APPENDIX F

HUMAN HEALTH RISK ASSESSMENT

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HUMAN HEALTH RISK ASSESSMENT FOR PROPOSED SITE REDEVELOPMENT

215 CALIFORNIA DRIVE
BURLINGAME, CALIFORNIA

SMCo CASE# 660105

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GEI PROJECT #: B12767

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1.0 INTRODUCTION

Green Environment inc. (GEI) has prepared this *Human Health Risk Assessment for Proposed Site Redevelopment (HHRA)* on behalf of DLC 225 California L.P. (DLC), for a commercial parcel (APN 029-211-080) of approximately 17,000 square feet located within the downtown block bounded by California Drive/Highland Avenue, Howard Avenue, Hatch Lane and Burlingame Avenue in Burlingame, San Mateo County, California (*subject property*). A site location map is provided in the attached **Figure 1**. The *subject property* includes three (3) street addresses: 215, 217 and 233 California Drive. The attached **Figure 2** is a layout of the buildings that currently occupy the *subject property*. There are two (2) buildings on the *subject property*: 215 California Drive corresponds to one (1) building, and 217 and 233 California Drive correspond to a separate building that is divided into two (2) tenant spaces. A paved parking yard occupies the rear, west quadrant of the parcel.

The *subject property* is identified and regulated by the San Mateo County Health System Groundwater Protection Program (SMCoGPP) as a Leaking Underground Storage Tank (LUST) site under the 215 California address, SMCo Case# 660105. This neighborhood of Burlingame also contains subsurface contamination from the solvent tetrachloroethene (PCE), and associated degradation products including trichloroethene (TCE), that have not been fully characterized. SMCoGPP identified the *subject property* as a potentially responsible party for this environmental condition, opening a voluntary cleanup case, SMCo Case #669113. GEI maintains that while the *subject property* does exhibit low concentrations of PCE and TCE, including traces of PCE in a few soil samples, the source (or sources) of the neighborhood impacts that constitute any significant concern is/are not on the *subject property*. SMCoGPP is pursuing other parties including the current Sterling Cleaners on the west corner of Hatch Lane and Howard Avenue (SMCoGPP, March 11, 2015).

GEI has conducted a series of environmental investigations and groundwater monitoring events that are discussed in greater detail later in this *HHRA*. When DLC came forward with an intention to purchase and redevelop the *subject property* with a multi-story commercial building over a multi-level underground parking garage, GEI prepared the *Work Plan for Proposed Site Development*, dated March 13, 2015. SMCoGPP reviewed this March 13, 2015 *Work Plan* and issued a comment letter dated April 21, 2015. SMCoGPP's primary comment with respect to health risk aspects was that potential post-construction vapor intrusion should be evaluated in a more quantitative manner than what was proposed. This *HHRA* reflects that consideration.

The other SMCoGPP comments to GEI's March 13, 2015 *Work Plan* mainly reflected a desire to see more sampling analytical data from deeper zones corresponding to the future subterranean garage, as well as more sampling analytical data from the perimeter of the *subject property* since the redevelopment structure will encompass the entire *subject property*. GEI recently conducted an investigation focused on these two (2) aspects, and the corresponding sampling analytical data is utilized in this *HHRA*. SMCoGPP did not dispute

that the planned redevelopment project would meet all criteria necessary for granting case closure on the LUST fuel leak matter.

This *HHRA* includes a conceptual site model (CSM) discussion and is structured to address both short-term construction worker considerations and long-term office worker/visitor considerations.

An ecological risk assessment is not part of this *HHRA* and is not planned to be prepared, because exposure to environmental media at the *subject property* (e.g., soil) will not be possible for ecological receptors and because groundwater containing site contaminants is not believed to be a threat to any surface water bodies that could be used by ecological receptors. As GEI previously reported (GEI, December 9, 2014), the closest potential in-stream aquatic habitats occur along the shallow open channel that extends along the Southern Pacific Railroad easement, more than 700 feet to the west-northwest of the *subject property*. Marshes of San Francisco Bay are between 3,000 and 5,000 feet northwest to northeast of the *subject property***.**

2.0 BACKGROUND

This section presents discussions of: (1) the pertinent aspects of *subject property* history; (2) the currently envisioned redevelopment plan (updated from GEI's March 13, 2015 *Work Plan*); and (3) a summary of local and site-specific geology and hydrogeology incorporating recent information gained from deeper on-site explorations.

2.1 Site History

Based upon historical records reviewed by GEI, the *subject property* was developed between 1921 and 1935. Sterling Cleaners operated through 1959 in a small building that was located at the rear (southwest end) of what is currently the building space of 217 California Drive. At the time, the building where dry cleaning and laundry operations occurred was detached from the larger building that occupied the northeast half of what is now 233 and 217 California Drive. Sometime after 1959, the detached building where Sterling Cleaners operated was connected and merged into the building space of 217 California Drive. After Sterling Cleaners vacated, occupants of 217 California Drive included Federal Auto Parts, Cycles Unlimited, a landscape architect, and more recently, Gilmans Kitchens and Baths, who relocated in the summer of 2014. The only current tenant is a window showroom and sales business in the 215 California Drive space.

Investigations conducted in 2010 by GEI and others identified abandoned underground storage tanks (USTs) in the rear yard of the *subject property*. The USTs were deemed to primarily have been related to the historic operations of Sterling Cleaners, which ceased around 1959. In March 2011, five (5) abandoned USTs were removed from the rear yard: one (1) estimated 350-gallon capacity gasoline tank, three (3) estimated 700-gallon capacity

Stoddard solvent tanks, and one (1) estimated 1,500-gallon capacity bunker oil tank. The locations of the former USTs are shown in **Figure 3**. GEI has not found any evidence that PCE or any other chlorinated solvent was used in Sterling's operations at the *subject property*. Petroleum hydrocarbons in the Stoddard solvent range and residues of ethylbenzene and xylenes were reported in soil samples collected at the time from below the Stoddard solvent tanks. In April 2011, over-excavation work was performed outside of the buildings to remove accessible petroleum hydrocarbon-impacted soil from the pit coinciding with the Stoddard solvent tanks.

Pertinent to the existing site uses, and not directly associated to the *subject property* redevelopment, GEI also conducted air quality assessment work involving the collection and testing of seven (7) ambient indoor and two (2) ambient outdoor air samples. No noteworthy air quality conditions were found. It is important to mention these finding for this *HHRA* as the planned building will sit amongst significantly less subsurface contamination and will present less of a vapor intrusion concern due to its new construction features and multi-level garage open air space.

2.2 Current Site Redevelopment Plans

The planned commercial redevelopment comprises a multi-story commercial building with a subterranean garage encompassing the full footprint of the *subject property* parcel. **Appendix B** contains the latest elevation view of the envisioned structure (Sheet A3.3) looking towards the northwest, with Hatch Lane on the left and California Drive (Highland Avenue) on the right. As shown, the project has an anticipated new street address of 225 California Drive. A three-level subterranean garage, encompassing an excavated depth of around thirty-four (34) feet below grade, is currently proposed. The street/ground level of the new building will most likely contain some retail space, while the other floors will be office space. There is no residential component to the redevelopment.

The construction design incorporates a 4-sided slurry wall feature as part of the excavating process, planned to extend approximately ten (10) feet below the excavation base, so that no surrounding/underlying groundwater flows into the garage excavation during construction, beyond what is practically preventable. The project's *Environmental Management Plan* will include a description of the contingency measures that will be employed should construction dewatering need to occur, with a presumption that such water could potentially be contaminated. The final garage will be further sealed with standard construction waterproofing and moisture vapor-barrier means. The 'bath tub' design specifically excludes any long-term groundwater dewatering, so no post-construction groundwater management will be needed. The garage will have code compliant mechanical venting for vehicle exhaust removal. All these aspects are further discussed and evaluated in context to the subject *HHRA* in Section 5.

2.3 Site Geology and Hydrogeology

The *subject property* is located in a relatively flat area at an elevation of approximately thirty (30) feet above mean sea level; the area slopes gently northwards towards the San Francisco Bay.

As GEI previously reported (GEI, December 9, 2014), the surface deposits of the nearby foothills are mapped as well-bedded medium- to fine-grained alluvial materials consisting of moderately permeable fine sand, silt and clayey silt interfingered with coarse grained material transported from the highlands. These deposits, in turn, are interbedded with finer grained fluvial deposits and estuarine and bay mud deposits that become more prevalent northward with proximity to the Bay. Below these unconsolidated to semi-consolidated sediments are the deformed Mesozoic-age basement rocks of the Franciscan Formation. The Franciscan Formation consists of marine sedimentary rocks (e.g., greywacke, shale and chert) and altered volcanic and metamorphic rocks (e.g., greenstone, serpentinite and blueschist).

The regional groundwater flow within the sediment deposits is generally northward and follows topography, towards the Bay. Hydrogeological investigations conducted at sites located within ¼-mile of the *subject property* generally indicate groundwater is first encountered in the ten (10) to twenty-five (25) foot depth interval with seasonal fluctuations. Groundwater monitoring well data indicate neighborhood groundwater flow is predominantly north-northeast to east-northeast. The soil lithology has been described as characteristic of alluvial fan deposits, predominantly fine-grained sediments interfingered with coarser grained stream channel sediments.

The attached **Figure 4** provides a geological cross-section along a southwest to northeast traverse across the *subject property*. Except for the asphalt paved rear yard, the *subject property* is occupied by buildings and the ground surface is covered by concrete slab-on-grade and building foundation. Fill occupies some near-surface areas as well as utility trenches and the former USTs pits in the rear yard where excavating occurred in 2011. Based on exploratory borings completed to a maximum depth of one hundred (100) feet below ground surface (bgs), native soils below the *subject property* and immediate vicinity consist mainly of fine-grained sediments that include clay, sandy clay, gravelly clay, and silty clay to between four (4) and eight (8) feet depth, followed by coarse-grained sediments dominated by clayey to silty sand and clayey to silty gravel to between fourteen (14) and eighteen (18) feet depth. These latter coarse-grained soils are in turn underlain generally by very stiff clays and dense to very dense clayey sands (Cornerstone, March 25, 2015).

First groundwater is typically encountered at approximately twelve (12) feet depth. Project monitoring well soundings to standing water have ranged from 9.00 to 12.50 feet bgs. A second water-bearing zone of variable thickness and yield occurs in most areas of the *subject property* at around 23 to 27 feet bgs. Between about 30 to 35 feet bgs is a more granular and

more consistent water-bearing strata underlain by approximately 20 feet of non-water-bearing clay. In GEI's recent and historic sampling of these collective groundwater zones, there were few situations that exhibited a reasonable yield of water.

Project-specific groundwater gradient information has been obtained both from temporary on-site shallow piezometers and several groundwater level sounding events at the five (5) groundwater monitoring wells that have been installed as part of the subject fuel leak response. In 2014 using a set of 20-foot deep piezometers, GEI found an inferred gradient direction to be north-northeast with a gradient of 0.005 to 0.01 vertical feet per horizontal foot (ft/ft). In six (6) measurements using the monitoring wells (August 2013 to April 2015), the groundwater flow direction has been inferred to range from north to northeast with a gradient of approximately 0.01 ft/ft.

3.0 CHEMICAL CHARACTERIZATION

Since 2011 there have been a series of investigations involving over forty (40) exploratory borings used to collect soil and/or grab groundwater samples, twelve (12) sub-slab and/or 5.5-foot deep probes used to collect soil vapor samples, and five (5) monitoring wells used for formal groundwater sampling. The locations of all these investigative points are presented in **Figure 3**. The accumulated analytical laboratory data for soil, soil vapor and groundwater samples that have been tested to date are presented in the tables included in **Appendix A**.

Petroleum hydrocarbon-impacted soil and groundwater persist below the rear yard of the *subject property* associated with releases from the former USTs and general Stoddard solvent uses, with the impact extending below the *subject property's* building space adjacent to the yard. The total petroleum hydrocarbon (TPH)-impacted zone primarily resides in the ten (10) to sixteen (16) feet depth interval in the capillary fringe and upper portion of the first encountered groundwater-bearing zone. TPH impacts generally attenuate with depth below sixteen (16) feet, and also laterally outward from the former USTs. The TPH-impacted soil and groundwater are characterized by petroleum hydrocarbons in the gasoline to Stoddard solvent to diesel range, with the laboratories indicating that the petroleum most closely resembles Stoddard solvent. TPH-impacted soil extends slightly into Hatch Lane. Supplemental definition of Stoddard impact at the other three (3) *subject property* boundaries found multiple depths of TPH detections to the southeast, and low level impact about three (3) feet thick (~12-15' depth) to the northeast and northwest. Volatile organic compounds (VOCs) associated with the subject petroleum hydrocarbon release have only been sporadically detected.

Besides the neighborhood presence of PCE/TCE previously noted, GEI's site investigations have also identified a hot-spot of subsurface contamination in the central area of the 217 California building space. There is elevated ethylbenzene vapor, some oil-range hydrocarbons primarily in soil, and detections of 1,2-dichloroethane (1,2-DCA). The hot-

spot seems to coincide with on-site sanitary sewer components and are postulated to be associated with former automotive repair activities in this area of the *subject property*.

Recent testing of groundwater zones below the first/shallowest occurrence found no significant impacts, even of the neighborhood PCE/TCE. In addition, site-originating groundwater impacts are not deemed to be a threat to any local surface water bodies, which are over 500 feet away.

4.0 CONCEPTUAL SITE MODEL

The purpose of a conceptual site model (CSM) is to describe the physical and chemical parameters of a site that govern who and how specific biologic receptors may be exposed to site chemicals. Typically, this involves a description of the environmental media (e.g., soil, groundwater, soil vapor) that have become impacted with chemicals introduced into one or more of these media by the release of chemicals used or stored at the site, the environmental pathways and transport mechanisms by which these chemicals are transported through the environment, and the routes by which various receptors may be exposed to these chemicals. In some instances, such as the *subject property* case, there are additional chemicals originating from offsite that also must be considered.

4.1 Impacted Site Media

As stated in Section 2, the *subject property* has been used for various commercial purposes. The activity that appears to have had the greatest subsurface environmental impact relates to the use of a portion of the site as a dry cleaners until 1959. Dry cleaners at that time used Stoddard Solvent, rather than PCE. Thus, petroleum hydrocarbons have been identified in soil, groundwater, and soil vapor at this site. The compound 1,2-DCA is believed to be associated with an on-site release from former automotive repair operations on the *subject property*, and is found primarily in groundwater. Other chlorinated VOCs such as cis-1,2-DCE, TCE, and PCE are essentially absent in *subject property* soil and groundwater (except for sporadic low detections especially in offsite wells MW-3 and MW-4). These neighborhood-originating chlorinated VOCs were, however, found in most of the *subject property* soil vapor samples, especially the sub-slab soil vapor samples.

4.2 Exposure Pathways and Receptors

The 215 California Drive building is currently occupied, and the spaces at 217 and 233 California Drive are currently vacant. The paved yard occupying the rear, west quadrant of the *subject property* is used by tenants and their customers for parking. Therefore, current site occupants have no direct contact to impacted soil or groundwater. However, the focus of this assessment is for the future development. The existing buildings are anticipated to be demolished, followed by the construction of a multi-story commercial building encompassing the full *subject property*. The soil beneath the new building footprint is

planned to be excavated and removed to construct a three-story underground parking structure. Since the site is expected to be covered entirely by a building housing primarily office space plus possible ground floor retail, the future occupants are anticipated to be office workers, visitors to the offices, retail workers and customers. None of these receptors will have access to site soil or groundwater either. However, the presence of neighborhood VOCs suggests that these VOCs could potentially volatilize into the office/retail space from portions of the surrounding offsite adjacent property. The pathway by which VOCs may volatilize from these adjoining subsurface areas into the office/retail space, however, is not expected to be complete to a significant degree. As will be detailed in the discussion of uncertainties below, these pathways will be curtailed by at least three (3) features: (1) the perimeter slurry wall left in-place after the excavation; (2) the installation of a moisture barrier around the garage walls; and (3) the use of code-required ventilation fans for carbon monoxide in the garage. It is recognized that some garage air will unavoidably enter the office/retail areas via elevators that connect the garage with the above ground spaces. Although very little such air is expected to enter the office space, this pathway will be considered complete for the purposes of this assessment, and the potential risks associated with it will be evaluated.

Construction workers are expected to come into direct contact with *subject property* soil, groundwater, and soil vapors during construction activities of the subterranean portion of the redevelopment. Of these three, only contact with soil and soil vapor are expected to be significant. Contact with groundwater will potentially occur only until the sidewall and foundation mat moisture barriers are in place, and even before then is expected to take place to such a minimal degree as to result in little or no exposure. Slurry cut-off walls are planned as part of the pre-excavation process to cut off the inflow of surrounding groundwater. The primary, and perhaps only, groundwater the construction workers would come in contact with is the water residing inside the slurry walls (i.e., within the excavation soil mass). Water that may accumulate in the excavation will be continuously pumped into holding tanks and removed offsite so workers will not contact pooled water. Specifics on this groundwater management will be provided in a future *Environmental Management Plan* to be prepared by GEI. Although not expected to present a significant source of risk, this pathway will be considered in a semi-quantitative manner in the discussion of uncertainties of this assessment (Section 5.4).

Contact with soil vapor may occur via either volatilization from soil vapor coming from *in situ* or excavated soil, or volatilization from soil VOCs during the process of excavation. Of these two, the latter is expected to release more VOCs than the passive volatilization from bulk soil. Exposure to these VOCs is not expected to constitute a major source of risk. The primary reason for this is that VOCs are expected to rapidly dissipate into ambient air to insignificant concentrations once released. Nevertheless, this pathway is considered potentially complete, and is included in this assessment.

Contact with VOCs in groundwater is not expected to constitute a significant source of risk. The assumption that exposure to chemicals in groundwater will be insignificant compared to those from soil is consistent with the assumptions used to derive the San Francisco Regional Water Quality Control Board (SFRWQCB) environmental screening levels (ESLs). ESLs for the construction scenario are available only for soil (SFRWQCB, December 2013). However, this groundwater contact pathway, and its potential as a source of risk, is evaluated in Section 5.4 of this report.

The sources, pathways and exposure routes to potential receptors for this site are depicted in the CSM Diagram presented in **Figure 5**. Future utility workers (e.g., to possibly repair laterals into Hatch Lane) would be considered a sub-set of the construction worker category, but with even lower expected risks due to the limited areas where residual impacts will reside and a shorter time of exposure.

5.0 RISK EVALUATION

This section describes the approach used to calculate potential incremental cancer risks (cancer risks) and non-cancer hazards, then presents the risk results and discusses the uncertainties in those results important to interpreting them.

