accumulate in building air spaces at concentrations that could pose a potential health hazard. The mitigation measures proposed for methane gas are similar and, in fact, provide an adequate level of protection that would be necessary for Site user protection from exposure to ethylbenzene, if any. A summary of proposed mitigation measures is presented in the following Sections.

3.1.1 Soil Excavation

As summarized in Section 1.1, the planned development calls for excavation of up to three levels of subterranean parking beneath the entire Site. This will involve excavation of soil to an elevation of approximately ± 273 feet MSL. While not a specific mitigation measure for the Site, the excavation activity will remove a substantial quantity of petroleum-contaminated soil, including constituents of concern in the soil, and soil gas to that elevation beneath the entire Site. This will result in a reduced mass of constituents of concern that could pose a threat to human health and the environment in the future.

3.1.2 Foundation/Vapor Barrier System

Forest City has submitted a Request for Modification of Building Ordinances and has received approval to substitute a hydrostatically designed subterranean garage with a thirty-six-inch thick reinforced concrete mat foundation, constructed with concrete that is designed with a compressive strength of 4000 pounds per square inch, in lieu of a sub-slab methane venting system. This mitigation measure is particularly appropriate given the proximity of the foundation to groundwater. The foundation and sidewalls will be wrapped with a LADBS-approved synthetic methane/waterproofing membrane that will extend beneath the foundation and up the sidewalls to existing ground surface. As required in the LADBS Methane Ordinance (Los Angeles City Ordinance No. 175790), a permanent notification placard shall be posted and maintained at the front entrance of a building that is constructed with a methane/waterproofing membrane. The placard shall indicate the presence of the Impervious Membrane.

3.1.3 Methane Gas Monitoring/Ventilation System

As required by LADBS for buildings designated as Site Design Level V, the lowest level of the parking garage will be equipped with a methane gas detection system that is connected to the garage mechanical ventilation system. All gas detection and mechanical ventilation systems shall be maintained and serviced in proper working condition and meet all requirements of the Electrical and Mechanical Code. The testing, maintenance and service procedure for each gas detection and mechanical ventilation system shall be performed in accordance with the manufacturer's current written instructions. As required in the LADBS Methane Ordinance, The manufacturer's instructions shall be approved by the Fire Department. Testing and servicing of each system shall be performed by a person certified by the Fire Department.

3.2 Regulatory Oversight and Permitting

The DTSC is providing environmental consultative services, reviewing and concurring, as appropriate, with the RMP. The City of Los Angeles has jurisdiction over implementation of local regulations, including the Methane Ordinance, and will, therefore, approve this RMP. This RMP specifies site mitigation measures that will be implemented at the Site. Implementation of the RMP will mitigate potential risks to human health and the environment due to the presence of know or unknown subsurface structures or COCs in soil, soil gas, or groundwater.

The regulatory agency roles include, but are not limited to:

- Review and concurrence of notification packages and completion reports for any mitigation activities as described in Section 3.1 (DTSC).
- Review and approval of modifications to the RMP (DTSC in consultation with the City of Los Angeles).
- Inspection to verify compliance with the RMP procedures and protocols (DTSC, City of Los Angeles, Water Board, and SCAQMD).
- Review and approval of dust control, VOC emissions, and air monitoring plans (if required) in accordance with Rules 403 and 1166 (SCAQMD).

- Review and approval of activities involving unknown environmental conditions which are encountered during the course of excavation (DTSC, in consultation with the City of Los Angeles).
- Review and concurrence with vapor mitigation system design plans (DTSC in consultation with the City of Los Angeles).

As the property owner and issuer and approver of building and encroachment permits, the City will be copied on all notification packages issued to the DTSC, Water Board, and SCAQMD. A summary of the RMP notification and regulatory oversight process is presented in **Table 1**. Contact information for the regulatory agencies is presented in **Table 2**.