5.1 General Approach

Cancer risks and non-cancer hazards for the construction scenario are calculated by comparison to the ESLs presented by the San Francisco Regional Water Quality Control Board (SFRWQCB, December 2013). As mentioned above, ESLs have been calculated for the construction scenario, and are presented in Table K-3. These ESLs are considered appropriate for this assessment because they include all three of the potential exposure pathways and routes presented in the CSM for this receptor; incidental soil ingestion, dermal contact, inhalation of construction-generated dust and VOC emissions.

The chemicals to be evaluated for this assessment are those that have been detected at least once throughout the chemical characterization of the *subject property*. The only exceptions are the results from soil that was excavated and removed as part of the removal of the former underground storage tanks described above. A list of these chemicals is presented in **Table A**.

ESLs were not available for six (6) of the chemicals detected in soil: TPH Stoddard Solvent, TPH mineral spirits, n-propylbenzene, iso-propylbenzene, sec-butylbenzene and t-butylbenzene. Risk-based screening concentrations were calculated for these chemicals using the USEPA Regional Screening Level (RSL) calculator (available at *http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search*) using as many of the assumptions used for the construction worker ESLs as possible (the same exposure times and frequencies, skin adherence factor and surface areas, body weight, etc.) and the assumption that three (3)

trucks weighing three (3) tons each would generate fugitive dust for eleven (11) months. For the purposes of these calculations, Stoddard Solvent, which is typically composed of $C_6 – C_{12}$ aliphatic hydrocarbons (SFRWQCB, September 2012) was represented by middle distillate aliphatic TPH (C_8 - C_{16}). Mineral spirits are typically composed of both aliphatic and aromatic middle range $C_7 – C_{12}$ hydrocarbons (*https://en.wikipedia.org/wiki/White_spirit*), and so was conservatively represented by middle distillate aromatic TPH (C_8 - C_{16}).

The quantification of cancer risks and non-cancer hazards used a ratio of the concentration of each chemical (the exposure point concentration, EPC) detected in soil at this site to its ESL. This approach to assessing potential risks is considered health protective in that it incorporates many of the health-protective exposure assumptions used in a screening-level or baseline assessment, including reasonable maximum exposure assumptions for such parameters as soil ingestion (330 mg/day), exposure time (8-hour per day), 250 day per year exposure frequency for one (1) year, exposure skin area of 5800 cm^2 and a soil adherence factor of 0.51 mg/cm^2.

Total cancer risks and non-cancer hazards are calculated as shown in the equations below. Quantification of individual and total incremental potential carcinogenic risks were made using Equation 1.

$$\text{Cancer Risk} = \left[\left(\frac{\text{Conc. chemical a}}{\text{ESL a}}\right) + \left(\frac{\text{Conc. chemical b}}{\text{ESL b}}\right) + \cdots \left(\frac{\text{Conc. chemical z}}{\text{ESL z}}\right)\right] \text{x } 10^{-6} \qquad \text{(Equation 1)}$$

Where:

Conc. = concentration

Quantification of potential non-cancer health risks for individual chemicals are called Hazard Quotients (HQs) and the sum of the HQs for all COPCs and exposure routes is called the Hazard Index (HI). HQs and HIs were calculated using Equation 2.

$$\text{Hazard Index} = \left[\left(\frac{\text{Conc. chemical a}}{\text{ESL a}}\right) + \left(\frac{\text{Conc. chemical b}}{\text{ESL b}}\right) + \cdots \left(\frac{\text{Conc. chemical z}}{\text{ESL z}}\right)\right] \qquad \text{(Equation 2)}$$

Soil vapor ESLs for the commercial/industrial scenario are available in Table E-2 (SFRWQCB, December 2013). Site measured soil vapor levels for each chemical detected at this site were compared to their soil vapor ESL in the manner presented above for soil to calculate potential cancer and non-cancer risks.

5.2 Calculation of Exposure Point Concentrations

The ESL User's Guide recommends using the maximum detected concentration for screening level assessments unless these concentrations are not considered appropriate. In this case, the great range of concentrations displayed at this site indicates that an upper-bound average concentration would provide a more representative estimate of the exposure to these chemicals than the maximum concentration. An alternative estimate recommended in the ESL User's Guide is the 95 percent upper confidence limit of the mean (95%UCL). Use of the 95%UCL is also consistent with the recommendations from the California Department of Toxic Substances Control (DTSC, October 2013) and the United States Environmental Protection Agency (USEPA, December 1989). Therefore, the USEPA recommended program ProUCL (version 5.0, available at *www.epa.gov/osp/hstl/tsc/software.htm*) was used to calculate the 95%UCL for each detected soil chemical. The program was used in the "with ND" mode in order to avoid the potential inaccuracies associated with using half the detection limit for non-detected results. This mode allows the program to distinguish detected results from non-detected results and allows the value of the analytical reporting limits to be taken into consideration when estimating the 95%UCL. In those cases where too few detected results were available to calculate the 95%UCL, the maximum detected value was used. It is noted that the tabulated results in **Appendix A** include samples of soil zones that were was subsequently removed from the site in the UST over-excavation process. Since future construction workers will not be exposed to these soils, these results were not used to calculate the 95%UCLs. The results of the statistical calculations are presented in **Appendix C** and summarized in **Table A**.

For the assessment of the vapor intrusion pathway, none of the soil vapor data are expected to be truly representative of soil vapor surrounding the future parking structure and commercial building because these data were collected from within the future building garage footprint and thus will be removed during excavation. Beneath the future structure will be saturated soil conditions and groundwater shown to not be impacted by VOCs of any consequence, thus not a vapor source. However, to assess this pathway, soil vapor results from the periphery of the site (as opposed to the center of the site) provide the best estimate of the conditions following excavation. Thus, the conceptual site model for the purposes of simulating the vapor intrusion pathway will be that of VOCs from the periphery of the site migrating laterally in vapor form into the garage interior. In reality, this scenario will greatly over-estimate the degree of vapor intrusion likely to occur since the VOCs will be blocked/impeded by the slurry wall, garage wall and its water-proofing described for the construction in Section 2.2, above. The locations closest to the four side walls of the future excavation are soil vapor probes VP-1, VP-6, VP-7, and VP-9. It is noted that the first three

(3) locations are sub-slab collection points. Since vapor is expected to accumulate beneath the current concrete floor at these locations, these results likely over-estimate actual aggregate soil vapor levels in the vadose zone. Both sub-slab and sub-surface soil vapor results were available from VP-9, and the subsurface results were used for this assessment. The maximum concentration of each chemical detected in soil vapor from these locations was used by GEI as the EPC for this assessment.

The DTSC version of the Johnson and Ettinger (J&E) vapor intrusion model (DTSC, December 2014) was used. For the purposes of this evaluation, the garage was assumed to be a single story structure because all three levels are connected. Although the concentrations estimated by the model are for the garage, these will conservatively be used to represent the worst-case potential indoor air risks for the workers inside the future commercial building because of the expected presence of two (2) elevators that will directly connect the garage with the office spaces above.

The values for the exposure parameters are consistent with those recommended by the SFRWQCB to derive their ESLs. Briefly, they assume an exposure time of eight (8) hours per day, frequency of two hundred-fifty (250) days per year for twenty-five (25) years. The building parameters assume a building footprint of approximately 13,000 square feet. The value for the average vapor infiltration rate (Q_{soil}) was based on the default rate of five (5) liter per minute and then scaled up proportionally to the area of the garage (DTSC 2011) to give a value of 60.35 liters per minute. Following a discussion with the building engineer, the value for the air exchange rate was assumed to be three (3) exchanges per day during the 8-hour workday. This figure was derived assuming that the garage fans will operate primarily in the beginning and end of each work day for an hour at a time to reduce the levels of car exhaust during peak garage activity, and these code-sized fans (2013 Calif. Mechanical Code Section 403.9 and Table 403.7) vent at a rate of 1.5 exchanges per hour. This conservatively excludes all ambient air circulation in the garage (e.g., vehicle movements, opening to the street and stack effects).

The soil type used for modeling was assumed to be sand in order to capture the presence of gravel mixed in with the clay and silt in the backfill present near the surface of the site as discussed in Section 2.3 and future utility trench backfill. Depth to the source was originally taken as the depth at which the soil vapor samples were collected; approximately 5.5 feet. However, this depth produced a warning message in the model of a low attenuation factor (i.e., less than 6×10^{-5}), and so a minimal value of approximately 2 feet was conservatively used. Since the source of VOCs are expected to be deeper than 2 feet (i.e., nearer to the groundwater), the use of this minimal value represents an additional worst-case element to this assessment.

In addition to the discrete chemicals detected in the peripheral soil vapor samples, several types of mixtures identified as TPH were detected; TPH gasoline, TPH diesel fuel, and TPH Stoddard Solvent. Since the J&E model does not include chemical or toxicity information

about these mixtures, surrogate chemicals were used to evaluate them. TPH gasoline is typically a mixture of aromatic and aliphatic hydrocarbons in the C_4 – C_{12} range (SFRWQCB, September 2012). Since the most toxic chemicals are generally the aromatic chemicals benzene, ethylbenzene, toluene and xylenes which were analyzed for separately, TPH gasoline was represented by n-hexane. This is considered health protective because hexane is relatively volatile and toxic compared with the bulk of the aliphatic gasoline constituents.

Diesel fuel is typically a mixture of aromatic and aliphatic hydrocarbons in the C_8 – C_{24} range (SFRWQCB, September 2012). Again, the most toxic diesel constituents (e.g., naphthalene) were analyzed separately, and so TPH diesel was represented by the C_9 aliphatic chemical n-nonane. Since n-nonane is not available in the J&E chemical database, the physical behavior of another C_9 diesel constituent (1,2,4-trimethylbenzene) was combined with the toxicity of n-nonane (*http://hhpprtv.ornl.gov/quickview/pprtv.php*) to derive the surrogate for TPH diesel. Again, this is considered to be health-protective because both 1,2,4-trimethylbenzene and n-nonane are relatively volatile and toxic compared with the bulk of the diesel constituents.

Finally, Stoddard Solvent is typically a mixture of aliphatic hydrocarbons in the C_6 – C_{12} range (SFRWQCB, September 2012). Therefore, n-hexane is considered health protective surrogate because it is relatively volatile and toxic compared with the bulk of the aliphatic Stoddard Solvent constituents.

The values for the remaining model parameters are shown on the example J&E calculation sheets presented in **Appendix D**. The chemicals for the VI assessment, and their maximum detected concentration in soil vapor are presented in **Table C**.

5.3 Presentation of Risk Results

The risk results for the construction scenario are presented in **Table B** and those for the commercial scenario are presented in **Table C**. **Table B** shows that the cumulative cancer risk for the construction scenario was 7×10^{-10} and the total HQ (i.e. the Hazard Index [HI]) was 0.2. **Table C** shows that the cumulative cancer risk for the indoor commercial scenario was 4×10^{-7} and the HI was less than 0.1.

5.4 Discussion of Uncertainties

Understanding the major uncertainties assists with the interpretation of the risk characterization results. In general, the risk assessment process operates in a “cascade” fashion, whereby each phase relies on information generated in the previous phase. If uncertainty is introduced, for example, during the data collection phase, it will be carried through each successive risk assessment phase. When successive uncertainties introduce biases, the final health risk estimates may overestimate or underestimate actual risks and

hazards. A discussion of the major sources of uncertainties in this assessment is presented below.

The risk results for the construction account for the major pathways by which a future construction worker may be exposed to site chemicals during construction activities. However, as discussed in Section 4.2, limited exposure to site groundwater may also occur, and workers may be exposed to chemicals in groundwater in addition to those in soil. Although this exposure is considered to result in only minor exposure to site chemicals, not accounting for it in the risk calculations may under-estimate the total risk for this scenario. Evaluating the degree to which this risk may be under-estimated would be helpful in understanding the uncertainty introduced by not including this pathway in the quantitative assessment. As discussed in Section 4.2, contact with groundwater is expected to occur only to a minor degree and only in the initial stages of construction. Once the outer walls of the garage and the mat foundation floor are completed, contact with groundwater is not expected to take place. However, a number of chlorinated and petroleum-relate chemicals have been detected in groundwater. The results of the groundwater testing are summarized in **Appendix A**.

As these tables show, although more than twenty (20) chemicals have been detected, most have been detected only once or just infrequently and in limited locations. However, a comparison of the maximum detected concentration of these chemicals to risk-based concentrations for the construction scenario will provide a worst-case assessment of their potential risk. These chemicals and their maximum detected concentrations are presented in **Table D**. The SFRWQCB does not provide water ESLs for the construction scenario. Therefore, risk-based water concentrations were estimated using the USEPA RSL calculator (*http://epa-prgs.ornl.gov/cgi-bin/chemicals/csl_search*) and modifying the recreational scenario to represent the ESL construction scenario to the extent possible. Therefore, a seventy (70) kilogram adult receptor was assumed to contact fifty (50) milliliters (ml) of water (~2 ounces) via incidental ingestion and dermal contact for 15 minutes per day for 60 during the course of the redevelopment. The exposed skin surface area was the same as that used for the soil ESL (5,800 cm^2), but the assumption of the ingestion of 50 ml per day has no match in the ESLs, and is probably a significant over-estimate adding another layer of health protection. The results are presented in **Table D**. The results show that the maximum concentration of only one chemical (PCE) exceeded its health-based screening level. Given the maximum concentration of PCE was detected in well MW-4 located offsite to the east of the subject property, the comparison against maximum detected concentrations, as well as the worst-case nature of the screening levels (e.g., daily ingestion of 50 ml of groundwater over a two (2) month period), it is clear that the potential exposure to groundwater will not contribute significantly to the potential risk of the construction scenario.

There are several sources of uncertainty associated with the J&E modeling, and most pertain to the simplifying assumptions that make this a worst-case estimate of the indoor air risk

from vapor intrusion. Several of these factors have been mentioned previously, but it is important that they be re-stated here in order to put the VI risk results into perspective.

The most significant source of uncertainty is the fact that the risks calculated by the J&E model apply to receptors inside the garage, but were used to represent the occupants of the overlying building. This is expected to significantly over-estimates the risks of the commercial building receptors because it conservatively assumes that the air in the garage will move into the office areas (e.g., via the elevator shafts) and create the same VOCs concentrations. However, the air handling system for the commercial building is expected to significantly dilute the concentrations of whatever VOCs enter the office areas, if any. In addition, the elevators are expected to be independently vented and, as currently planned, will not be near the areas where perimeter VOC concentrations are expected to be the highest. Further, in accordance with fire codes, the stairwell will be vented and under a slight positive pressure.

In addition, the J&E model operates under the assumption that the source of VOCs is homogeneously distributed beneath the entire floor of a building. In this case, the source, (i.e., the VOCs following redevelopment) will be located mainly, and perhaps only, at shallow locations along limited side lengths of the building garage. Thus, the influx area is expected to be significantly smaller than assumed by the model (which was assumed to be proportional to the floor area), resulting in risks that will be significantly over-estimated. Similarly, the use of the maximum detected soil vapor concentrations as the source for the VI modeling will also lead to a significant over-estimation of the indoor air risks because these concentrations are not homogeneous in the subsurface beneath or adjacent to the building.

There are other uncertainties with the potential to either under-estimate or over-estimate the VI risk results, such as the estimated value of the air exchange rate, the estimated distance from the VOC source, and the use of some soil vapor results from sub-slab sample locations, but these are relatively small compared to those discussed above.

Another source of uncertainty is the use of surrogates to assess the potential risks for chemicals for which there are no risk-based screening levels or are not included in the J&E database. For some discrete chemicals for which no soil ESLs are available, the USEPA RSL calculator was used to calculate risk-based levels. Although there are some differences between some of the processes used to derive the ESLs and the RSLs (e.g., how fugitive dust is estimated for the inhalation route), the uncertainties these may contribute are considered relatively minor compared to those of omitting these chemicals from the assessment altogether. Similarly, this also applies to assigning petroleum-related surrogates based on carbon range as was done for several of the assessments for TPH gasoline, diesel, Stoddard Solvent, and mineral spirits.

6.0 CONCLUSIONS

Potential risks and hazards to future construction workers and office/retail workers were evaluated in this assessment using chemical data representative of higher-end site impacts. The risk process used is considered conservative and protective of human health. In general, cancer risks of 1×10^{-6} or less and non-cancer hazards of 1.0 or less are considered *de minimus*, and not to pose an unacceptable health risk. The risk results at this site for both receptor scenarios show that potential cumulative cancer risks were less than 1×10^{-6}, and potential total non-cancer risks (i.e., Hazard Indices) were less than 1.0. These results indicate that the potential risks and hazards are considered insignificant. No pre-construction remediation efforts are required to continue with the planned development, and no special protective elements need to be incorporated with the building design. Specifics on soil and groundwater management will be provided in a future, pre-construction *Environmental Management Plan* to be prepared by GEI. In addition, a site-specific health and safety plan should be prepared and utilized for the construction.

7.0 REFERENCES

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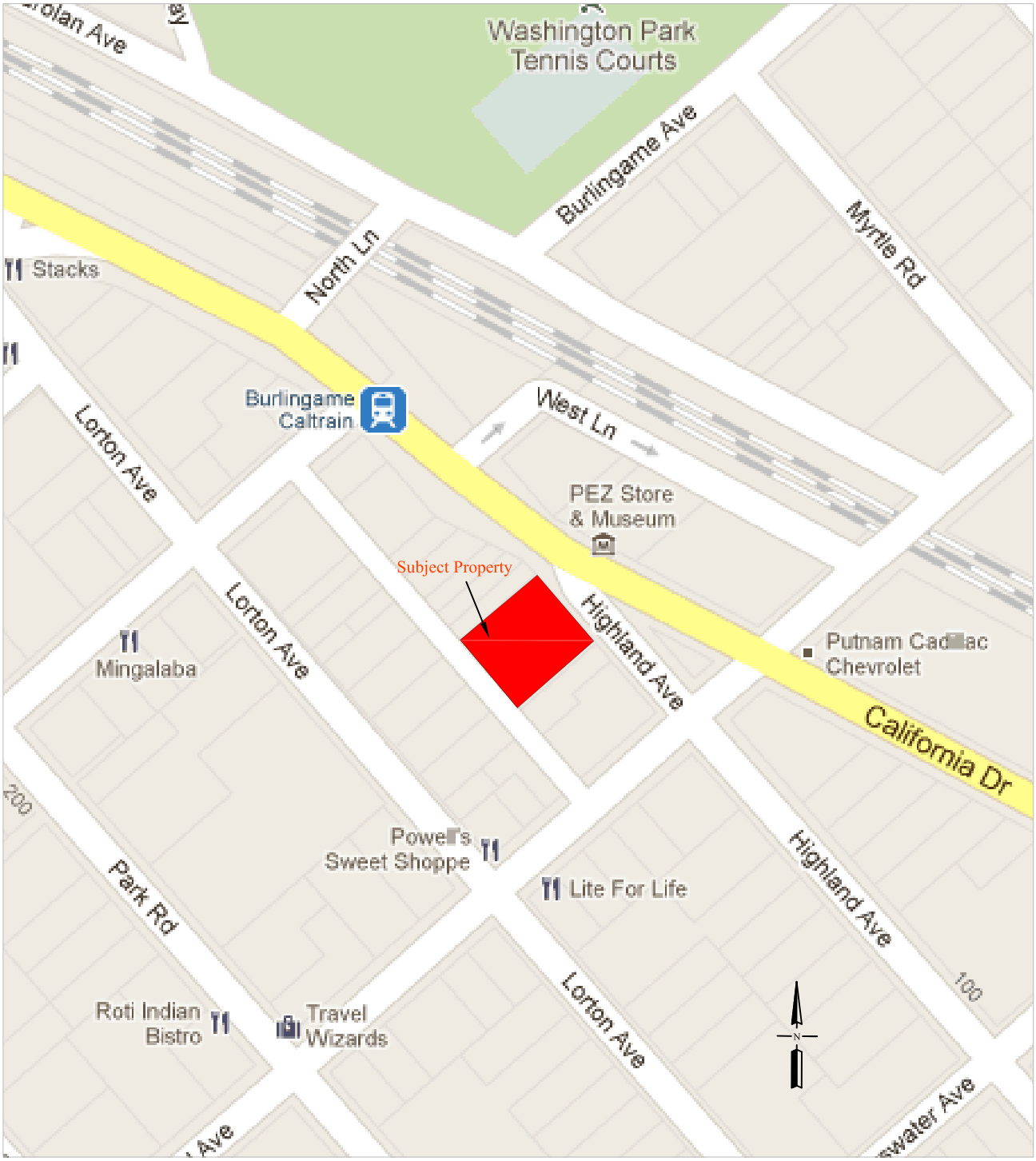
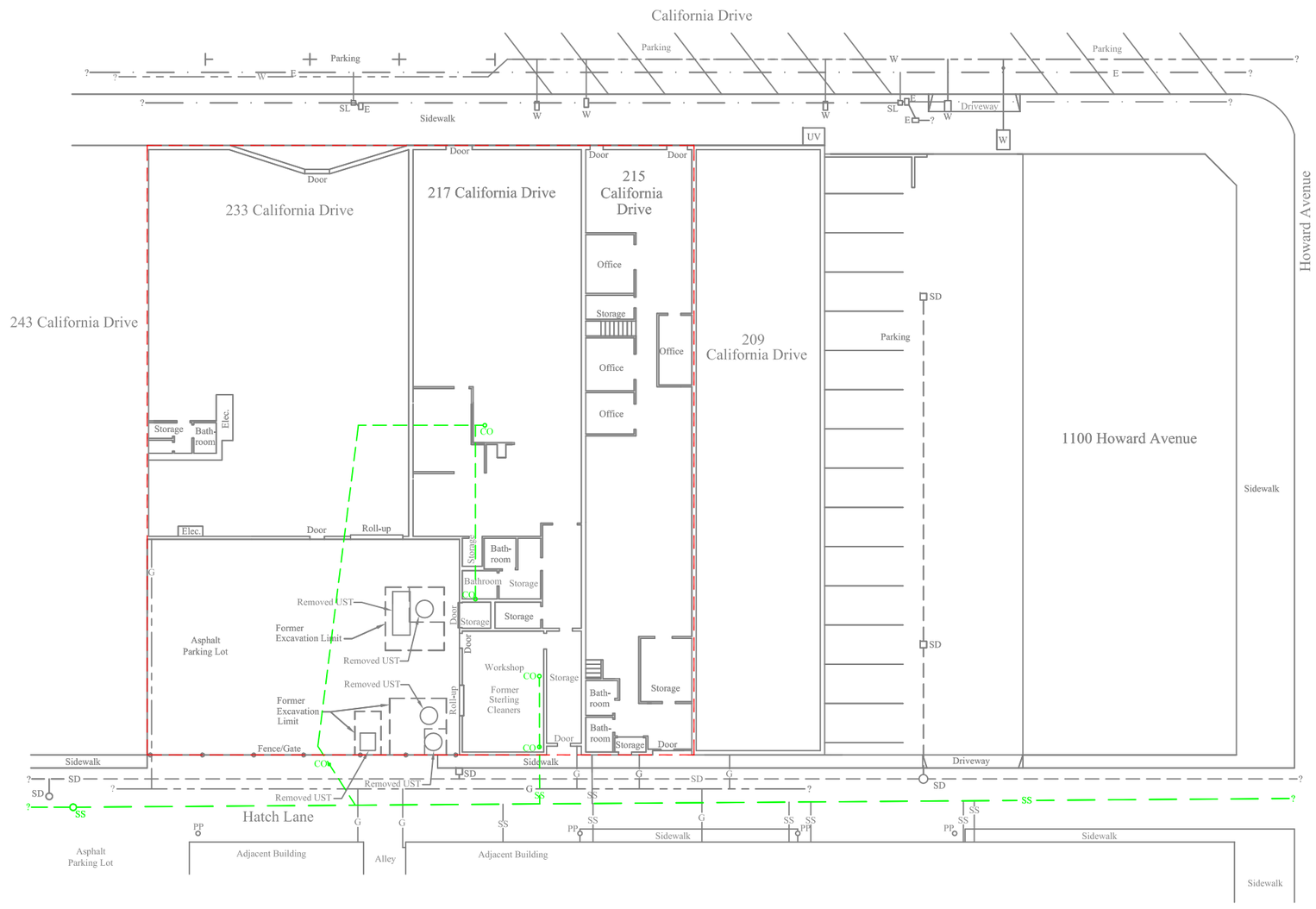
FIGURES

Figure 1

Site Vicinity Map





0 15' 30'
Scale in Feet

Legend:

Subject property

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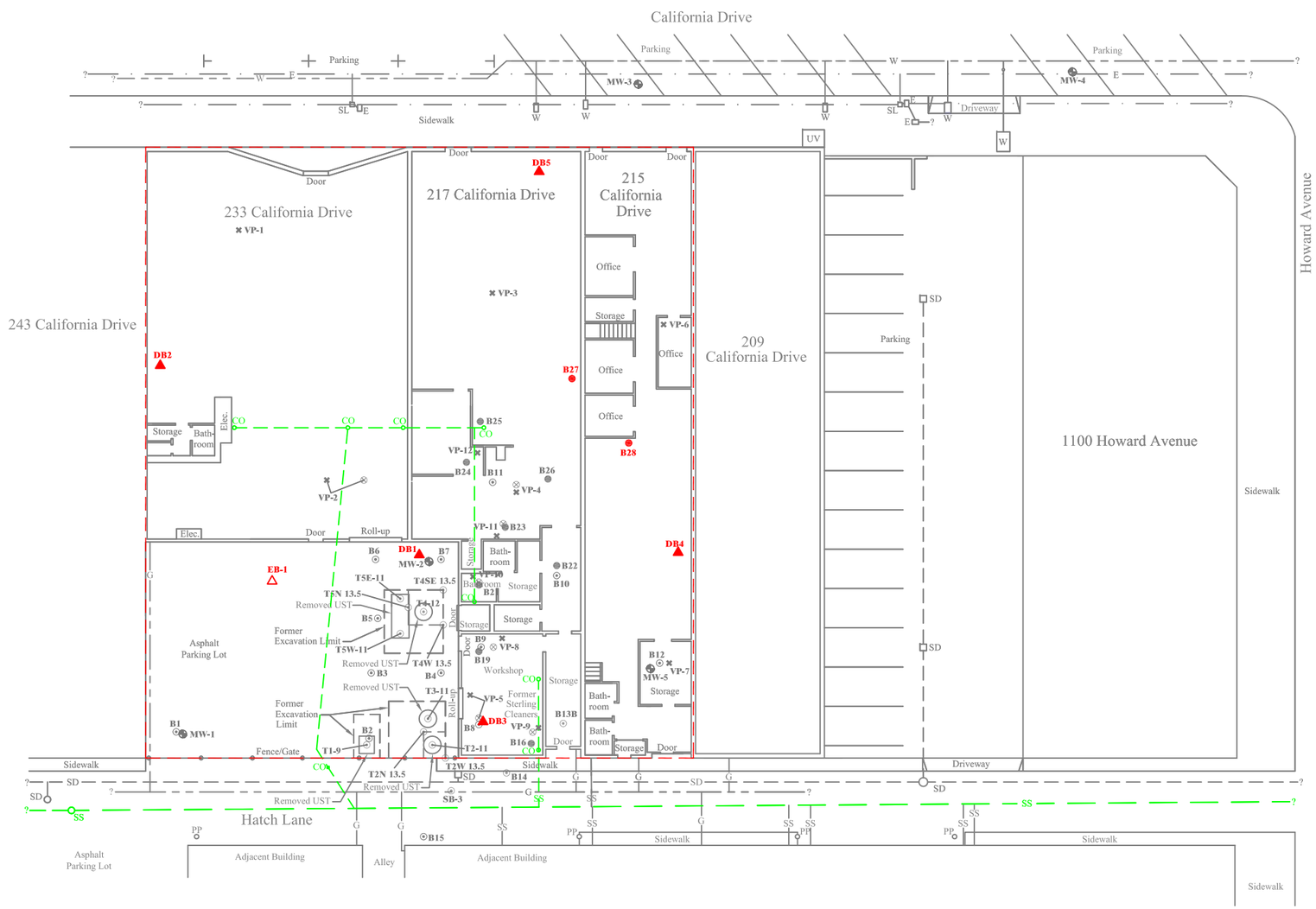
Drawing Name:	SITE PLAN
Address:	215 California Drive Burlingame, California
Drawn by:	KA
Date:	02/24/2015
Scale:	1" =30'-0"
Job #	B12767
Figure #	FIGURE 2



Notes:

Approximate location of underground utilities

E	—— · ——	Electric
W	— — — —	Water
SD	— — —	Storm Drain
SS	—— ——	Sanitary Sewer
G	—— — —	Gas

SL Street light
UV Underground vault
CO Cleanout
PP Power pole
UST Underground storage tank
— — — Subject property

0 15' 30'
Scale in Feet

Legend:

SB-3	Soil boring sample location (RRM, 05/2010)
T1	Former UST and excavation soil sample location (ERS, 03/2011-04/2011)
B1	Soil boring sample location, B1 to B15 (GEI, 06/2012)
VP-1	Sub-slab vapor probe sample location, VP-1,VP-3 & VP-6 (GEI, 06/2013)
VP-2	Nested vapor probes - Sub-slab and 5.5' deep probes, VP-2, VP-4 & VP-5 (GEI, 06/2013)
B13B	Soil boring sample location, B13 to B14 (GEI, 07/2013)
MW-1	Groundwater monitoring well location, MW-1 to MW-5 (GEI, 07/2013)
VP-7	Sub-slab vapor probe sample location (GEI, 09/2013)
VP-8	Nested vapor probes - Sub-slab and 5.5' deep probes, VP-8 to VP-11 (GEI, 09/2014)
VP-12	Sub-slab vapor probe sample location (GEI, 09/2014)
B16	Soil boring sample location, B16 to B26 (GEI, 09/2014)
EB-1	Geotechnical boring (Cornerstone, 02/2015)
B27	Soil boring sample location, B27 & B28 (GEI, 05/2015) -B28 soil boring hit obstructions at 2' in multiple tries.
DB1	Deep soil boring location, DB1 to DB5 (GEI, 05/2015)

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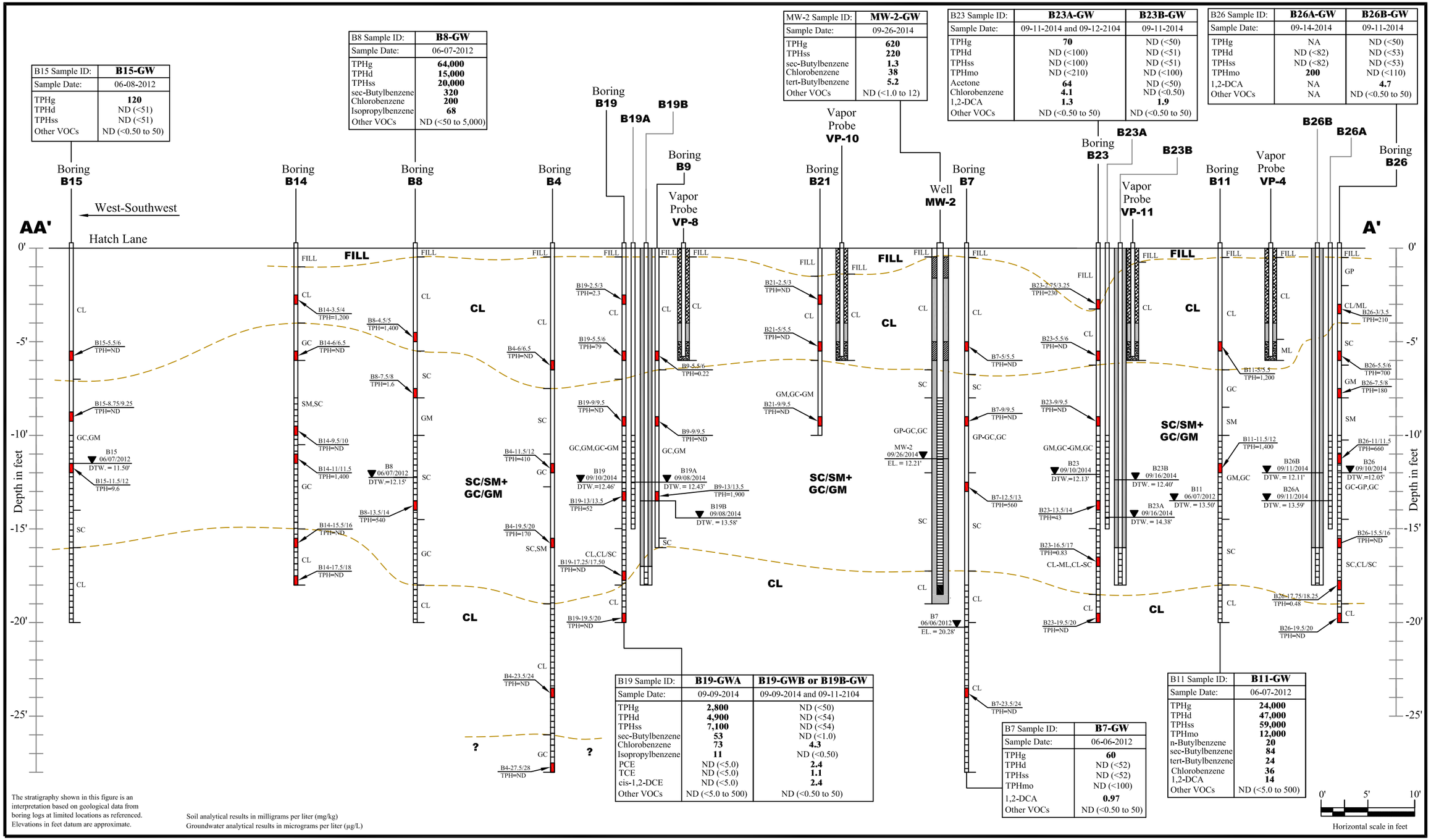
Drawing Name: SITE PLAN WITH SOIL BORING, VAPOR PROBE, GROUNDWATER GRAB SAMPLE AND MONITORING WELL LOCATIONS

Address: 215 California Drive
Burlingame, California

Drawn by:	KA
Date:	06/10/2015
Scale:	1" =30'-0"
Job #	B12767
Figure #	FIGURE 3



B15 Sample ID:	B15-GW
Sample Date:	06-08-2012
TPHg	**120**
TPHd	ND (<51)
TPHss	ND (<51)
Other VOCs	ND (<0.50 to 50)

B8 Sample ID:	B8-GW
Sample Date:	06-07-2012
TPHg	**64,000**
TPHd	**15,000**
TPHss	**20,000**
sec-Butylbenzene	**320**
Chlorobenzene	**200**
Isopropylbenzene	**68**
Other VOCs	ND (<50 to 5,000)

MW-2 Sample ID:	MW-2-GW
Sample Date:	09-26-2014
TPHg	**620**
TPHss	**220**
sec-Butylbenzene	**1.3**
Chlorobenzene	**38**
tert-Butylbenzene	**5.2**
Other VOCs	ND (<1.0 to 12)

B23 Sample ID:	B23A-GW	B23B-GW
Sample Date:	09-11-2014 and 09-12-2104	09-11-2014
TPHg	**70**	ND (<50)
TPHd	ND (<100)	ND (<51)
TPHss	ND (<100)	ND (<51)
TPHmo	ND (<210)	ND (<100)
Acetone	**64**	ND (<50)
Chlorobenzene	**4.1**	ND (<0.50)
1,2-DCA	**1.3**	**1.9**
Other VOCs	ND (<0.50 to 50)	ND (<0.50 to 50)

B26 Sample ID:	B26A-GW	B26B-GW
Sample Date:	09-14-2014	09-11-2014
TPHg	NA	ND (<50)
TPHd	ND (<82)	ND (<53)
TPHss	ND (<82)	ND (<53)
TPHmo	**200**	ND (<110)
1,2-DCA	NA	**4.7**
Other VOCs	NA	ND (<0.50 to 50)

B19 Sample ID:	B19-GWA	B19-GWB or B19B-GW
Sample Date:	09-09-2014	09-09-2014 and 09-11-2104
TPHg	**2,800**	ND (<50)
TPHd	**4,900**	ND (<54)
TPHss	**7,100**	ND (<54)
sec-Butylbenzene	**53**	ND (<1.0)
Chlorobenzene	**73**	**4.3**
Isopropylbenzene	**11**	ND (<0.50)
PCE	ND (<5.0)	**2.4**
TCE	ND (<5.0)	**1.1**
cis-1,2-DCE	ND (<5.0)	**2.4**
Other VOCs	ND (<5.0 to 500)	ND (<0.50 to 50)

B7 Sample ID:	B7-GW
Sample Date:	06-06-2012
TPHg	**60**
TPHd	ND (<52)
TPHss	ND (<52)
TPHmo	ND (<100)
1,2-DCA	**0.97**
Other VOCs	ND (<0.50 to 50)

B11 Sample ID:	B11-GW
Sample Date:	06-07-2012
TPHg	**24,000**
TPHd	**47,000**
TPHss	**59,000**
TPHmo	**12,000**
n-Butylbenzene	**20**
sec-Butylbenzene	**84**
tert-Butylbenzene	**24**
Chlorobenzene	**36**
1,2-DCA	**14**
Other VOCs	ND (<5.0 to 500)

The stratigraphy shown in this figure is an interpretation based on geological data from boring logs at limited locations as referenced. Elevations in feet datum are approximate.