3.3 Modifications to the RMP

Modifications to the RMP may become necessary to address unanticipated events, such as newly-identified COCs for which human health risk levels have not been assessed, in the event of a failure of a mitigation component, or a change in regulatory requirements. Additionally, based on the progress of development, modification or termination of specific conditions or controls stated in this RMP may be warranted. The City of Los Angeles, DTSC, or other regulatory agency may also propose modifications to the RMP based on new information that the RMP must address for the mitigation to remain protective of human health and the environment. The City of Los Angeles as the landowner and the DTSC as concurring environmental agency will review any proposed revision to the RMP, request any additional background information needed, and provide direction regarding the proposal within approximately 60 (calendar) days of receiving the proposal and any additional requested information. Both the City of Los Angeles and DTSC will agree to any proposed modification to the RMP before it is approved.

Alternatively, DTSC may concur with individual variances on a project specific basis (termed "RMP Variance"). RMP Variances would be granted on a single time basis and affect only the area or activity covered by the request for variance.

Once approved, an Amended RMP would be distributed to all then current Site owners and lessees and filed in the DTSC public information repository. Changes in notification personnel (**Table 2**) are not considered a modification to the RMP and do

not require regulatory agency approval, but will be documented in the public information repository.

3.4 Public Information Repository

Key technical documents will be archived and made publically available on DTSC's electronic website, Envirostor. Electronic versions of the documents may be downloaded from the Envirostor website at:

http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=60001902.

Additionally, the City of Los Angeles will maintain information regarding the project for the convenience of interested people where Site documents will be available for public review. The City information repository will likely be located at the nearest libraries to the project Site at 639 N. Hill Street or 630 W. Fifth Street, Los Angeles, California. Information repositories will contain technical reports, agency correspondence, and other information as appropriate, and will be updated as documents are issued.

4. RMP IMPLEMENTATION

4.1 Construction Worker Health and Safety Plan

Construction and maintenance contractors, whose workers may contact petroleum-contaminated soil, soil vapor, or groundwater within the development area during excavation activities are required to prepare project-specific Environmental Health and Safety Plan (EHSP) under the direction of a licensed Certified Industrial Hygienist (CIH) and in a manner consistent with applicable occupational health and safety standards, including, but not limited to OSHA 1910.120. The EHSP will be maintained by the contractor at the Site.

It is the responsibility of the contractor preparing their EHSP to review information available in the Construction office regarding Site conditions and potential health and safety concerns. It is also the responsibility of the contractor or other person preparing an EHSP to verify that the components of the EHSP are consistent with applicable OSHA occupational health and safety standards and currently available toxicological information for potential COCs at the work site. Contractor compliance with the RMP obligations will be specified in the project proponent's contract documentation for the contractors performing subsurface work. Each contractor must require its employees who may directly contact petroleum-contaminated soil or groundwater to perform all activities in accordance with the contractor's EHSP. Each construction contractor will assure that its onsite construction workers will have the appropriate level of health and safety training, Site-specific training, and will use the appropriate level of personal protective equipment as determined in the relevant EHSP based upon the evaluated job hazards and monitoring results. An example EHSP outline is included in Appendix A.

4.2 Construction Site Access and Control

Access to the Site during construction and maintenance activities will be limited to authorized personnel in compliance with EHSP requirements (Section 4.1). The potential for trespassers or visitors to gain access to construction areas and come into direct contact with petroleum-contaminated soil will be controlled through the implementation of the following access and perimeter security measures:

- Security fencing will be placed around any portion of the Site that is under construction or where petroleum-contaminated soil is exposed to prevent pedestrian/vehicular entry except at controlled (gated) points.
- Gates will be closed and locked during non-construction hours. Fencing will consist of a 6-foot chain link or equivalent fence unless particular safety considerations warrant the use of a higher fence.
- Post “No Trespassing” signs every 200 feet.
- Post proposition 65 signs warning that contamination within the fenced areas may be harmful to health.

Implementation of appropriate Site-specific measures as outlined above will reduce the potential for trespassers or visitors to gain access to construction areas and to come into direct contact with petroleum-contaminated soil or groundwater. Compliance with the specific access control measures is the responsibility of the City as owner and Forest City as lessee/developer.