Soil analytical results in milligrams per liter (mg/kg)
Groundwater analytical results in micrograms per liter (µg/L)

0' 5' 10'
Horizontal scale in feet

Legend:

Well Construction Details: Well box with well cap; Sanitary cement seal; 2" solid PVC casing; Sand pack; 2" perforated PVC casing

Boring B8 — CL Soil lithology from Boring B8 log

B8-4.5/5 TPHg = ND — CL Soil sample with total petroleum hydrocarbons (TPH) in milligrams per kilogram; ND=Not detected at or above the laboratory limit.

Depth to water on 06/06/2012

Approximate geological boundry

NA=Not analyzed

VOCs	Volatile Organic Compounds
PCE	Tetrachloroethene
TPH	Total petroleum hydrocarbon
TPHg	Gasoline Range Organics
TPHd	Diesel Range Organics
TPHmo	Motor oil Range Organics
TPHss	Stoddard solvent Range Organics
1,2-DCA	1,2-Dicholoethane
cis-1,2-DCE	cis-1,2-Dichloroethene

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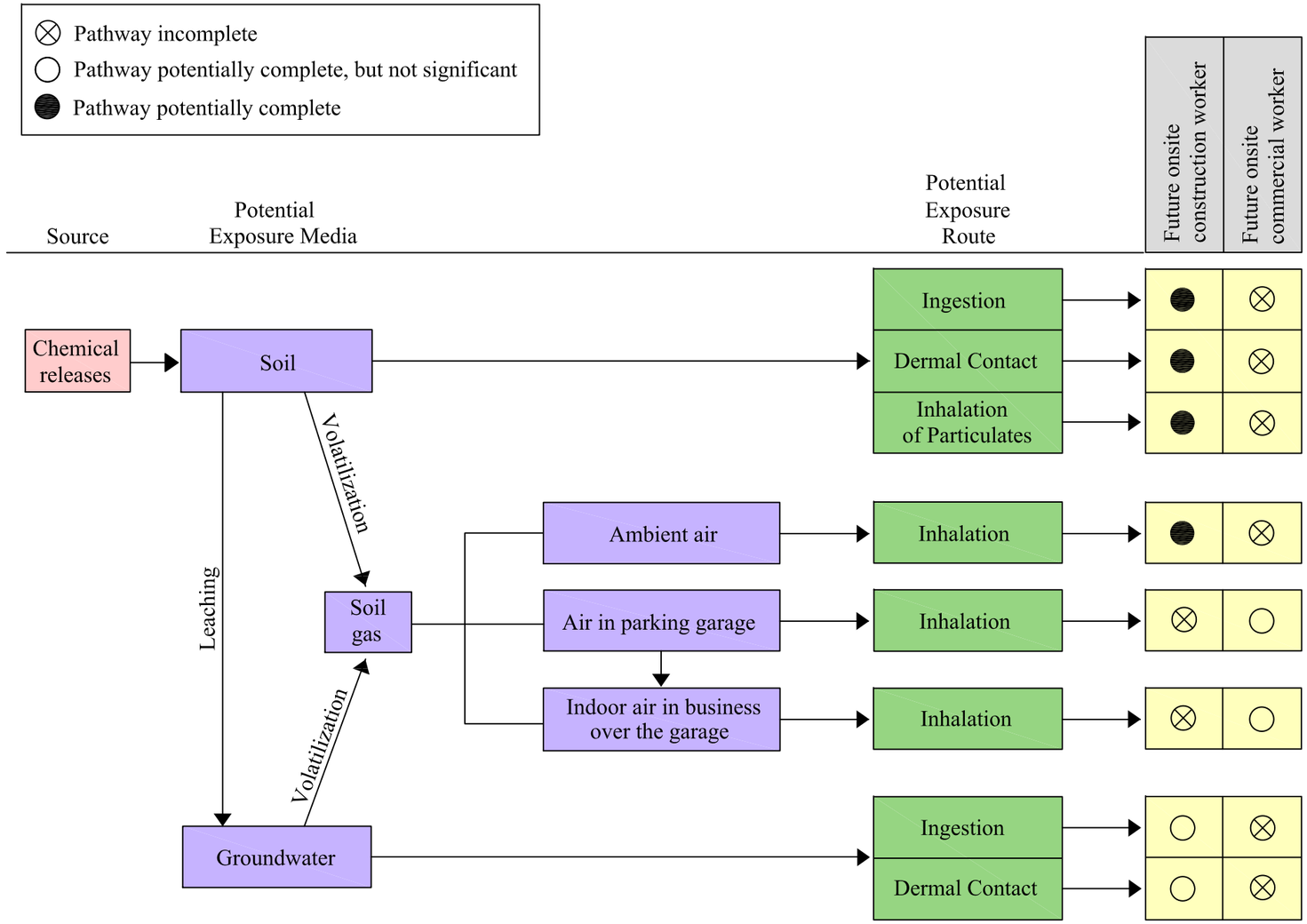
Drawing Name: GEOLOGICAL CROSS-SECTION A'-AA'

Address: 215 California Drive, Burlingame, California

Drawn by:	KA
Date:	11-24-2014
Scale:	SCALE IN FEET
Job #	B12767
Figure #	FIGURE 4



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Drawing Name:	POTENTIAL CONTAMINANT EXPOSURE PATHWAYS FOR REDEVELOPMENT PROJECT
Address:	215 California Drive Burlingame, California
Drawn by:	KA
Date:	08/07/2015
Scale:	No scale
Job #	B12767
Figure #	FIGURE 5

TABLES

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TABLE A - STATISTICAL SUMMARY OF SOIL DATA
215 California Drive, Burlingame, CA

Analyte	Concentration units	Maximum Detected Concentration	Minimum Detected Concentration	Number of Detects	Number of Samples	Frequency of Detection	Maximum Reporting Limit	Minimum Reporting Limit	95%UCL	Statistical Method	EPC
TPHg	mg/kg	1900	2.1	29	130	22%	100	0.098	173.5	97.5%KM Chebychev	173.5
TPHss	mg/kg	1400	1.3	35	138	25%	5	1.1	90.95	95%KM (t)	90.95
TPHd	mg/kg	1400	1.2	52	153	34%	51	1.1	95.06	95%KM (t)	95.06
TPHmo	mg/kg	1700	36.8	11	152	7%	590	20	102.3	95%KM (t)	102.3
TPHms	mg/kg	800	6.85	16	69	23%	10	1.1	58.38	95%KM (t)	58.38
Acetone	ug/kg	92	50	12	131	9%	5100	3.5	13.72	95%KM (t)	13.72
cis-1,2-DCE	ug/kg	13	2.4	2	103	2%	2500	2	NA	NA	13
PCE	ug/kg	10	2.9	8	151	5%	2500	3.7	2.49	95%KM (t)	2.49
Chlorobenzene	ug/kg	1300	4.1	20	103	19%	2500	2	79.96	95%KM Chebychev	79.96
n-Butyl benzene	ug/kg	480	480	1	48	2%	440	3.4	NA	NA	480
sec-Butyl benzene	ug/kg	5600	4.1	29	151	19%	420	2	512.8	97.5%KM Chebychev	512.8
tert-Butyl benzene	ug/kg	120	10	17	151	11%	2500	2	8.884	95%KM (t)	8.884
Ethylbenzene	ug/kg	12	10	2	108	2%	4900	2	2.497	95%KM (t)	2.497
Naphthalene	ug/kg	60	8.7	2	103	2%	2500	2	NA	NA	60
n-Propyl benzene	ug/kg	1100	52	5	151	3%	2500	2	27.41	95%KM (t)	27.41
iso-Propyl benzene	ug/kg	110	4.3	3	103	3%	2500	2	5.895	95%KM (t)	5.895
1,2-DCA	ug/kg	51	16	2	103	2%	2500	2	3.892	95%KM (t)	3.892
1,1,2,2-TCA	ug/kg	240	51	7	103	7%	2500	2	14.97	95%KM (t)	14.97
Xylenes	ug/kg	48	48	1	108	1%	9800	2	NA	NA	48

Notes:

mg/kg = milligrams per kilogram
ug/kg = micrograms per kilogram
TPHg = Total petroleum hydrocarbons as gasoline
TPHss = Total petroleum hydrocarbons as Stoddard Solvent
TPHd = Total petroleum hydrocarbons as diesel fuel
TPHmo = Total petroleum hydrocarbons as motor oil
TPHms = Total petroleum hydrocarbons as mineral spirits
DCE = Dichloroethene
PCE = Tetrachloroethene
DCA = Dichloroethane
TCE = Trichloroethane
95%KM (t) = 95 percent Kaplan Meier approximation of the Student's t distribution
NA = not applicable
EPC = Exposure point concentration

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TABLE B - RISK-HAZARD SUMMARY FOR SOIL DURING CONSTRUCTION
215 California Drive, Burlingame, CA

Analyte	EPC (mg/kg)	ESL (mg/kg) Cancer	ESL (mg/kg) Non-Cancer	Cancer Risk	Hazard Quotient
TPHg	173.5	NA	2700	NA	<0.1
TPHss [1]	90.95	NA	29700	NA	<0.1
TPHd	95.06	NA	900	NA	0.1
TPHmo	102.7	NA	28000	NA	<0.1
TPHms [1]	58.38	NA	1190	NA	<0.1
Acetone	0.01372	NA	240000	NA	<0.1
cis-1,2-DCE	0.013	NA	77	NA	<0.1
PCE	0.00249	31	1500	8E-11	<0.1
Chlorobenzene	0.07996	NA	5000	NA	<0.1
sec-Butyl benzene [1]	0.5128	NA	29700	NA	<0.1
tert-Butyl benzene [1]	0.008884	NA	29700	NA	<0.1
Ethylbenzene	0.002497	490	13000	5E-12	<0.1
Naphthalene	0.06	370	470	2E-10	<0.1
n-Butyl benzene [1]	0.48	NA	29700	NA	<0.1
n-Propyl benzene [1]	0.02741	NA	29700	NA	<0.1
iso-Propyl benzene [1]	0.005895	NA	29700	NA	<0.1
1,2-DCA	0.003892	54	40	7E-11	<0.1
1,1,2,2-TCA	0.01497	38	19000	4E-10	<0.1
Xylenes	0.048	NA	2500	NA	<0.1
			Total:	7E-10	0.2

Notes:

[1] ESL not available, screening level from USEPA RSL calculator, see text

NA = Not applicable

NE = Not established

EPC = Exposure point concentration

ESL = Environmental Screening Level for the construction scenario, Table K3 SFRWQCB, December 2013.

mg/kg = Milligrams per kilogram

TABLE C
RISK-HAZARD SUMMARY FOR VAPOR INTRUSION
215 California Drive, Burlingame, CA

Analyte	Concentration [1] (ug/m^3)	Cancer Risk	Hazard Quotient
TPHg	3600		<0.1
TPHd	27000		<0.1
TPHss	20000		<0.1
Carbon tetrachloride	100	5E-08	<0.1
Naphthalene	4.8	2E-09	<0.1
PCE	4700	3E-07	<0.1
TCE	33	2E-09	<0.1
	Total:	4E-07	<0.1

1 Maximum detected concentration is soil vapor samples VP-1, VP-6, VP-7, and VP-9.

TPHg = Total petroleum hydrocarbons as gasoline
TPHd = Total petroleum hydrocarbons as diesel
TPHss = Total petroleum hydrocarbons as Stoddard Solvent
ug/m^3 = Micrograms per cubic meter

TABLE D
GROUNDWATER SCREENING RESULTS FOR CONSTRUCTION WORKERS
215 California Drive, Burlingame, CA

Analyte	Maximum Detected Groundwater Concentration (ug/L)	Risk-Based Screening Level (ug/L)
Acetone	120	170,000,000
Benzene	1.6	650
Carbon tetrachloride	0.89	252
Chlorobenzene	200	140,000
Chloroform	4.4	3,400
cis-1,2-Dichloroethene	44	39,000
1,2-Dichloroethane	150	1,960
Ethylbenzene	6.5	1,580
Isopropylbenzene	68	210,000
Methylethyl ketone	65	15,500,000
Naphthalene	1	29,400
n-Propylbenzene	1.2	210,000
n-Butyl benzene	5	1,700,000
sec-Butylbenzene	320	290,000
t-Butylbenzene	24	120,000
Tetrachloroethene	110 [4]	32
Toluene	2.2	600,000
TPH diesel [2]	210000	2,900,000
TPH gasoline [1]	64000	660,000
TPH mineral spirits [2]	113000	2,900,000
TPH motor oil [3]	12000	870,000,000
TPH Stoddard Solvent [2]	310000	2,900,000
Trichloroethene	23	1,260
Vinyl chloride	14	449
Xylenes	33	900,000

Notes:

Screening level calculated using USEPA RSL calculator and modifying the recreator receptor to resemble the construction worker using the exposure parameters consistent with those recommended in the SFRWQCB ESLs (2013). See text for discussion.

1 TPH low boiling point aromatic as the surrogate

2 TPH medium boiling point aliphatic as the surrogate

3 TPH high boiling point aliphatic as the surrogate

4 Offsite, MW-4 maximum concentration; maximum onsite PCE concentration has been only 10 ug/L

ug/L = Micrograms per liter

APPENDIX A

Tables Presenting Accumulated Soil, Soil Vapor and Groundwater Data

Table 1. Laboratory Analytical Results for Soil Samples
215 California Drive, Burlingame, California

Field Point	Sample Date	Sample ID	Sample Depth	Percent Moisture	Total Petroleum Hydrocarbon, TPH					Volatile Organic Compounds, VOCs																	
					TPHg	TPHss	TPHd	TPHmo	TPHms	MTBE	Acetone	Benzene	cis-1,2-DCE	PCE	TCE	Chlorobenzene	sec-BB	tert-BB	Ethylbenzene	Naphthalene	n-PB	iso-PB	1,2-DCA	1,1,2,2-TCA	Toluene	Xylenes	Other VOC's
			feet bgs	wt %	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
RRM, May 2010																											
SB-3	05/06/10	SB-3-10' [1]	10.0	NA	**156** [2]	NA	ND (<9.4)	**36.8** [3]	**112** [4]	ND (<2,500)	ND (<5,000)	ND (<2,500)	ND (<2,500)	ND (<2,500)	ND (<2,500)	ND (<2,500)	**1,770** [3]	ND (<2,500)	ND (<2,500)	ND (<2,500)	ND (<2,500)	ND (<2,500)	ND (<2,500)	ND (<2,500)	ND (<2,500)	ND (<5,000)	ND (<2,500 to <20,000)
		SB-3-15' [1]	15.0	NA	ND (<0.098)	NA	ND (<10)	ND (<20)	ND (<10)	ND (<4.9)	ND (<98)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<9.8)	ND (<4.9 to <39)
		SB-3-20' [1]	20.0	NA	ND (<0.099)	NA	ND (<10)	ND (<20)	ND (<10)	ND (<4.9)	ND (<99)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<9.9)	ND (4.9 to <39)
ERS, March 2011																											
T1-9	03/17/11	T1-9 [5]	9.0	NA	ND (<99)	NA	ND (<10)	NA	NA	ND (<5.0)	ND (<99)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<9.9)	ND (<5.0 to <40)
T2-11	03/17/11	T2-11	11.0	NA	NA	NA	ND (<50)	NA	**555** [4]	NA	NA	ND (<990)	NA	NA	NA	NA	NA	NA	**533** [3]	NA	NA	NA	NA	NA	ND (<990)	**8,010**	NA
T3-11	03/17/11	T3-11	11.0	NA	NA	NA	ND (<50)	NA	**401** [4]	NA	NA	ND (<970)	NA	NA	NA	NA	NA	NA	**475** [3]	NA	NA	NA	NA	NA	ND (<970)	**7,440**	NA
T4-12	03/17/11	T4-12	12.0	NA	NA	NA	ND (<10)	NA	**159** [4]	NA	NA	ND (<500)	NA	NA	NA	NA	NA	NA	**411** [3]	NA	NA	NA	NA	NA	ND (<500)	**5,250**	NA
T5E-11	03/30/11	T5E-11 [6]	11.0	NA	ND (<97)	NA	ND (<10)	ND (<20)	NA	ND (<4.8)	ND (<97)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<9.7)	ND (<4.8 to <39)
T5W-11	03/30/11	T5W-11 [7]	11.0	NA	ND (<100)	NA	ND (<10)	ND (<20)	NA	ND (<5.0)	ND (<100)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<10)	ND (<5.0 to <40)
ERS, April 2011																											
T2W@13.5	04/01/11	T2W@13.5 [1]	13.5	NA	NA	NA	ND (<20)	ND (<40)	**158** [4]	NA	NA	ND (<4,900)	NA	NA	NA	NA	NA	NA	ND (<4,900)	NA	NA	NA	NA	NA	ND (<4,900)	ND (<9,800)	NA
T2N@13.5	04/01/11	T2N@13.5 [1]	13.5	NA	NA	NA	ND (<10)	ND (<20)	**19.6** [4]	NA	NA	ND (<250)	NA	NA	NA	NA	NA	NA	ND (<250)	NA	NA	NA	NA	NA	ND (<250)	ND (<500)	NA
T4S@13.5	04/01/11	T4S@13.5 [1]	13.5	NA	NA	NA	ND (<9.8)	ND (<20)	ND (<9.8)	NA	NA	ND (<250)	NA	NA	NA	NA	NA	NA	ND (<250)	NA	NA	NA	NA	NA	ND (<250)	ND (<510)	NA
T4SE@13.5	04/01/11	T4SE@13.5 [1]	13.5	NA	NA	NA	ND (<9.9)	ND (<20)	**6.85** [1, 4]	NA	NA	ND (<250)	NA	NA	NA	NA	NA	NA	ND (<250)	NA	NA	NA	NA	NA	ND (<250)	ND (<500)	NA
T5@13.5	04/01/11	T5@13.5 [1]	13.5	NA	NA	NA	ND (<51)	ND (<100)	**624** [4]	NA	NA	ND (<2,500)	NA	NA	NA	NA	NA	NA	ND (<2,500)	NA	NA	NA	NA	NA	ND (<2,500)	ND (<5,000)	NA
GEI, June 2012																											
B1	06/06/12	B1-5.5/6	5.5 to 6.0	**15**	ND (<0.20)	ND (<1.2)	ND (<1.2)	ND (<58)	NA	ND (<3.9)	ND (<39)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<7.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<7.9)	ND (<3.9 to <39)
		B1-8.5/9	8.5 to 9.0	**11**	ND (<0.19)	ND (<1.1)	ND (<1.1)	ND (<56)	NA	ND (<3.8)	ND (<38)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.7)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.7)	ND (<3.8 to <38)
B2	06/06/12	B2-5.5/6	5.5 to 6.0	**12**	ND (<0.20)	ND (<1.1)	**11**	ND (<56)	NA	ND (<4.0)	ND (<40)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<8.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<8.0)	ND (<4.0 to <40)
		B2-9/9.5	9.0 to 9.5	**12**	ND (<0.20)	ND (<1.1)	ND (<1.1)	ND (<57)	NA	ND (<4.4)	ND (<44)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<8.7)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<8.7)	ND (<4.4 to <44)
B3	06/06/12	B3-5.5/6	5.5 to 6.0	**14**	ND (<0.21)	ND (<1.2)	ND (<1.2)	ND (<58)	NA	ND (<4.2)	ND (<42)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.3)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.3)	ND (<4.2 to <42)
		B3-8.5/9	8.5 to 9.0	**12**	ND (<0.16)	ND (<1.1)	ND (<1.1)	ND (<56)	NA	ND (<3.2)	ND (<32)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<6.5)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<6.5)	ND (<3.2 to <32)
B4	06/07/12	B4-6/6.5	6.0 to 6.5	**20**	ND (<0.21)	ND (<1.2)	ND (<1.2)	ND (<62)	NA	ND (<4.2)	ND (<42)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.4)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.4)	ND (<4.2 to <42)
		B4-11.5/12	11.5 to 12.0	**18**	**180**	**410**	**410**	ND (<180)	NA	ND (<3.5)	**70**	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	**11**	ND (<3.5)	**38**	ND (<3.5)	ND (<7.0)	ND (<3.5)	ND (<3.5)	ND (<3.5)	**63**	ND (<3.5)	ND (<7.0)	**1,2,3-TCP (21)** and others ND (<3.5 to <35)
		B4-19.5/20	15.5 to 16.0 [8]	**18**	**170**	**87**	**62**	ND (<61)	NA	ND (<5.2)	**68**	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	**40**	ND (<5.2)	**40**	ND (<5.2)	ND (<10)	ND (<5.2)	**56**	ND (<5.2)	**71**	ND (<5.2)	ND (<10)	ND (<5.2 to <52)
		B4-23.5/24	23.5 to 24.0	**17**	ND (<0.22)	ND (<1.2)	ND (<1.2)	ND (<60)	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.7)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.7)	ND (<4.3 to <43)
		B4-27.5/28	27.5 to 28.0	**15**	ND (<0.23)	ND (<1.2)	ND (<1.2)	ND (<58)	NA	ND (<4.6)	ND (<46)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<9.1)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<9.1)	ND (<4.6 to <46)
B5	06/06/12	B5-5.5/6	5.5 to 6.0	**22**	ND (<0.20)	ND (<1.3)	ND (<1.3)	ND (<64)	NA	ND (<4.5)	ND (<45)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<9.0)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<9.0)	ND (<4.5 to <45)
		B5-8.75/9.25	8.75 to 9.25	**12**	ND (<0.19)	ND (<1.1)	ND (<1.1)	ND (<57)	NA	ND (<3.8)	ND (<38)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.6)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.6)	ND (<3.8 to <38)
B6	06/06/12	B6-6/6.5	6.0 to 6.5	**13**	ND (<0.23)	ND (<1.1)	**17**	ND (<57)	NA	ND (<4.6)	ND (<46)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<9.2)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<9.2)	ND (<4.6 to <46)
		B6-9.5/10	9.5 to 10.0	**9.2**	ND (<0.22)	ND (<1.1)	ND (<1.1)	ND (<55)	NA	ND (<4.4)	ND (<44)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<8.9)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<8.9)	ND (<4.4 to <44)
		B6-14/14.5	14.0 to 14.5	**13** [11]	**45**	**320**	**220**	ND (<280)	NA	ND (<5.7)	**72**	ND (<5.7)	ND (<5.7)	ND (<5.7)	ND (<5.7)	**31**	**180**	ND (<5.7)	ND (<5.7)	ND (<11)	ND (<5.7)	**7.5**	ND (<5.7)	**61**	ND (<5.7)	ND (<11)	ND (<5.7 to <57)
Environmental Screening Levels, ESLs																											
Shallow soil screening levels, residential, where groundwater IS a drinking water resource (Table A-1).					100	100	100	500	100	23	500	44	190	550	460	1,500	4,600 [12]	1,100 [12]	3,300	1,200	990 [12]	640 [12]	4.5	18	2,900	2,300	Varies by compound
Shallow soil screening levels, commercial/industrial, where groundwater IS a drinking water resource (Table A-2).					500	110	110	500	110	23	500	44	190	700	460	1,500	4,600 [12]	1,100 [12]	3,300	1,200	990 [12]	640 [12]	4.5	18	2,900	2,300	Varies by compound
Field Point	Sample Date	Sample ID	Sample Depth	Percent Moisture	Total Petroleum Hydrocarbon, TPH					Volatile Organic Compounds, VOCs																	
					TPHg	TPHss	TPHd	TPHmo	TPHms	MTBE	Acetone	Benzene	cis-1,2-DCE	PCE	TCE	Chlorobenzene	sec-BB	tert-BB	Ethylbenzene	Naphthalene	n-PB	iso-PB	1,2-DCA	1,1,2,2-TCA	Toluene	Xylenes	Other VOC's
			feet bgs	wt %	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
GEI, June 2012 (Continuation)																											
B7	06/06/12	B7-5/5.5	5.0 to 5.5	**17**	ND (<0.24)	ND (<1.2)	**1.5**	ND (<60)	NA	ND (<4.9)	ND (<49)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<9.7)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<9.7)	ND (<4.9 to <49)
		B7-9/9.5	9.0 to 9.5	**12**	ND (<0.22)	ND (<1.1)	**8.8**	ND (<56)	NA	ND (<4.5)	ND (<45)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<8.9)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<8.9)	ND (<4.5 to <45)
		B7-12.5/13	12.5 to 13.0	**15**	**560**	**240**	**190**	ND (<120)	NA	ND (<4.5)	**57**	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	**5.6**	**130**	**28**	ND (<4.5)	ND (<8.9)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<8.9)	ND (<4.5 to <45)
		B7-23.5/24	23.5 to 24.0	**15**	ND (<0.19)	ND (<1.2)	ND (<1.2)	ND (<59)	NA	ND (<3.8)	ND (<38)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.7)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.7)	ND (<3.8 to <38)
B8	06/07/12	B8-4.5/5	4.5 to 5.0	**16**	**260**	**1,400**	**1,000**	ND (<590)	NA	ND (<4.2)	**66**	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	**320**	ND (<4.2)	ND (<4.2)	**8.7**	**190**	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.4)	ND (<4.2 to <42)
		B8-7.5/8	7.5 to 8.0	**14**	ND (<0.22)	ND (<1.2)	**1.6**	ND (<58)	NA	ND (<4.4)	ND (<44)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<8.8)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<8.8)	ND (<4.4 to <44)

Table 1. Laboratory Analytical Results for Soil Samples
215 California Drive, Burlingame, California

Field Point	Sample Date	Sample ID	Sample Depth	Percent Moisture	Total Petroleum Hydrocarbon, TPH					Volatile Organic Compounds, VOCs																	
					TPHg	TPHss	TPHd	TPHmo	TPHms	MTBE	Acetone	Benzene	cis-1,2-DCE	PCE	TCE	Chlorobenzene	sec-BB	tert-BB	Ethylbenzene	Naphthalene	n-PB	iso-PB	1,2-DCA	1,1,2,2-TCA	Toluene	Xylenes	Other VOC's
			feet bgs	wt %	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
B8	06/07/12	B8-13.5/14	13.5 to 14.0	**11**	**540**	**36**	**27**	ND (<56)	NA	ND (<3.5)	**52**	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	**220**	ND (<3.5)	**120**	ND (<3.5)	ND (<6.9)	**52**	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<6.9)	**1,1,2-TCA (40), MIBK (98), 1,2,3-TCP (150),** others ND (<3.5 to <35)
B9	06/07/12	B9-5.5/6	5.5 to 6.0	**15**	**0.22**	ND (<1.2)	ND (<1.2)	ND (<59)	NA	ND (<3.6)	ND (<36)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<7.1)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<7.1)	ND (<3.6 to <36)
		B9-9/9.5	9.0 to 9.5	**10**	ND (<0.20)	ND (<1.1)	ND (<1.1)	ND (<55)	NA	ND (<4.0)	ND (<40)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<8.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<8.0)	ND (<4.0 to <40)
		B9-13/13.5	13.0 to 13.5	**9.9**	**1,900**	**590**	**410**	ND (<270)	NA	ND (<3.2)	**82**	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<3.2)	**120**	ND (<3.2)	**110**	ND (<3.2)	ND (<6.4)	**190**	**110**	ND (<3.2)	ND (<3.2)	ND (<3.2)	ND (<6.4)	**1,2,3-TCP (190)** and others ND (<3.2 to <32)
B10	06/07/12	B10-5/5.5	5.0 to 5.5	**13**	ND (<0.20)	ND (<1.1)	ND (<1.1)	ND (<57)	NA	ND (<4.0)	ND (<40)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<8.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<8.0)	ND (<4.0 to <40)
		B10-7.5/8	7.5 to 8.0	**10**	ND (<0.21)	ND (<1.1)	ND (<1.1)	ND (<55)	NA	ND (<4.1)	ND (<41)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<8.2)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<8.2)	ND (<4.1 to <41)
		B10-12.5/13	12.5 to 13.0	**12**	**150**	**290**	**220**	ND (<170)	NA	ND (<3.5)	**50**	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	**8.6**	ND (<3.5)	**31**	ND (<3.5)	ND (<7.0)	ND (<3.5)	ND (<3.5)	ND (<3.5)	**240**	ND (<3.5)	ND (<7.0)	ND (<3.5 to <35)
B11	06/07/12	B11-5.5/6	5.5 to 6.0	**13**	**290**	**410**	**1,200**	**1,100**	NA	ND (<3.7)	**81**	ND (<3.7)	ND (<3.7)	**4.4**	ND (<3.7)	**52**	ND (<3.7)	**14**	**12**	**60**	**140**	**36**	ND (<3.7)	ND (<3.7)	ND (<3.7)	**48**	**1,2,4-TMB (720), 4-isoPT (170)**, and others ND (<3.7 to <37)
		B11-11.5/12	11.5 to 12.0	**10**	**460**	**270**	**1,400**	**1,700**	NA	ND (<3.3)	**92**	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	**110**	ND (<3.3)	**58**	ND (<3.3)	ND (<6.6)	ND (<3.3)	ND (<3.3)	ND (<3.3)	**130**	ND (<3.3)	ND (<6.6)	**1,2,4-TMB (3.7), 1,4-DCB (12)**, and others ND (<3.3 to <33)
B12	06/07/12	B12-5/5.5	5.0 to 5.5	**15**	ND (<0.21)	ND (<1.2)	ND (<1.2)	ND (<59)	NA	ND (<4.2)	ND (<42)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.3)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.3)	ND (<4.2 to <42)
		B12-9/9.5	9.0 to 9.5	**8.3**	ND (<0.18)	ND (<1.1)	ND (<1.1)	ND (<54)	NA	ND (<3.6)	ND (<36)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<7.1)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<3.6)	ND (<7.1)	ND (<3.6 to <36)
		B12-13/13.5	13.0 to 13.5	**12**	**350**	**170**	**120**	ND (<56)	NA	ND (<4.8)	ND (<48)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	**37**	ND (<4.8)	ND (<4.8)	ND (<9.6)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<9.6)	ND (<4.8 to <48)
B15	06/07/12	B15-5.5/6	5.5 to 6.0	**13**	ND (<0.17)	ND (<1.2)	ND (<1.2)	ND (<58)	NA	ND (<3.4)	ND (<34)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<6.7)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<3.4)	ND (<6.7)	ND (<3.4 to <34)
		B15-8.75/9.25	8.75 to 9.25	**11**	ND (<0.21)	ND (<1.1)	ND (<1.1)	ND (<56)	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.5)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.5)	ND (<4.3 to <43)
		B15-11.5/12	11.5 to 12.0	**11**	ND (<19)	**9.1**	**9.6**	ND (<56)	NA	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	**18**	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<9.9)	ND (<5.0)	ND (<5.0)	ND (<5.0)	**100**	ND (<5.0)	ND (<9.9)	**1,2,3-TCP (40)** and others ND (<5.0 to <50)
GEI, September 2013																											
B13	07/29/13	B13B-4.5/5	4.5 to 5.0	**19.8**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		B13B-7/7.5	7.0 to 7.5	**17.6**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		B13B-9.5/10	9.5 to 10.0	**15.2**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		B13B-11/11.5	11.0 to 11.5	**15.1**	**230** (9)	**520** (10)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	**17**	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10 to 120)
		B13B-13.5/14	13.5 to 14.0	**15.4**	**15** (9)	**60** (10)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	**75**	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10 to 120)
		B13B-17.5/18	17.5 to 18.0	**13.0**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
B14	07/29/13	B14-3/3.5	3.0 to 3.5	**20.9**	**1,200** (9)	**810** (10)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10 to 120)
		B14-6/6.5	6.0 to 6.5	**12.7**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		B14-9.5/10	9.5 to 10.0	**14.7**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		B14-11/11.5	11.0 to 11.5	**12.5**	**1,400** (9)	**540** (10)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<10)	NA	ND (<10)	ND (<10)	ND (<10)	ND (<10)	**10**	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10)	ND (<10 to 120)
		B14-15.5/16	15.5 to 16.0	**11.9**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		B14-17.5/18	17.5 to 18.0	**11.8**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
MW-3	07/31/13	MW3-7/7.5	7.0 to 7.5	**10.5**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		MW3-9.5/10	9.5 to 10.0	**10.3**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		MW3-16/16.5	16.0 to 16.5	**16.9**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	**2.4**	**10**	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
MW-4	07/31/13	MW4-7/7.5	7.0 to 7.5	**8.67**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	**2.9**	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		MW4-9/9.5	9.0 to 9.5	**10.8**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	ND (<2.0)	**5.5**	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
		MW4-17/17.5	17.0 to 17.5	**17.1**	ND (<0.5)	ND (<5.0)	ND (<5.0)	ND (<50)	ND (<5.0)	ND (<2.0)	NA	ND (<2.0)	**13**	**3.9**	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0)	ND (<2.0 to 25)
Environmental Screening Levels, ESLs																											
Shallow soil screening levels, residential, where groundwater IS a drinking water resource (Table A-1).					100	100	100	500	100	23	500	44	190	550	460	1,500	4,600 (12)	1,100 (12)	3,300	1,200	990 (12)	640 (12)	4.5	18	2,900	2,300	Varies by compound
Shallow soil screening levels, commercial/industrial, where groundwater IS a drinking water resource (Table A-2).					500	110	110	500	110	23	500	44	190	700	460	1,500	4,600 (12)	1,100 (12)	3,300	1,200	990 (12)	640 (12)	4.5	18	2,900	2,300	Varies by compound
GEI, September 2014																											
B16	09/08/14	B16-5.5/6	5.5 to 6.0	**22**	ND (<0.23)	ND (<1.3)	**7.6**	ND (<64)	NA	ND (<4.6)	ND (<46)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<4.6)	ND (<9.3)	ND (<4.6 to 46)
		B16-8.75/9.25	8.75 to 9.25	**12**	ND (<0.24)	**1.3**	**3.9**	ND (<56)	NA	ND (<4.8)	ND (<48)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<4.8)	ND (<9.5)	ND (<4.8 to 48)
		B16-11.75/12.25	11.75 to 12.25	**15**	**600**	**290**	**220**	ND (<170)	NA	ND (<480)	ND (<4,800)	ND (<480)	ND (<480)	ND (<480)	ND (<480)	ND (<480)	**5,600**	ND (<480)	ND (<480)	ND (<480)	ND (<480)	ND (<480)	ND (<480)	ND (<480)	ND (<480)	ND (<970)	ND (<480 to 4,800)
		B16-13/13.5	13.0 to 13.5	**13**	**470**	**180**	**130**	ND (<57)	NA	ND (<510)	ND (<5,100)	ND (<510)	ND (<510)	ND (<510)	ND (<510)	**1,300**	**2,800**	ND (<510)	ND (<510)	ND (<510)	ND (<510)	ND (<510)	ND (<510)	ND (<510)	ND (<510)	ND (<1,000)	ND (<510 to 5,100)
		B16-17.5/18	17.5 to 18.0	**21**	**0.30**	ND (<1.2)	ND (<1.2)	ND (<62)	NA	ND (<3.9)	ND (<39)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<7.7)	ND (<3.9 to 39)
		B16-19.5/20	19.5 to 20.0	**15**	ND (<0.21)	ND (<1.2)	ND (<1.2)	ND (<58)	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.6)	ND (<4.3 to 43)
		B19-2.5/3	2.5 to 3.0	**17**	ND (<0.22)	ND (<1.2)	**2.3**	ND (<60)	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.7)	ND (<4.3 to 43)

Table 1. Laboratory Analytical Results for Soil Samples
215 California Drive, Burlingame, California