4.3 Air Emissions Control

Air emissions associated with the Site excavation activities and management of petroleum-contaminated soil will include dust emissions and VOC emissions, as regulated by the SCAQMD. We note that other construction related air emissions may be regulated by the SCAQMD that are outside the scope of this RMP. It will be the responsibility of the General Contractor to identify and comply with all such other SCAQMD regulations. Details regarding dust and VOC emissions are described in the following subsections.

4.3.1 Dust Emissions

Dust emissions are regulated under SCAQMD Rule 403 (SCAQMD, 2005). The purpose of this Rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. The general contractor and excavation contractor will develop a Dust Control Plan which complies with Rule 403 and the guidance provided in the Rule 403 Implementation Handbook (SCAQMD, 2004).

A DCP identifies the measures that will be taken to reduce particulate emissions during demolition of existing structures, grading, soil handling and stockpiling, vehicle loading, utility work, truck traffic and construction of site infrastructure. The DCP incorporates existing state and local regulations applicable to maintenance, construction and redevelopment activities. It will be the responsibility of the General Contractor to develop and implement a DCP that has been approved by the SCAQMD.

Forest City and its contractors will comply with the AQMD rules, including perimeter dust monitoring for the first two weeks of excavation and rough grading. If no exceedances are observed, then perimeter dust monitoring will be discontinued. Note that the Site is in a commercial district and residential receptors are not proximate to the Site.

4.3.2 VOC Emissions

VOC emissions are regulated under SCAQMD Rule 1166 (SCAQMD, 2001). This rule sets requirements to control the emission of VOC from excavating, grading, handling and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition. The Rule defines VOC-contaminated soil as a soil which registers a concentration of 50 ppm or greater of total VOCs as measured before suppression materials have been applied and at a distance of no more than three inches from the surface of the excavated soil with an organic vapor analyzer calibrated with hexane.

The general contractor and excavation contractor will develop a Site-specific VOC Contaminated Soil Mitigation Plan which complies with Rule 1166. The VOC Contaminated Soil Mitigation Plan is a plan to minimize VOC emissions to the atmosphere during excavation and any subsequent handling of VOC-contaminated soil. It will be the responsibility of the General Contractor to develop and implement a VOC Contaminated Soil Mitigation Plan that has been approved by the SCAQMD.

4.4 Soil Management

4.4.1 Field Screening

As described in Section 2, above, the potential exists for encountering soil potentially contaminated with petroleum hydrocarbons and potentially other hazardous substances. **Figure 4** depicts the areas of known petroleum hydrocarbon impacts. As a result of this

condition, it will be important to segregate and manage contaminated soil separately from clean soil during excavation, transport, and offsite disposal activities.

To facilitate such segregation, the excavation contractor will work with a qualified environmental geologist or engineer, experienced in the identification and screening of potentially contaminated soil, to assist in drawing the distinction between clean and contaminated soil. Field screening will be conducted using multiple tools consisting of observing visual and olfactory characteristics and monitoring organic vapor emissions using field organic vapor monitoring instruments such as a photoionization detector (PID), organic vapor monitor (OVM), organic vapor analyzer (OVA), methane gas monitor, and hydrogen sulfide gas monitor.

Throughout the course of excavation, the environmental professional will observe the material being excavated and provide guidance on the material classification based on initial visual and olfactory characteristics. Visual evidence of contaminated soil will include soil coloration that is distinctly different than the native soil (discoloration), evidence of an oily or waxy sheen, presence of liquid or free-phase solution that is not groundwater, or other atypical non-native characteristic. Olfactory evidence of contaminated soil will include chemical odors, rotten egg odors, and/or petroleum odors (gasoline, diesel fuel, or crude oil type odors). Soil that shows visual and/or olfactory characteristics of contamination will be screened with a PID or similar organic vapor monitoring instrument. Soil that has been determined to be potentially contaminated on the basis of visual, olfactory, and organic vapor readings will be segregated and managed in accordance with the protocol described in Sections 4.3.2 and 4.3.3.

4.4.2 Stockpile Management

Stockpiling of excavated and/or imported soils may be necessary on a temporary basis to support the logistical phasing of the redevelopment activities. Whenever possible, soil stockpiles will be located in close proximity to the work area or the ultimate disposition area as practicable within the Site. Soil that has been determined to be potentially contaminated, on the basis of field screening, will be stockpiled separately from clean soil.