B19	09/08/14	B19-5.5/6	5.5 to 6.0	**19**	79	NA	NA	NA	NA	ND (<4.7)	ND (<47)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<9.5)	ND (<4.7 to 47)
		B19-9/9.5	9.0 to 9.5	**9.9**	ND (<0.22)	NA	NA	NA	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.7)	ND (<4.3 to 43)
		B19-13/13.5	13.0 to 13.5	**17**	**52**	NA	NA	NA	NA	ND (<4.3)	**76**	ND (<43)	ND (<4.3)	ND (<4.3)	ND (<4.3)	**11**	ND (<4.3)	**15**	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.6)	ND (<4.3 to 43)
		B19-17.25/17.75	17.25 to 17.75	**15**	ND (<0.19)	ND (<1.2)	ND (<1.2)	ND (<59)	NA	ND (<3.8)	ND (<38)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.6)	ND (<3.8 to 38)
		B19-19.5/20	19.5 to 20.0	**17**	ND (<0.21)	ND (<1.2)	ND (<1.2)	ND (<60)	NA	ND (<4.2)	ND (<42)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.3)	ND (<4.2 to 42)
B21	09/10/14	B21-2.5/3	2.5 to 3.0	**14**	ND (<0.23)	ND (<1.2)	ND (<1.2)	ND (<58)	NA	ND (<4.7)	ND (<47)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<9.4)	ND (<4.7 to 47)
		B21-5/5.5	5.0 to 5.5	**12**	ND (<0.21)	ND (<1.1)	ND (<1.1)	ND (<56)	NA	ND (<4.2)	ND (<42)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<8.4)	ND (<4.2 to 42)
		B21-9/9.5	9.0 to 9.5	**12**	ND (<0.23)	ND (<1.1)	ND (<1.1)	ND (<56)	NA	ND (<4.7)	ND (<47)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<4.7)	ND (<9.3)	ND (<4.7 to 47)
B22	09/08/14	B22-5.5/6	5.5 to 6.0	**15**	ND (<0.22)	ND (<1.2)	ND (<1.2)	ND (<58)	NA	ND (<4.4)	ND (<44)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<8.8)	ND (<4.4 to 44)
		B22-9/9.5	9.0 to 9.5	**8.8**	ND (<0.25)	ND (<1.1)	ND (<1.1)	ND (<54)	NA	ND (<4.9)	ND (<49)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<9.8)	ND (<4.9 to 49)
		B22-14/14.5	14.0 to 14.5	**15**	**540**	**360**	**280**	ND (<180)	NA	ND (<400)	ND (<4,000)	ND (<400)	ND (<400)	ND (<400)	ND (<400)	ND (<400)	**2,300**	ND (<400)	ND (<400)	ND (<400)	ND (<400)	ND (<400)	ND (<400)	ND (<400)	ND (<400)	ND (<800)	ND (<400 to 4,000)
		B22-17.5/18	17.5 to 18.0	**14**	ND (<0.17)	ND (<1.2)	ND (<1.2)	ND (<58)	NA	ND (<3.3)	ND (<33)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<3.3)	ND (<6.6)	ND (<3.3 to 33)
		B22-19.5/20	19.5 to 20.0	**17**	ND (<0.20)	ND (<1.2)	ND (<1.2)	ND (<60)	NA	ND (<4.1)	ND (<41)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<8.1)	ND (<4.1 to 41)
B23	09/10/14	B23-2.75/3.25	2.75 to 3.25	**21**	ND (<0.19)	ND (<3.8)	**230**	**340**	NA	ND (<3.7)	ND (<37)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<3.7)	ND (<7.4)	ND (<3.7 to 37)
		B23-5.5/6	5.5 to 6.0	**19**	ND (<0.20)	ND (<1.2)	ND (<1.2)	ND (<61)	NA	ND (<4.1)	ND (<41)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<4.1)	ND (<8.2)	ND (<4.1 to 41)
		B23-9/9.5	9.0 to 9.5	**20**	ND (<0.26)	ND (<1.3)	ND (<1.3)	ND (<63)	NA	ND (<5.2)	ND (<52)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<9.9)	ND (<5.2 to 52)
		B23-13.5/14	13.5 to 14.0	**20**	**43**	**37**	**26**	ND (<62)	NA	ND (<4.0)	ND (<40)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	**4.1**	ND (<4.0)	**14**	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<4.0)	ND (<8.0)	ND (<4.0 to 40)
		B23-16.5/17	16.5 to 17.0	**17**	**0.83**	ND (<1.2)	ND (<1.2)	ND (<60)	NA	ND (<3.8)	ND (<38)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.3)	ND (<3.8 to 38)
		B23-19.5/20	19.5 to 20.0	**23**	ND (<0.22)	ND (<1.3)	ND (<1.3)	ND (<65)	NA	ND (<4.5)	ND (<45)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<8.9)	ND (<4.5 to 45)
B24	09/09/14	B24-2.5/3	2.5 to 3.0	**15**	ND (<0.19)	ND (<1.2)	**1.8**	ND (<58)	NA	ND (<3.8)	ND (<38)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<3.8)	ND (<7.5)	ND (<3.8 to 38)
		B24-5.25/5.75	5.25 to 5.74	**14**	ND (<0.20)	ND (<1.2)	**4.2**	ND (<58)	NA	ND (<3.9)	ND (<39)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<3.9)	ND (<7.8)	ND (<3.9 to 39)
		B24-11.5/12	11.5 to 12.0	**12**	**490**	**200**	**790**	**1,200**	NA	ND (<420)	ND (<4,200)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	**1,400**	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<840)	ND (<420 to 4,200)
		B24-17.5/18	17.5 to 18.0	**13**	ND (<0.18)	ND (<1.1)	**1.2**	ND (<57)	NA	ND (<3.5)	ND (<35)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	**4.3**	ND (<3.5)	ND (<3.5)	ND (<7.1)	ND (<3.5 to 35)
		B24-18.75/19.25	18.75 to 19.25	**18**	**0.21**	ND (<1.2)	ND (<1.2)	ND (<60)	NA	ND (<4.2)	ND (<42)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	ND (<4.2)	**51**	ND (<4.2)	ND (<4.2)	ND (<8.4)	ND (<4.2 to 42)
B25	09/09/14	B25-2.75/3.25	2.75 to 3.25	**12**	ND (<0.24)	ND (<3.4)	**110**	**280**	NA	ND (<4.9)	ND (<49)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<4.9)	ND (<9.7)	ND (<4.9 to 49)
		B25-5.5/6	5.5 to 6.0	**12**	ND (<0.26)	ND (<3.4)	**110**	**230**	NA	ND (<5.2)	ND (<52)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<5.2)	ND (<10)	ND (<5.2 to 52)
		B25-12.75/13.25	12.75 to 13.25	**14**	**110**	**34**	**25**	ND (<58)	NA	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<440)	ND (<890)	ND (<440 to 4,400)
		B25-15.5/16	15.5 to 16.0	**17**	ND (<0.23)	ND (<1.2)	ND (<1.2)	ND (<60)	NA	ND (<4.5)	ND (<45)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	ND (<4.5)	**16**	ND (<4.5)	ND (<4.5)	ND (<9.1)	ND (<4.5 to 45)
B26	09/09/14	B26-3/3.5	3.0 to 3.5	**16**	ND (<0.21)	ND (<3.5)	**210**	**370**	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	**5.5**	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.6)	ND (<4.3 to 43)
		B26-5.5/6	5.5 to 6.0	**15**	**35**	**200**	**700**	**1,000**	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	**5.0**	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.5)	ND (<4.3 to 43)
		B26-7.5/8	7.5 to 8.0	**18**	ND (<0.22)	ND (<6.0)	**180**	**410**	NA	ND (<4.4)	ND (<44)	ND (<4.4)	ND (<4.4)	**4.6**	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<4.4)	ND (<8.7)	ND (<4.4 to 44)
		B26-11/11.5	11.0 to 11.5	**18**	**110**	**140**	**660**	**1,000**	NA	ND (<420)	ND (<4,200)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<420)	ND (<840)	ND (<420 to 4,200)
		B26-15.5/16	15.5 to 16.0	**16**	ND (<0.17)	ND (<1.2)	ND (<1.2)	ND (<59)	NA	ND (<3.5)	ND (<35)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<3.5)	ND (<7.0)	ND (<3.5 to 35)
		B26-17.75/18.25	17.75 to 18.25	**20**	**0.48**	ND (<1.2)	ND (<1.2)	ND (<62)	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.6)	ND (<4.3 to 43)
		B26-19.5/20	19.5 to 20.0	**18**	ND (<0.22)	ND (<1.2)	ND (<1.2)	ND (<60)	NA	ND (<4.3)	ND (<43)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<4.3)	ND (<8.6)	ND (<4.3 to 43)
Environmental Screening Levels, ESLs																												
Shallow soil screening levels, residential, where groundwater IS a drinking water resource (Table A-1).					100	100	100	500	100	23	500	44	190	550	460	1,500	4,600 (12)	1,100 (12)	3,300	1,200	990 (12)	640 (12)	4.5	18	2,900	2,300	Varies by compound
Shallow soil screening levels, commercial/industrial, where groundwater IS a drinking water resource (Table A-2).					500	110	110	500	110	23	500	44	190	700	460	1,500	4,600 (12)	1,100 (12)	3,300	1,200	990 (12)	640 (12)	4.5	18	2,900	2,300	Varies by compound

General Notes

mg/Kg: Milligrams per kilogram (parts per million equivalent) on a dry weight basis, except on a wet basis for the May 2010, March 2011, and April 2011 samples.

µg/Kg: Micrograms per kilogram (parts per billion equivalent) on a dry weight basis, except on a wet basis for the May 2010, March 2011, and April 2011 samples.

wt%: Moisture content in percentage by weight

feet bgs: Sample depth in feet below the ground (top) surface

ND (<10): Not detected at or above the laboratory reporting limit

NA: Not analyzed

NE: Not established

TPH: Total petroleum hydrocarbons

- TPHg: Purgeable TPH as gasoline (gasoline range organics, C5-C12) by Environmental Protection Agency (EPA) Method 8260B
- TPHd: Extractable TPH as diesel (diesel range organics, C10-C28) by EPA Method 8015B with silica gel cleanup
- TPHss: Extractable TPH as stoddard solvent (stoddard solvent range organics, C9-C13) by EPA Method 8015B with silica gel cleanup
- TPHmo: Extractable TPH as motor oil (motor oil range organics, C24-C36) by EPA Method 8015B with silica gel cleanup
- TPHms: Extractable TPH as mineral spirits (mineral spirits range organics: C10 to C28) by EPA Method 8015B with silica gel cleanup
- TPHk: Extractable TPH as kerosene (kerosene range organics) by EPA Method 8015B with silica gel cleanup

VOCs: Volatile organic compounds by EPA Method 8260B, except by EPA Method 8021B for samples T2-11, T3-11, and T4-12.

Table 1. Laboratory Analytical Results for Soil Samples
215 California Drive, Burlingame, California

MTBE:	Methy tert butly ether
cis-1,2-DCE:	cis-1,2-Dichloroethene
PCE:	Tetrachloroethene
TCE:	Trichloroethene
1,1,2,2-TCA:	1,1,2,2-Tetrachloroethane
1,2,3-TCP:	1,2,3-Trichloropropane
1,1,2-TCA:	1,1,2-Trichloroethane
sec-BB:	sec-Butylbenzene
tert-BB:	tert-Butylbenzene
n-PB:	n-Propylbenzene
iso-PB:	iso-Propylbenzene (cumene)
4-iso-PT:	4-iso-Propyltoluene
MIBK:	4-Methyl-2-pentanone
1,2,4-TMB:	1,2,4-Trimethylbenzene
1,4-DCB:	1,4-Dichlorobenzene

The block of soil represented by the sample was subsequently removed in April 2011 during over-excavation

Environmental Screening Levels (ESLs) taken from the San Francisco Bay Region, Regional Water Quality Control Board (RWQCB, December 2013):
Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater, Interim Final – November 2007, updated December 2013.
Table A-1 ESLs correspond to residential scenario where groundwater IS a current or potential source of drinking water
Table A-2 ESLs correspond to commercial/industrial scenario where groundwater IS a current or potential source of drinking water
ESLs for TPHg correspond to TPH (gasolines)
ESLs for TPHd, TPHms and TPHss correspond to TPH (middle distillates)
ESLs for TPHmo and TPHk correspond to TPH (residual fuels)

Detailed Notes

(1) The sample was analyzed for total petroleum hydrocarbons kerosene (TPHk) by EPA Method 8015B with silica gel cleanup. The analytical results indicated no detectable levels of TPHk relative to reporting limits of 9.4 mg/Kg for sample SB-3-10'; 9.8 mg/Kg for sample T4S@13.5; 9.9 mg/Kg for sample T4SE@13.5; 10 mg/Kg for samples SB-3-15', SB-3-20', and T2N@13.5, ; 20 mg/Kg for sample T2W@13.5; and 51 mg/Kg for sample T5@13.5.

(2) Noted by laboratory as atypical gasoline pattern; gasoline value due to non-target hydrocarbons

(3) Hydrocarbon range C18-C40

(4) Noted by laboratory as Stoddard pattern

(5) The sample was analyzed for lead by EPA Method 6010B, and the analytical result was 7.7 mg/Kg lead.

(6) The sample was analized for polyaromatic hydrocarbons (PAHs) by EPA Method 8270C; polychlorinated biphenyls (PCBs) by EPA Method 8082; and five (5) heavy metals (cadmium, chromium, lead, nickel and zinc) by EPA Method 6010B. The analytical results were as follows: ND (<500 to <1,000) µg/Kg for PAHs; ND (<99) µg/Kg for PCBs; ND (<0.91 mg/Kg) cadmium, 76.1 mg/Kg chromium, 7.0 mg/Kg lead, 85.7 mg/Kg nickel, and 58.1 mg/Kg zinc.

(7) The sample was analized for polyaromatic hydrocarbons (PAHs) by EPA Method 8270C; polychlorinated biphenyls (PCBs) by EPA Method 8082; and five (5) heavy metals (cadmium, chromium, lead, nickel and zinc) by EPA Method 6010B. The analytical results were as follows: ND (<500 to <1,000 µg/Kg) for PAHs; ND (<100 µg/Kg) for PCBs; ND (<0.91 mg/Kg) cadmium, 100 mg/Kg chromium, 6.1 mg/Kg lead, 82.6 mg/Kg nickel, and 42.7 mg/Kg zinc.

(8) Sample depth for B4-19.5-20 is correct at 15.5 to 16.0 feet.

(9) The sample chromatogram does not exhibit a characteristic pattern of gasoline. The chromatogram exhibits a pattern indicative of Stoddard solvent.

(10) The sample chromatogram exhibits a weathered pattern that does not exactly match either stoddard solvent or mineral spirits. The pattern most closely represents stoddard solvent. All hydrocarbons observed where quantitated as stoddard solvent.

(11) Sample was prepped or analyzed beyond the method hold time for this analyte.

(12) The RWQCB (December 2013) has not published compound-specific ESLs for 1,1,2-TCA, 1,2,3-TCP, 1,2,4-TMB, and isomers of butylbenzene and propylbenzene.
As an alternative, the EPA Region 9, *Regional Screening Levels (RSLs)* , last updated in November 2013, has RSLs for 1,2,3-TCP, 1,2,4-TMB, and certain isomers of butylbenzene and propylbenzene.
Available RSLs for propylbenzene are: 3,400,000 µg/Kg for residential soil, 21,000,000 µg/Kg for industrial soil, and 990 µg/Kg for groundwater protection (soil leaching).
Available RSLs for iso-PB (cumene) are: 2,100,000 µg/Kg for residential soil, 11,000,000 µg/Kg for industrial soil, and 640 µg/Kg for groundwater protection (soil leaching).
Available RSLs for 1,2,3-TCP are: 5.0 µg/Kg for residential soil, 95 µg/Kg for industrial soil, and 0.00028 µg/Kg for groundwater protection (soil leaching).
Available RSLs for 1,2,4-TMB: 62,000 µg/Kg for residential soil, 260,000 µg/Kg for industrial soil, and 21 µg/Kg for groundwater protection (soil leaching).
Available RSLs for sec-BB: 7,800,000 µg/Kg for residential soil, 100,000,000 µg/Kg for industrial soil, and 4,600 µg/Kg for groundwater protection (soil leaching).
Available RSLs for tert-BB: 7,800,000 µg/Kg for residential soil, 100,000,000 µg/Kg for industrial soil, and 1,100 µg/Kg for groundwater protection (soil leaching).

(J) The laboratory provided an estimated value

Table B. Laboratory Analytical Results for 2015 Soil Samples
215-233 California Drive, Burlingame, CA