Stockpiles will be managed in compliance with storm water runoff and dust control requirements. Storm water runoff requirements will be specified in a project-specific Storm Water Pollution Prevention Plan (SWPPP; see Section 4.5) and the Dust Control

Plan (DCP; see Section 4.4). In general, stockpiles must be covered with a tarp, wetted, sloped, or controlled via appropriate means and methods as specified in the SWPPP and DCP. Best management practices (BMPs) for erosion and sediment control will be implemented, as specified in the SWPPP, during construction activities. BMPs may include diversion of drainage from the stockpiles, installation of silt fencing/straw bale filter barriers on the down gradient toe of the stockpile slope, and dust control. Stockpiles will be under control of the General Contractor at all times and inspected at least weekly to ensure dust control and runoff control measures are functioning adequately and as specified in the appropriate plans.

4.4.3 Waste Profiling, Transportation, and Disposal

Contractors generating surplus soil, which is petroleum-contaminated and cannot be reused onsite and is to be removed for offsite disposal, are responsible for all testing, waste classification, selection of appropriate disposal site, transportation, and all documentation related to offsite disposal of soil, debris, or other waste, resulting from the project proponent's activities. Although Site investigation data indicate that soil within the development area would generally not be classified as hazardous waste, soil removed from the Site must be characterized and managed in accordance with Title 22 of the California Code of Regulations, Division 4.5, Chapter 11, if applicable, as well as the requirements of the disposal facility, and any other applicable law. To the extent applicable, labeling requirements for transportation of waste shall additionally be in accordance with Title 29 of the Code of Federal Regulations, Parts 172 and 173.

All soil to be disposed will be taken only to a certified and permitted California landfill or an equivalent out-of-state landfill, as appropriate and as determined by the waste profile.

4.4.4 Soil Import Criteria

All soil imported onto the Site will be subject to sampling and soil quality controls established in the DTSC's October 2001 Clean Imported Fill Material Information Advisory or other appropriate regulatory guidance as approved by the DTSC. A copy of the Advisory is included in Appendix B. When the chemical properties of imported fill are known (e.g., engineered fill), sampling may not be required. Soil quality parameters for acceptable imported soil are provided in **Table 3** and are based on the most applicable of the U.S. EPA Regional Screening Levels (RSLs) for residential land use

or background concentrations for metals in soil. Import soil with visual or olfactory evidence of petroleum hydrocarbons or other chemical contamination is prohibited.

4.5 Construction Storm Water Management

A Construction Storm Water Pollution Prevention Plan (Construction SWPPP) will be required prior to the start of construction projects that disturb one acre or more of soil. The Construction SWPPP will describe the storm water pollution prevention measures that contractors will implement during construction. The Construction SWPPP must conform to the requirements of the California State Water Resource Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS00002, Waste Discharge Requirements (WDRs) for Discharges of Storm water Runoff Associated with Construction and Land Disturbance Activities. Compliance with the SWPPP will be maintained throughout the duration of the construction work. The SWPPP will be prepared by a Qualified SWPPP Developer (QSD) per Section VII of the 2009-0009-DWQ Permit, available at the following website:

http://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/stormwater/construction.shtml

Because the permittee must own the title to the land, the City of Los Angeles will apply for coverage under the state-wide general permit and be the permittee. The General Contractor shall retain a Qualified SWPPP Developer (QSD) who will work with the City of Los Angeles to file the required project record documents, including a Notice of Intent (NOI) with the SWRCB prior to commencement of regulated construction work. All decisions pertaining to this permit shall be made by the QSD with oversight by the City staff responsible for the Municipal Separate Sanitary Sewer System (MS4) Permit. The General Contractor and its sub-contractors shall abide by the Construction Permit in full.

4.6 Groundwater Management

As documented in Section 2, groundwater beneath the Site has been documented to be contaminated with petroleum hydrocarbons and metals at levels that could pose a potential risk to construction workers and the environment, if not properly managed and

controlled. This Section addresses construction activities that have the possibility of contacting potentially contaminated groundwater.

4.6.1 Groundwater Monitoring Well Abandonment

Currently, five groundwater monitoring wells exist on the Site that will require proper abandonment prior to excavation activities. Prior to the abandonment of groundwater monitoring wells, Forest City or its General Contractor will notify the County of Los Angeles Environmental Health Department and apply for a groundwater monitoring well abandonment permit. Forest City or its General Contractor is responsible for obtaining all appropriate permits and approvals for well abandonment. Wells will be abandoned in accordance with the county of Los Angeles and state of California well abandonment requirements. Details regarding the County well permit and abandonment requirements can be found at the following website:

<http://publichealth.lacounty.gov/eh/AreasofInterest/waterwell.htm>

Following abandonment of groundwater monitoring wells, a completion report will be prepared by a California licensed Professional Engineer or Geologist describing the abandonment procedures and submitted to the County. At a minimum, the report will include:

- The well location (with coordinates);
- Photographic documentation of the abandonment;
- A description of the well destruction activities;
- All associated permits and waste disposal manifests, if necessary;
- State of California Department of Water Resources (DWR) well completion and abandonment reports.

4.6.2 Temporary Construction Dewatering

Current development plans include excavation of soil to depths that may encounter perched groundwater or extend below groundwater levels to support the construction of the development-related structures. Due to the depth of these proposed excavations, temporary construction dewatering may be necessary. All construction dewatering activities must comply with waste discharge requirements for discharges of

groundwater from construction and project dewatering to surface waters in Coastal Watersheds of Los Angeles and Ventura Counties, as specified in the state of California General National Pollutant Discharge Elimination System (NPDES) Permit No. CAG994004. Based on the known conditions of groundwater beneath the Site, as described in Section 2, the NPDES permit will require pre-treatment of the groundwater to removed suspended matter and dissolved constituents from groundwater prior to discharge.

It will be the responsibility of Forest City or its General Contractor to submit a notice of intent, obtain a Site-specific permit, and comply with all required elements of the permit and the associated monitoring and reporting program. A copy of the approved permit will be provided to the City of Los Angeles for information as the property owner and the DTSC.

4.7 Unanticipated Conditions

The potential exists for encountering unknown conditions during the course of development. Unknown conditions are physical or chemical conditions that have not been previously identified and evaluated as documented in the Site investigation activities, summarized in Section 2. Unknown conditions may include unanticipated soil and/or groundwater contamination, unexpected subsurface structures, buried pipelines, USTs, and/or other visual or olfactory evidence of contamination. This section establishes a protocol for the initial response to the discovery of an unknown condition, notification protocols, and a path forward such that development activities can continue safely. The Site-specific health and safety training that project proponents are required to provide to Site workers will include instruction on how to identify potential unknown conditions.

The primary purposes of the protocol presented in this Section are to: i) provide initial required response and notification of the discovered condition, ii) prescribe the collection and analysis of initial samples; and iii) provide the DTSC with initial sampling data, documentation of proposed further work, and results of response actions, when complete. The specific sampling to be conducted will be dependent on the nature of the discovered condition, COCs and potential impacts, and DTSC requirements.

4.7.1 Notification

Upon discovery of a non-emergency unanticipated subsurface condition as described in this Section, the General Contractor shall notify Forest City, who will in turn notify the City of Los Angeles, as the property owner, and the DTSC, as regulatory agency of applicable jurisdiction, as soon as practicable, but in no case more than five days after discovery. If any unanticipated subsurface condition is discovered, work must stop and the project proponent must consult with a California licensed Professional, who will provide guidance on how to proceed in accordance with applicable laws and regulations.

4.7.2 Underground Storage Tanks, Sumps, and Clarifiers

Buried physical objects including USTs, sumps, barrels, drums, containers, or other yet unknown underground structures of potential concern, and/or visual or olfactory evidence of contamination could be discovered during Site grading and excavation activities.