Field ID	Sample Date	Sample ID	Sample Depth (feet bts)	Percent Moisture (% By Wt.)	Total Petroleum Hydrocarbon, TPH (mg/Kg)					All Data in mg/kg						
					TPHg	TPHss	TPHms	TPHd	TPHmo	PCE	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	n-Propylbenzene	Acetone	Other VOC's
(see Figure 3 for hole locations)																
EB-1	2/26/2015	EB1-10/11	10.0 to 11.0	12	ND (<0.23)	ND (<1.1)	NA	**5.0**	ND (<57)	ND (<0.0047)	ND (<0.0047)	ND (<0.0047)	ND (<0.0047)	ND (<0.0047)	ND (<0.047)	ND (<0.0047 to 0.047)
		EB1-12/12.5	12.0 to 12.5	14	**31**	**82**	NA	**74**	ND (<57)	ND (<0.35)	ND (<0.35)	ND (<0.35)	ND (<0.35)	ND (<0.35)	ND (<3.5)	ND (<0.35 to 3.5)
		EB1-13/14.5	13.0 to 14.5	16	**2.1**	**3.1**	NA	**8.1**	ND (<59)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.043)	ND (<0.0043 to 0.043)
		EB1-33.5/34	33.5 to 34.0	15	ND (<0.23)	ND (<1.2)	NA	ND (<1.2)	ND (<58)	ND (<0.0047)	ND (<0.0047)	ND (<0.0047)	ND (<0.0047)	ND (<0.0047)	ND (<0.047)	ND (<0.0047 to 0.047)
B-27	5/27/2015	B27-1-1.5	1.0 to 1.5	13	ND (<0.22)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<57)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.044)	ND (<0.0044 to 0.044)
		B27-4-4.5	4.0 to 4.5	17	ND (<0.20)	ND (<1.2)	ND (<1.2)	**1.9** (2)	ND (<59)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.041)	ND (<0.0041 to 0.041)
		B27-7-7.5	7.0 to 7.5	8.6	ND (<0.21)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<54)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.043)	ND (<0.0043 to 0.043)
		B27-12-12.5	12.0 to 12.5	10	ND (<0.19)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<55)	ND (<0.0038)	ND (<0.0038)	ND (<0.0038)	ND (<0.0038)	ND (<0.0038)	ND (<0.038)	ND (<0.0038 to 0.038)
B-28 (1)	5/26/2015	B28-1.5/2	1.5 to 2.0	13	ND (<0.22)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<57)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.044)	ND (<0.0044 to 0.044)
DB-1	5/29/2015	DB1-12/12.5	12.0 to 12.5	16	**350**	**63**	**94**	**85**	ND (<59)	ND (<0.38)	ND (<0.38)	**0.82**	ND (<0.38)	ND (<0.38)	ND (<3.8)	ND (<0.38 to 3.8)
		DB1-16.75/17.25	16.75 to 17.25	17	ND (<0.18)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<59)	ND (<0.0036)	ND (<0.0036)	ND (<0.0036)	ND (<0.0036)	ND (<0.0036)	ND (<0.036)	ND (<0.0036 to 0.036)
		DB1-21/21.5	21.0 to 21.5	16	ND (<0.19)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<59)	ND (<0.0037)	ND (<0.0037)	ND (<0.0037)	ND (<0.0037)	ND (<0.0037)	ND (<0.037)	ND (<0.0037 to 0.037)
		DB1-25.25/25.75	25.25 to 25.75	14	ND (<0.22)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<58)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.044)	ND (<0.0044 to 0.044)
		DB1-27.75/28.25	27.75 to 28.25	17	ND (<0.17)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<60)	ND (<0.0035)	ND (<0.0035)	ND (<0.0035)	ND (<0.0035)	ND (<0.0035)	ND (<0.035)	ND (<0.0035 to 0.035)
		DB1-32.75/33.25	32.75 to 33.25	19	ND (<0.22)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<61)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	**0.061**	ND (<0.0044 to 0.044)
DB-2	5/28/2015	DB2-4.5/5	4.5 to 5.0	12	ND (<0.21)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<56)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.041)	ND (<0.0041 to 0.041)
		DB2-7.5/8	7.5 to 8.0	8.8	ND (<0.26)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<54)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.051)	ND (<0.0051 to 0.051)
		DB2-13/13.5	13.0-13.5	12	ND (<0.19)	**2.2**	**2.1**	**2.0**	ND (<57)	ND (<0.0037)	ND (<0.0037)	ND (<0.0037)	ND (<0.0037)	ND (<0.0037)	ND (<0.037)	ND (<0.0037 to 0.037)
		DB2-16/16.5	16.0 to 16.5	16	ND (<0.20)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<59)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.040)	ND (<0.0040 to 0.040)
		DB2-21/21.5	21.0 to 21.5	14	ND (<0.24)	ND (<1.4)	ND (<1.4)	ND (<1.4)	ND (<58)	ND (<0.0048)	ND (<0.0048)	ND (<0.0048)	ND (<0.0048)	ND (<0.0048)	ND (<0.048)	ND (<0.0048 to 0.048)
		DB2-24.5/25	24.5 to 25.0	10	ND (<0.19)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<55)	ND (<0.0038)	ND (<0.0038)	ND (<0.0038)	ND (<0.0038)	ND (<0.0038)	ND (<0.038)	ND (<0.0038 to 0.038)
		DB2-29/29.5	29.0 to 29.5	14	ND (<0.20)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<57)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.039)	ND (<0.0039 to 0.039)
		DB2-31/31.5	31.0 to 31.5	17	ND (<0.20)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<59)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.041)	ND (<0.0041 to 0.041)
DB-3	5/27/2015	DB3-4-4.5	4.0 to 4.5	14	**510**	**160**	**150**	**100**	ND (<57)	ND (<0.42)	ND (<0.42)	**2.5**	ND (<0.42)	**1.1**	ND (<4.2)	ND (<0.42 to 4.2)
		DB-3-12-12.5	12.0 to 12.5	16	**480**	**120**	**110**	**91**	ND (<59)	ND (<0.44)	ND (<0.44)	**3.9**	ND (<0.44)	ND (<0.44)	ND (<4.4)	ND (<0.44 to 4.4)
		DB3-18-18.5	18.0 to 18.5	24	ND (<0.23H)	ND (<1.3)	ND (<1.3)	ND (<1.3)	ND (<66)	ND (<0.0049)	ND (<0.0049)	ND (<0.0049)	ND (<0.0049)	ND (<0.0049)	ND (<0.049)	ND (<0.0049 to 0.049)
		DB3-21.5-22	21.5 to 22.0	19	ND (<0.19)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<61)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.039)	ND (<0.0039 to 0.039)
		DB3-24.5-25	24.5 to 25.0	20	ND (<0.22)	ND (<1.3)	ND (<1.3)	ND (<1.3)	ND (<63)	ND (<0.0045)	ND (<0.0045)	ND (<0.0045)	ND (<0.0045)	ND (<0.0045)	ND (<0.045)	ND (<0.0045 to 0.045)
		DB3-29.5-30	29.5 to 30.0	20	ND (<0.21)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<62)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.043)	ND (<0.0043 to 0.043)
		DB3-31.5-32	31.5 to 32.0	20	ND (<0.25)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<62)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.051)	ND (<0.0051 to 0.051)
DB-4	5/26/15	DB4-4.5/5	4.5 to 5.0	13	ND (<0.20)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<57)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.040)	ND (<0.0040 to 0.040)
		DB4-7/7.5	7.0 to 7.5	13	ND (<0.25)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<57)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.0051)	ND (<0.051)	ND (<0.0051 to 0.051)
		DB4-12/12.5	12.0 to 12.5	13	**380**	**840**	**800**	**640**	ND (<570)	ND (<0.33)	**0.48**	**1.6**	ND (<0.33)	ND (<0.33)	ND (<3.3)	ND (<0.33 to 3.3)
		DB4-14.5/15	14.5 to 15.0	15	ND (<0.22)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<59)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.040)	ND (<0.0040 to 0.040)
		DB4-19/19.5	19.0 to 19.5	16	**1.7**	**25**	**24**	**17**	ND (<59)	ND (<0.0041)	ND (<0.0041)	**0.094**	ND (<0.0041)	ND (<0.0041)	ND (<0.041)	ND (<0.0041 to 0.041)
		DB4-20/20.5	20.0 to 20.5	17	**1.1**	**4.5**	**4.3**	**3.2**	ND (<60)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.0044)	ND (<0.044)	ND (<0.0044 to 0.044)
		DB4-24.5/25	24.0 to 24.5	19	**0.69**	**5.9**	**5.7**	**4.2**	ND (<61)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.0039)	ND (<0.039)	ND (<0.0039 to 0.039)
		DB4-27/27.5	27.0 to 27.5	13	**130/12** (3)	**54/32** (3)	**52**	**37**	ND (<57)	ND (<0.0042)	ND (<0.0042)	**0.15**	**0.015**	ND (<0.0042)	ND (<0.042)	ND (<0.0042 to 0.042)
		DB4-28/28.5	28.0 to 28.5	16	**1.2**	**2.4**	**2.3**	**2.0**	ND (<59)	ND (<0.0041)	ND (<0.0041)	**0.0042**	ND (<0.0041)	ND (<0.0041)	ND (<0.041)	ND (<0.0041 to 0.041)
		DB4-31.5/32	31.5 to 32.0	28	**1.3**	**14**	**14**	**9.2**	ND (<94)	ND (<0.0067)	ND (<0.0067)	**0.0056**	ND (<0.0067)	ND (<0.0067)	ND (<0.067)	ND (<0.0067 to 0.067)
DB-5	5/28/15	DB5-4.0/4.5	4.0 to 4.5	25	ND (<0.27)	ND (<1.3)	ND (<1.3)	ND (<1.3)	ND (<66)	ND (<0.0054)	ND (<0.0054)	ND (<0.0054)	ND (<0.0054)	ND (<0.0054)	ND (<0.054)	ND (<0.0054 to 0.054)
		DB5-7.5/8	7.5 to 8.0	7.7	ND (<0.30)	ND (<1.1)	ND (<1.1)	ND (<1.1)	ND (<54)	ND (<0.0060)	ND (<0.0060)	ND (<0.0060)	ND (<0.0060)	ND (<0.0060)	ND (<0.060)	ND (<0.0060 to 0.060)
		DB5-12.5/13	12.5 to 13.0	14	**470**	**130**	**120**	**83**	ND (<120)	ND (<0.35)	ND (<0.35)	ND (<0.35)	ND (<0.35)	ND (<0.35)	ND (<3.5)	ND (<0.35 to 3.5)
		DB5-17/17.5	17.0 to 17.5	17	ND (<0.20)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<59)	ND (<0.0034)	ND (<0.0034)	ND (<0.0034)	ND (<0.0034)	ND (<0.0034)	ND (<0.034)	ND (<0.0034 to 0.034)
		DB5-21/21.5	21.0 to 21.5	18	ND (<0.21)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<60)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.043)	ND (<0.0043 to 0.043)
		DB5-25.25/25.75	25.25 to 25.75	18	ND (<0.22)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<61)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.0043)	ND (<0.043)	ND (<0.0043 to 0.043)
		DB5-29/29.5	29.0 to 29.5	19	ND (<0.20)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<61)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.0041)	ND (<0.041)	ND (<0.0041 to 0.041)
		DB5-31.25/31.50	31.25 to 31.50	16	ND (<0.20)	ND (<1.2)	ND (<1.2)	ND (<1.2)	ND (<58)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.0040)	ND (<0.040)	ND (<0.0040 to 0.040)
Environmental Screening Levels																
Table A-1 ESLs for shallow soil, residential, where groundwater IS a drinking water resource.					100	100	100	100	500	0.55	*390*	*780*	*780*	*330*	50	Varies by compound
Table A-2 ESLs for shallow soil, commercial/industrial, where groundwater IS a drinking water resource.					500	500	500	500	2,500	0.70	*5,800*	*12,000*	*12,000*	*2,200*	50	Varies by compound

Table B. Laboratory Analytical Results for 2015 Soil Samples
215-233 California Drive, Burlingame, CA

General Notes

mg/Kg:	Milligrams per kilogram (parts per million equivalent); moisture contents used to present data on dry weight basis
feet bts:	Sample depth in feet below the top of surface
NA	Not Analyzed
ND (<10):	Not detected at or above the laboratory reporting limit
NE:	Not established
(H)	Sample was prepped/anaylzed beyond method hold-time. Initial run had QA/QC concerns noted during review that necessitated second run slightly after the 1-week formal hold-time.
TPHg:	Purgeable TPH as gasoline (gasoline range organics, C5-C12) by Environmental Protection Agency (EPA) Method 8260B; sampling followed EPA 5035 preservation protocol unless noted.
TPHd:	Extractable TPH as diesel (diesel range organics, C10-C28) by EPA Method 8015B with silica gel cleanup
TPHss:	Extractable TPH as stoddard solvent (stoddard solvent range organics, C9-C13) by EPA Method 8015B with silica gel cleanup
TPHmo:	Extractable TPH as motor oil (motor oil range organics, C24-C36) by EPA Method 8015B with silica gel cleanup
TPHms:	Extractable TPH as mineral spirits (mineral spirits range organics: C10 to C28) by EPA Method 8015B with silica gel cleanup
VOCs:	Volatile organic compounds by EPA Method 8260B.
PCE:	Tetrachloroethene by EPA Method 8260B
1,2-DCA:	1,2-Dichloroethane by EPA Method 8260B

Environmental Screening Levels (ESLs) taken from the San Francisco Bay Region, Regional Water Quality Control Board (RWQCB, December 2013):
Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater, Interim Final – November 2007, updated December 2013.
Table A-1 ESLs correspond to residential scenario where groundwater IS a current or potential source of drinking water
Table A-2 ESLs correspond to commercial/industrial scenario where groundwater IS a current or potential source of drinking water
ESLs for TPHg correspond to TPH (gasolines) ESLs for TPHd, TPHms and TPHss correspond to TPH (middle distillates) ESLs for TPHmo correspond to TPH (residual fuels)

The RWQCB (December 2013) has not published compound-specific ESLs for isomers of butylbenzene or propylbenzene. As an alternative, the EPA, Region 9, *Regional Screening Levels* , last updated January 2015 are presented (in italic) RSLs are derived for human health risk purposes, not groundwater resource protection.

Detailed Notes

(1)	Two tries to advance hole B-28 to planned depth met refusal with unexpected underground features
(2)	Noted by laboratory as primarily due to discrete peaks
(3)	Second aliquot from sample tube was analyzed, yielding second concentration presented; second TPHg result is not from EPA 5035 protocol sample.

Table 3. Laboratory Analytical Results for Soil Vapor Probes, 215 California Drive, Burlingame, California

Sample ID	Field Point	Date Sampled	Total petroleum hydrocarbons, TPH						Naphthalene	Volatile Organic Compounds, VOCs												
			TPHg	C5-C8 Aliphatic	C9-C12 Aliphatic	C8-C12 Aromatic	TPHd	TPHss		Freon-12	cis-1,2-DCE	Carbon Tetrachloride	Benzene	TCE	Toluene	PCE	Chlorobenzene	Ethylbenzene	m,p-Xylene	o-Xylene	2-Propanol (Leak Check Compound)	Other VOCs
			µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m3	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³	µg/m³
VP-1 SS	VP-1	06/12/13	1,600 (1)	ND (<330)	1,600	ND (<330)	22,000 (2)	14,000	4.8	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	ND (<17)	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<46)	ND (<5.2 to <21)
VP-2 SS	VP-2	06/12/13	ND (<330)	ND (<330)	ND (<330)	ND (<330)	20,000 (2)	13,000	11	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	ND (<17)	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<46)	ND (<5.2 to <21)
VP-2 SS		02/05/14	1,400 (1)	ND (<330)	1,700	ND (<330)	32,000 (4)	17,000	ND (<3.8)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	ND (<17)	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<61)	ND (<5.2 to <61)
VP-2 SSR		02/05/14	1,500 (1)	ND (<330)	1,700	ND (<330)	33,000 (4)	18,000	ND (<3.8)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	ND (<17)	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<61)	ND (<5.2 to <61)
VP-2 D5.75		06/12/13	10,000 (1)	ND (<330)	8,600	580	9,200 (2)	6,300	ND (<2.5)	ND (<12)	ND (<9.9)	ND (<9.4)	43	ND (<13)	14	360	ND (<12)	ND (<11)	16	ND (<11)	ND (<46)	ND (<5.2 to <21)
VP-2 D5.75R		06/12/13	3,600 (1)	ND (<330)	3,200	430	NA	NA	NA	ND (<12)	ND (<9.9)	ND (<9.4)	43	ND (<13)	13	300	ND (<12)	ND (<11)	18	ND (<11)	ND (<46)	ND (<5.2 to <21)
VP-2 D5.75		02/05/14	4,700 (1)	ND (<330)	5,300	ND (<330)	36,000 (4)	19,000	ND (<3.8)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	95	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<61)	ND (<5.2 to <61)
VP-3 SS	VP-3	06/12/13	12,000 (1)	ND (<330)	12,000	970	23,000 (2)	15,000	ND (<2.5)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	51	ND (<9.4)	200	41	ND (<11)	11	ND (<11)	ND (<46)	ND (<5.2 to <21)
VP-4 SS	VP-4	06/12/13	11,000 (1)	ND (<330)	8,500	390	24,000 (2)	17,000	ND (<2.5)	290	ND (<9.9)	ND (<9.4)	ND (<8.0)	34	ND (<9.4)	1,100	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<46)	ND (<5.2 to <21)
VP-4 D5.5			3,100,000 (1)	ND (<200,000)	2,800,000	260,000	3,300,000 (2)	2,500,000	ND (<2.5)	ND (<7,600)	ND (<6,100)	ND (<5,800)	ND (<4,900)	ND (<8,300)	33,000	ND (<10,000)	70,000	12,000	24,000	8,000	ND (<28,000)	ND (<3,200 to <13,000)
VP-4 D5.5R			NA	NA	NA	NA	4,100,000 (2)	2,800,000	ND (<2.5)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
VP-4 D5.5		02/05/14	1,900,000 (1)	ND (<130,000)	1,700,000	190,000	370,000 (4)	190,000	ND (<3.8)	ND (<5,000)	ND (<4,000)	ND (<3,800)	ND (<3,200)	ND (<5,400)	46,000	ND (<6,800)	ND (<4,600)	15,000	60,000	22,000	ND (<25,000)	ND (<2,100 to <24,000)
VP-5 SS	VP-5	06/12/13	22,000 (1)	ND (<330)	18,000	1,400	19,000 (2)	13,000	5.4	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	25	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<46)	ND (<5.2 to <21)
VP-5 D5.5			2,900,000 (1)	ND (<310,000)	2,500,000	ND (<310,000)	3,400,000 (2)	2,700,000	ND (<2.5)	ND (<12)	26	ND (<9.4)	200	21	14	260	ND (<12)	ND (<11)	18	24	ND (<46)	ND (<5.2 to <21)
VP-5 D5.5		02/05/14	2,400 (1)	ND (<330)	2,300	ND (<330)	120,000 (4)	67,000	ND (<3.8)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	39	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<61)	ND (<5.2 to <61)
VP-6 SS	VP-6	06/12/13	3,600 (3)	ND (<330)	3,000	ND (<330)	27,000 (2)	20,000	ND (<2.5)	ND (<12)	ND (<9.9)	100	ND (<8.0)	33	ND (<9.4)	4,700	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<46)	ND (<5.2 to <21)
VP-7 SS	VP-7	09/26/13	ND (<1,300)	NA	NA	NA	ND (<750)	ND (<750)	ND (<2.5)	ND (<49)	ND (<40)	ND (<38)	ND (<3.2)	ND (<54)	ND (<38)	1,500	ND (<46)	ND (<43)	ND (<43)	ND (<43)	ND (<250)	ND (<21 to <85)
VP-7		03/21/14	ND (<330)	ND (<330)	ND (<330)	ND (<330)	ND (<750)	ND (<750)	ND (<2.5)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	690	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<61)	ND (<5.2 to <19)
VP-8 SS	VP-8	09/19/14	6,700,000 (1)	ND (<650,000)	2,700,000	800,000	250,000 (2)	83,000	ND (<2.5)	ND (<4,900)	ND (<4,000)	ND (<3,800)	ND (<3,200)	ND (<5,400)	ND (<3,800)	ND (<6,800)	ND (<4,600)	ND (<4,300)	8,800	4,300	ND (<25,000)	ND (<2,100 to <7,700)
VP-8 D5.5		09/19/14	3,700 (1)	ND (<1,300)	ND (<1,300)	ND (<1,300)	53,000 (2)	12,000	ND (<2.5)	ND (<49)	ND (<40)	ND (<38)	ND (<32)	ND (<54)	480	ND (<68)	ND (<46)	140	630	190	ND (<250)	ND (<21 to <77)
VP-9 SS	VP-9	09/19/14	3,900 (1)	ND (<10,000)	ND (<10,000)	ND (<10,000)	11,000 (2)	4,500	ND (<2.5)	ND (<40)	ND (<32)	ND (<30)	ND (<26)	ND (<43)	ND (<30)	ND (<54)	ND (<37)	ND (<35)	230	210	ND (<200)	ND (<17 to <61)
VP-9 D5.5		09/19/14	3,200 (1)	ND (<330)	ND (<330)	ND (<330)	ND (<750)	ND (<750)	ND (<2.5)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	ND (<17)	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<61)	ND (<5.2 to <19)
VP-10 SS	VP-10	09/19/14	2,300 (1)	ND (<330)	ND (<330)	ND (<330)	38,000 (2)	17,000	ND (<2.5)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	17	34	ND (<12)	ND (<11)	18	ND (<11)	ND (<61)	trans-1,2-DCE = 18
VP-10 D5.5		09/19/14	740	ND (<330)	ND (<330)	ND (<330)	ND (<750)	ND (<750)	ND (<2.5)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	47	39	ND (<12)	43	150	17	ND (<61)	ND (<5.2 to <19)
VP-11 SS	VP-11	09/21/14	ND (<330)	ND (<330)	ND (<330)	ND (<330)	2,400 (2)	1,300	ND (<2.5)	ND (<12)	ND (<9.9)	ND (<9.4)	ND (<8.0)	ND (<13)	ND (<9.4)	34	ND (<12)	ND (<11)	ND (<11)	ND (<11)	ND (<61)	ND (<5.2 to <19)
VP-11 D5.5		09/21/14	2,700	ND (<1,300)	ND (<1,300)	ND (<1,300)	3,700 (2)	1,700	ND (<2.5)	ND (<49)	ND (<40)	ND (<38)	ND (<32)	ND (<54)	630	320	ND (<46)	160	650	180	ND (<250)	ND (<21 to <77)
VP-12 SS	VP-12	09/21/14	6,100 (1)	ND (<1,300)	1,600	ND (<1,300)	ND (<750)	ND (<750)	ND (<2.5)	ND (<49)	ND (<40)	ND (<38)	ND (<32)	ND (<54)	ND (<38)	740	ND (<46)	ND (<43)	ND (<43)	ND (<43)	ND (<250)	ND (<21 to <77)
Environmental Screening Levels, ESLs																						
Table E-2 ESLs for Evaluation of Potential Vapor Intrusion, Commercial/Industrial Land Use			2,500,000	NE	NE	NE	570,000	570,000	360	NE	31,000	290	420	3,000	1,300,000	2,100	4,400,000	4,900	440,000	440,000	NE	Varies by Compound
Table E-2 ESLs for Evaluation of Potential Vapor Intrusion, Residential Land Use			300,000	NE	NE	NE	68,000	68,000	36	NE	3,700	29	42	300	160,000	210	520,000	490	52,000	52,000	NE	Varies by Compound