For UST encounters, or any subsurface feature qualifying as a UST, the contractor must stop work, notify the Los Angeles City Fire Department and obtain a permit for the removal and closure of the UST prior to proceeding. If an UST is broken open, then the contractor should immediately take action to stop or prevent a release by removing fluid, and then notify DPW EPD. All UST closure activities must be conducted in accordance with Los Angeles County Code (LACC), Title 11, Division 4. Information regarding UST closure can be found at the DPW EPD website at: <http://dpw.lacounty.gov/epd/ust/closure.cfm>.

4.7.3 Stained or Odorous Soil

As identified above, the possibility exists for encountering potentially contaminated soil, outside the currently known areas of contaminated soil. The General Contractor will take precautions to monitor for the presence of potentially contaminated soil using field screening tools, as described in Section 4.3.1, above. If suspected potentially contaminated soil is encountered, handling, management, and disposal of such soil will follow the protocol identified in Sections 4.3.2 and 4.3.3, above.

4.7.4 Methane and Hydrogen Sulfide Gas

Because the Site is located within the boundaries for the Los Angeles Oil Field and within the boundaries designated by the City of Los Angeles as a Methane Zone, the potential exists for encountering naturally-occurring oil field related gases, such as methane and hydrogen sulfide gas. Methane has been detected in the soil gas at several locations throughout the Site, as summarized in Section 2. Hydrogen sulfide gas has not been detected in the subsurface soil gas samples collected at the Site; although, a rotten-egg odor and hydrogen sulfide gas was detected in the ambient air by workers drilling exploratory soil borings B-11 and B-16 (**Figure 5**).

As a precautionary measure, the contractors EHSP will include provisions for protecting workers from exposure to methane gas and hydrogen sulfide gas during construction activities. In addition, soil screening activities will include monitoring the soil gas and ambient air space in the work area for both gases. If either gas is detected at a concentration of concern, as specified in the EHSP, all work will be immediately stopped and the workers evacuated to a safe, upwind area until such time that the ambient air concentrations have dissipated and returned to safe levels, as determined by the Site Safety Officer.

5. NOTIFICATION, REPORTING, AND SITE CLOSEOUT

5.1 Construction Notification

Forest City must submit a notification to the City of Los Angeles and the DTSC 15 days prior to performing any ground disturbing activity at the Site. The notification must include a submittal of information regarding the proposed work and the documentation required to comply with this RMP. The notification submittal must include the following:

- Engineering design drawings stamped by a California-licensed Professional that describes construction of the applicable components of the mitigation, including the excavation plan, construction details of the water-proofing membrane, concrete foundation, methane monitoring system, and garage ventilation system;
- Completed project-specific plans including a DCP (Section 4.3.1), VOC Contaminated Soil Mitigation Plan (Section 4.3.2), SWPPP (Section 4.5), EHSP (Section 4.1), SIP (Section 4.4.4) and NPDES dewatering permit (Section 4.6.2) as applicable to the project; and,
- A project schedule, prepared to track activities and installation or restoration of the mitigation components.

Where appropriate, the submittal package may include information already submitted to another permitting agency, in the form of the original submittal (e.g., excavation permit application submittal, building permit application submittal, etc.). Once the notification package is submitted to the DTSC and 15 days have passed without DTSC comment, the project may proceed. The DTSC has the authority to stop work if they find that the notification package does not conform to the requirements of this RMP. This process does not replace or supersede the requirement for building or encroachment permits from the City of Los Angeles, or any other permits required for construction. The DTSC is responsible for enforcing compliance with the RMP and may elect to visit the Site, as needed.

5.2 Progress Reporting

Throughout the course of the project, Forest City will be required to provide progress reporting to provide the DTSC and the City of Los Angeles with updates on the

progress of the work and compliance with the RMP. Forest City, or its designee, will provide progress reporting to the DTSC for the following project milestones:

- Three months after initiation of excavation activities – provide a general progress report;
- Upon completion of excavation activities – provide a general progress report;
- Upon encountering an unknown condition as defined in Section 4.7 – Notification to be provided as provided in Section 4.7.1;
- Upon construction completion of the building foundation and waterproofing/vapor membrane – provide a general progress report;
- Upon construction completion of the subsurface garage structure complete with methane monitoring system and exhaust ventilation system – provide a general progress report.

5.3 Final Completion Report

Following construction completion of all of the required mitigation elements, Forest City shall prepare a completion report for submittal to the City and DTSC. One of the purposes of the completion reports is to document the activity and, if necessary, any deviations from the RMP or corrective actions implemented in the event the excavation had any unforeseen impact. The completion report shall include the following components, as appropriate:

- Description of activities performed;
- Excavation logs and soil management information;
- Laboratory analytical reports for waste profiling;
- Waste disposal manifests;
- As-built drawings of the components of the remedy, including the waterproofing membrane and foundation;
- All permits and inspection reports of the installed mitigation components, including the waterproofing membrane and foundation stating that it was properly installed and inspected by a California-licensed Professional licensed in the technical area representative of the work; and,

- A long-term maintenance and monitoring plan for any permanent mitigation components.

The Completion Report will be submitted within 45 days of completing the latest date of construction of the mitigation components. The DTSC will review the Completion Report to confirm that the actions taken are consistent with the RMP procedures and protocols. Within 45 calendar days of receiving the Completion Report, the DTSC will notify Forest City of any discrepancies or deficiencies in the completed work or the Completion Report regarding compliance with this RMP. Forest City and the DTSC will work collaboratively to resolve such issues.

Upon concluding that the actions taken are consistent with the RMP, the DTSC will issue an approval or concurrence letter for the completion report.

6. REFERENCES

- AMEC Environment and Infrastructure (AMEC), 2013a. Report of Phase I Environmental Site Assessment, Proposed Blossom Plaza Development, 900 North Broadway, Los Angeles, California. 1 March 2013.
- AMEC, 2013b. Soil Vapor Sampling Results, Blossom Plaza Development, 900 North Broadway, Los Angeles (DRAFT). 3 October 2013.
- AMEC, 2013c. Vapor Intrusion (VI) Human Health Risk Evaluation, Blossom Plaza Development, 900 North Broadway, Los Angeles (DRAFT). 7 October 2013.
- Department of Water Resources (DWR), 1961. Bulletin No. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles, County: Appendix A, Ground Water Geology. June 1961.
- MACTEC, 2004. Report of Phase II Environmental Site Assessment for Proposed Blossom Plaza Residential Mixed-Use Development, 900 North Broadway Street, Los Angeles, California. 28 April 2004.
- MACTEC, 2005a. Report for Aquifer Testing and Dewatering Consultation Services, Proposed Blossom Plaza Residential Mixed-Use Development, 900 North Broadway Street, Los Angeles, California. 6 April 2005.
- MACTEC, 2005b. Additional Methane and Hydrogen Sulfide Testing, Proposed Blossom Plaza Residential Mixed-Use Development, 900 North Broadway Street, Los Angeles, California. 11 April 2005.
- MACTEC, 2005c. Phase II Environmental Site Assessment Report, Proposed Blossom Plaza Residential Mixed-Use Development, 900 North Broadway Street, Los Angeles, California. 26 April 2005.
- MACTEC, 2008. Report of Phase I Environmental Site Assessment, Proposed Blossom Plaza Development, 900 North Broadway, Los Angeles, California. 6 August 2008.
- Ordinance No. 175790, Los Angeles City Methane Ordinance. March 29, 2004.

SCS Engineers, 2001. Phase II Environmental Site Assessment, 900 North Broadway, Los Angeles, California. 28 December 2001.

Smith-Emery GeoServices, 1999. Phase I Environmental Site Assessment, 900 North Broadway, Los Angeles, California. 11 January 1999.

Smith-Emery GeoServices, 2000. Phase II Environmental Site Assessment, 900 North Broadway, Los Angeles, California. 13 April 2000.

TABLES

Table 1
RMP Regulatory Oversight Process
Risk Management Plan
Proposed Blossom Plaza Development Site
900 Broadway, Los Angeles, California

Project Activity or Condition	Owner	Regulatory Agency					
	Forest City Blossom, LLC	City of Los Angeles	Los Angeles City Fire Department	County of Los Angeles Environmental Health Department	South Coast Air Quality Management District	Los Angeles Regional Water Quality Control Board	Department of Toxic Substances Control
Ground Disturbing Activity Less Than 50 Cubic Yards							
Submit Notification Letter and apply for Building or Encroachment Permit as applicable	Review and Comment	Review and Approve, Issue Building or Encroachment Permit as applicable	NA	NA	Review and Approve Dust Control Measures in accordance with Rules 403 and 1166	NA	Review and Approve
Submit Progres Updates	Review and Comment	Review and Approve	NA	NA	NA	NA	Review
Submit Annual Inspection Checklist	Review and Comment	NA	NA	NA	NA	NA	Review and Concur
Annual Report	Prepare	Review and Approve	NA	NA	NA	NA	Review and Approve
Ground Disturbing Activity Greater Than 50 Cubic Yards							
Submit Notification Package and apply for Building or Encroachment Permit as applicable	Review and Comment	Review and Approve, Issue Building or Encroachment Permit as applicable	NA	NA	Review and Approve Dust Control Measures in accordance with Rules 403 and 1166	NA	Review and Approve
Submit Progres Updates	Review and Comment	Review and Approve	NA	NA	NA	NA	Review
Submit Completion Report	Review and Comment	Review and Approve	NA	NA	NA	NA	Review and Approve
Submit Annual Inspection Checklist	Review and Comment	NA	NA	NA	NA	NA	Review and Concur
Annual Report	Prepare	Review and Approve	NA	NA	NA	NA	Review and Approve
Installation of Vapor Mitigation Systems							
Submit Notification and Design Plans	Review and Comment	Review and Concur	NA	NA	NA	NA	Review and Concur
Final Design	Prepare	Receive Copy	NA	NA	NA	NA	Receive Copy
Groundwater Monitoring Well Abandonment							
Submit Notification and Well Abandonment Permit	Review and Comment	NA	NA	Review and Approve	NA	Receive Copy	Receive Copy
Work Plan	Review and Comment	Receive Copy	NA	NA	NA	Receive Copy	Receive Copy
Completion Report	Prepare	Receive Copy	NA	Receive Copy	NA	Receive Copy	Receive Copy

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Unknown Conditions							
<i>UST (containing TPH only)</i>							
Notification, apply for City of Los Angeles Tank Removal Permit and Building or Encroachment Permit as applicable	Review and Comment	NA	Review and Approve	NA	NA	Receive Copy	Receive Copy
Tank Removal Report	Prepare	Receive Copy	Review and Approve as Required	NA	NA	Receive Copy	Receive Copy
<i>Buried Physical Objects (Except a UST containing TPH)</i>							
Notification	Review and Comment	Review and Comment	NA	Receive Copy	NA	NA	Review and Comment
Work Plan	Review and Comment	Review and Approve as Required	NA	Receive Copy	NA	NA	Review and Approve
Completion Report	Prepare	Review and Approve as Required	NA	Receive Copy	NA	NA	Review and Approve
<i>Unanticipated Conditions</i>							
Notification with Further Action to be Determined by Agencies	Review and Comment	Review and Comment	NA	NA	NA	NA	Review and Comment
<i>Groundwater Contaminated with Free Product</i>							
Notification	Review and Comment	Review and Approve as Required	NA	NA	NA	Receive Copy	Review and Comment
Work Plan	Review and Comment	Review and Approve as Required	NA	NA	NA	Receive Copy	Review and Approve
Completion Report	Prepare	Review and Approve as Required	NA	NA	NA	Receive Copy	Review and Approve
<i>Groundwater Contaminated with other Chemicals</i>							
Notification	Review and Comment	Review and Approve as Required	NA	NA	NA	Receive Copy	Review and Comment
Work Plan	Review and Comment	Review and Approve as Required	NA	NA	NA	Receive Copy	Review and Approve

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Completion Report	Prepare	Review and Approve as Required	NA	NA	NA	Receive Copy	Review and Approve
Modifications to the RMP							
Submit RMP Modifications	Review and Comment	Review and Approve	NA	NA	Review and Approve	Review and Approve	Review and Approve