Table Notes:

General

µg/m³: Micrograms per cubic meter
NA: Not analyzed
NE: Not established
ND (<330): Not detected at or above the laboratory reporting limit
TPH: Total petroleum hydrocarbons as gasoline by Environmental Protection Agency (EPA) Method TO-15
Total petroleum hydrocarbons as diesel by EPA Method TO-17M
Total petroleum hydrocarbons as Stoddard solvent by EPA Method TO-17M
Naphthalene: Naphthalene by EPA Method TO-17M
VOCs: Volatile organic compounds by EPA Method TO-15
Freon-12: Dichlorodifluoromethane
cis-1,2-DCE: cis-1,2-Dichloroethene
TCE: Trichloroethene
PCE: Tetrachloroethene

Environmental Screening Levels (ESLs) were taken from the San Francisco Bay Region, Regional Water Quality Control Board (RWQCB, December 2013):
Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater, Interim Final, November 2007, updated December 2013.
Table E-2 ESLs correspond to shallow soil for evaluation of potential vapor intrusion
TPHg: ESL for TPH (gasolines)
TPHd, TPHss, and TPHms: ESL for TPH (diesel fuel)
TPHmo and TPHho: ESL for TPH (residual fuels)

Detail

(1) According to the laboratory, the sample chromatogram did not exhibit a characteristic pattern of gasoline. The chromatogram exhibits a pattern indicative of Stoddard solvent.
(2) According to the laboratory, the sample chromatogram did not exhibit a characteristic pattern of diesel. The chromatogram exhibits a pattern indicative of Stoddard solvent.
(3) According to the laboratory, the sample chromatogram did not exhibit a characteristic pattern of gasoline.
(4) According to the laboratory, the sample chromatogram did not exhibit a characteristic pattern of diesel.

Table 2. Laboratory Analytical Results for Groundwater Samples
215 California Drive, Burlingame, CA

Field Point	Sample ID	Sample Date	Total Petroleum Hydrocarbons, TPH [1]					Volatile Organic Compounds, VOC's																
			TPHg	TPHss	TPHd	TPHmo	TPHms	MTBE	Benzene	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	PCE	TCE	Chlorobenzene	cis-1,2-Dichloroethene	1,2-Dichloroethane	Ethylbenzene	Toluene	Vinyl Chloride	Total Xylenes	0-Xylene	m,p-Xylene	Other VOC's
			µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
ERS, April 2011																								
T2-3	T2-3 GW	4/1/2011	NA	NA	ND (<510)	**1,140**	**4,280 [2]**	NA	ND (<100)	NA	NA	NA	NA	NA	NA	NA	NA	ND (<100)	ND (<100)	NA	ND (<200)	NA	NA	NA
T4	T4 GW	4/1/2011	NA	NA	ND (<11,000)	ND (<21,000)	**113,000 [2]**	NA	ND (<100)	NA	NA	NA	NA	NA	NA	NA	NA	ND (<100)	ND (<100)	NA	ND (<200)	NA	NA	NA
GEI, June 2012																								
B-1	B1-GW	6/6/2012	**11,000**	**5,100**	**3,300**	**290**	NA	ND (<0.50)	ND (<0.50)	**5.0**	**38**	**4.2**	ND (<0.50)	ND (<0.50)	**35**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
B-2	B2-GW	6/6/2012	**11,000**	**56000 [1]**	**43,000**	ND (<2,400)	NA	ND (<5.0)	ND (<5.0)	NA	**86**	**13**	ND (<5.0)	ND (<5.0)	**88**	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<10)	NA	NA	**Isopropylbenzene = 31**
B-3	B3-GW	6/6/2012	**3,000**	**11,000**	**8,100**	ND (<510)	NA	ND (<5.0)	ND (<5.0)	NA	**35**	ND (<10)	ND (<5.0)	ND (<5.0)	**140**	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<10)	NA	NA	ND (<5.0 to 500)
B-5	B5-GW	6/6/2012	**3,900**	**3,200 [4]**	**2,200 [4]**	**120 [4]**	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	**17**	**3.8**	**3.2**	**2.2**	**13**	**5.6**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	**Isopropylbenzene = 1.4 Naphthalene = 1.0**
B-6	B6-GW	6/6/2012	**9,900**	**2,000**	**1,500**	ND (<100)	NA	ND (<0.50)	ND (<0.50)	NA	**7.6**	**8.3**	ND (<0.50)	ND (<0.50)	**28**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
B-7	B7-GW	6/6/2012	**60**	ND (<52)	ND (<52)	ND (<100)	NA	ND (<0.50)	ND (<0.50)	NA	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	**0.97**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
B-8	B8-GW	6/7/2012	**64,000**	**20,000**	**15,000**	ND (<570)	NA	ND (<50)	ND (<50)	NA	**320**	ND (<100)	ND (<50)	ND (<50)	**200**	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<100)	NA	NA	**Isopropylbenzene = 68**
B-10	B10-GW	6/7/2012	**3,600**	**2,200**	**1,600**	ND (<100)	NA	ND (<0.50)	ND (<0.50)	NA	**19**	**3.6**	ND (<0.50)	ND (<0.50)	**9.7**	**0.75**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	**Isopropylbenzene = 0.73**
B-11	B11-GW	6/7/2012	**24,000**	**59,000**	**47,000**	**12,000**	NA	ND (<5.0)	ND (<5.0)	**20**	**84**	**24**	ND (<5.0)	ND (<5.0)	**36**	ND (<5.0)	**14**	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<10)	NA	NA	ND (<5.0 to 500)
B-12	B12-GW	6/7/2012	**16,000**	**310,000**	**210,000**	ND (<12,000)	NA	ND (<5.0)	ND (<5.0)	ND (<10)	**170**	**19**	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<10)	NA	NA	ND (<5.0 to 500)
B-15	B15-GW	6/8/2012	**120**	ND (<51)	ND (<51)	ND (<100)	NA	ND (<0.50)	ND (<0.50)	NA	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
GEI, September 2014																								
B-16	B16A-GW	9/10/2014 and 9/12/2014	**820**	ND (<82)	ND (<82)	ND (<160)	NA	ND (<0.50)	**0.97**	ND (<1.0)	**24**	**3.2**	ND (<0.50)	ND (<0.50)	**120**	ND (<0.50)	ND (<0.50)	**6.5**	**2.2**	ND (<0.50)	**33**	NA	NA	**Acetone = 120, 2-Butanone (MEK) =65, Isopropylbenzene = 6.1, 1,2,4-TMB = 1.4, 1,3,5-TMB = 0.60**
	B16-GWB	9/8/2014	ND (<50)	ND (<51)	ND (<51)	ND (<100)	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
B-19	B19-GWA	9/9/2014	2,800	7,100	4,900	ND (<310)	NA	ND (<5.0)	ND (<5.0)	ND (<10)	**53**	ND (<10)	ND (<5.0)	ND (<5.0)	**73**	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<10)	NA	NA	**Isopropylbenzene = 6.1**
	B19-GWB or B19B-GW	9/9/2014 and 09/11/2014	ND (<50)	ND (<54)	ND (<54)	ND (<110)	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**2.4**	**1.1**	**4.3**	**2.4**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
B-22	B22A-GW	9/10/2014 and 09/12/2014	**2,100**	**370**	**300**	ND (<100)	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	**15**	**3.5**	ND (<0.50)	ND (<0.50)	**21**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	**Acetone = 52, Isopropylbenzene = 1.2**
B-23	B23A-GW	9/11/2014 and 09/12/2014	**70**	ND (<100)	ND (<100)	ND (<210)	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	**4.1**	ND (<0.50)	**1.3**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	**Acetone = 64**
	B23B-GW	9/11/2014	ND (<50)	ND (<51)	ND (<51)	ND (<100)	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	**1.9**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
B-24	B24-GW	9/10/2014	**11,000**	**6,000**	**4,300**	ND (<320)	NA	ND (<5.0)	ND (<5.0)	ND (<10)	**15**	ND (<10)	ND (<5.0)	ND (<5.0)	**32**	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<10)	NA	NA	ND (<5.0 to 500)
	B24A-GW	9/11/2014 and 09/12/2012	**84**	ND (<51)	ND (<51)	ND (<100)	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	**1.5**	ND (<0.50)	**150**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
	B24B-GW	9/11/2014	**56**	NA	NA	NA	NA	ND (<5.0)	ND (<5.0)	ND (<10)	ND (<10)	ND (<10)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	**130**	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<10)	NA	NA	ND (<5.0 to 500)
B-25	B25A-GW	9/13/2014	ND (<50)	NA	NA	NA	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	**27**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
	B25B-GW	9/11/2014	ND (<50)	ND (<56)	ND (<56)	ND (<110)	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	**81**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
B-26	B26A-GW	9/14/2014	NA	ND (<82)	ND (<82)	ND (<160)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	B26B-GW	9/11/2014	ND (<50)	ND (<53)	ND (<53)	ND (<110)	NA	ND (<0.50)	ND (<0.50)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<0.50)	**4.7**	ND (<0.50)	ND (<0.50)	ND (<0.50)	ND (<1.0)	NA	NA	ND (<0.50 to 50)
Environmental Screening Levels																								
Table F-1a. Groundwater screening levels where groundwater IS a potential drinking water resource			100	100	100	100	100	5.0	1.0	NE [6]	NE	NE	5.0	5.0	25	6.0	0.50	30	40	0.50	20	NE	NE	Varies by compound
Table F-1b. Groundwater screening levels where groundwater IS NOT a potential drinking water resource			500	640	640	640	640	1,800	27	NE [6]	NE	NE	63	130	25	590	100	43	130	1.8	100	NE	NE	Varies by compound

General Notes:

(H): Sample was prepped or analyzed beyond the method hold time
µg/L: Micrograms per liter (parts per billion equivalent)
feet bts: Sample depth in feet below the top of surface
ND (<10): Not detected at or above the laboratory reporting limit
NA: Not analyzed
NE: Not established
NG4: The sample chromatogram does not exhibit a characteristic pattern of gasoline.
The chromatogram exhibits a pattern indicative of stoddard solvent.
(E): Result exceeded calibration range.

TPH: Total petroleum hydrocarbons
- TPHg: Purgeable TPH gasoline range organics (C5-C12) by Environmental Protection Agency (EPA) Method 8260B.
- TPHd: Extractable TPH diesel range organics (C10-C28) by EPA Method 8015B with silica gell cleanup.
- TPHss: Extractable TPH stoddard solvent range organics (C9-C13) by EPA Method 8015B with silica gell cleanup.
- TPHmo: Extractable TPH motor oil range organics (C24-C36) by EPA Method 8015B with silica gell cleanup.
- TPHms: Extractable TPH as mineral spirits (mineral spirits range organics: C10 to C28) by EPA Method 8015B with silica gel cleanup.
- TPHk: Extractable TPH as kerosene (kerosene range organics) by EPA Method 8015B with silica gel cleanup.

VOCs: Volatile organic compounds by EPA Method 8260B
- MTBE: Methy tert butly ether by EPA Method 8260B
- BTEX: Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8260B
- PCE: Tetrachloroethene by EPA Method 8260B
- TCE: Trichloroethene by EPA Method 8260B
- 1,2,4-TMB: 1,2,4-Trimethylbenzene by EPA Method 8260B
- 1,3,5-TMB: 1,3,5-Trimethylbenzene by EPA Method 8260B

Environmental Screening Levels (ESLs) taken from the San Francisco Bay Region, Regional Water Quality Control Board (RWQCB, May 2013):
Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater, Interim Final – November 2007, updated May 2008, updated May 2013.
Table F-1a ESLs correspond to scenario where groundwater IS a current or potential source of drinking water
Table F-1b ESLs correspond to scenario where groundwater IS NOT a current or potential source of drinking water
ESLs for TPHg correspond to TPH (gasolines)
ESLs for TPHd, TPHms and TPHss correspond to TPH (middle distillates)
ESLs for TPHmo and TPHk correspond to TPH (residual fuels)

Detailed Notes:

(1) Total Petroleum Hydrocarbons Kerosene (TPHk) was analized in samples T2-3 and T4. Results were all not detected at or above the laboratory reporting limits.
(2) Noted by laboratory as Stoddard solvent pattern
(3) NG4
(4) The RWQCB (May 2008) has not published compound-specific ESLs for isomers of butylbenzene. As an alternative, the EPA Region 9, *Regional Screening Levels* , last updated in May 2012, has regional screening levels (RSLs) for certain isomers of butylbenzene. RSL for n-butylbenzene in tap water is 780 ug/L.

Table C. Laboratory Analytical Results for May/June 2015 Groundwater Samples
215-233 California Drive, Burlingame, CA

Field Point	Sample ID	Approx. Depth (ft)	Sample Date	Total Petroleum Hydrocarbons, TPH																			
				TPHg	TPHss	TPHms	TPHd	TPHmo	Acetone	Benzene	sec-Butylbenzene	tert-Butylbenzene	PCE	TCE	cis-1,2-DCE	Chlorobenzene	Isopropyl-benzene	N-Propyl-benzene	1,2-DCA	Carbon Tetrachloride	Chloroform	Vinyl Chloride	Other VOC's
				µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
(see Figure 3 for hole locations)																							
B-27	B27-GW	11 to 15	6/1/2015	ND (<50)	NA	NA	NA	NA	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	**0.93**	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	**72**	ND (<0.5)	**1.3**	ND (<0.5)	ND (<0.5 to 50)
DB-1	DB1-GWI	23 to 27	6/1/2015	ND (<50)	NA	NA	NA	NA	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	**4.0**	ND (<0.5)	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
	DB1-GWD	30 to 35	6/1/2015	ND (<50)	ND (<52)	ND (<52)	**780**	**2,000**	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
DB-2	DB2-GWS	11 to 15	6/1/2015	ND (<50)	NA	NA	NA	NA	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
	DB2-GWI	23 to 26	6/1/2015	ND (<50)	ND (<110)	ND (<110)	**120**	**320**	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
	DB2-GWD	30 to 35	5/29/2015	ND (<50)	ND (<56)	ND (<56)	ND (<56)	**230***	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
DB-3	DB3-GWS	11 to 15	5/29+6/1/2015	**880**	**1,300**	**1,200**	**1,000**	**1,100***	ND (<50)	ND (<0.5)	**35**	**3.4**	ND (<0.5)	ND (<0.5)	ND (<0.5)	**23**	**7.3**	**1.2**	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
	DB3-GWD	31 to 35	5/27-28/2015	ND (<50)	ND (<52)	ND (<52)	ND (<52)	**150***	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
DB-4	DB4-GWS	11 to 15	5/26/2015	**6,500**	**11,000**	**11,000**	**8,000**	**1,300**	ND (<500)	ND (<5.0)	**30**	ND (<10)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<5.0)	ND (<1.0)	ND (<5.0)	ND (<5.0 to 500)
	DB4-GWD	28 to 32	5/27/2015	ND (<50)	NA	NA	NA	NA	**56**	**0.55**	ND (<1.0)	ND (<1.0)	**0.83**	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
DB-5	DB5-GWS	11 to 15	5/29+6/1/2015	**680/1,800**	**4,100**	**3,800**	**2,600**	**3,300***	ND(<50)/ND(<50)	ND(<0.5)/**1.6**	**1.3/2.4**	ND(<1.0)/ND(<1.0)	ND(<0.5)/ND(<0.5)	ND(<0.5)/**0.75**	**4.8/6.4**	ND(<0.5)/ND(<0.5)	ND(<0.5)/ND(<0.5)	ND(<0.5)/ND(<0.5)	**2.0/1.4**	ND(<0.5)/ND(<0.5)	ND(<1.0)/ND(<1.0)	**0.62/1.8**	ND (<0.5 to 50)
	DB5-GWI	24 to 27	6/1/2015	ND (<50)	NA	NA	NA	NA	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	**18**	ND (<0.5)	**4.4**	ND (<0.5)	ND (<0.5 to 50)
	DB5-GWD	31 to 35	5/28+29/2015	ND (<50)	ND (<51)	ND (<51)	**81**	**220**	ND (<50)	ND (<0.5)	ND (<1.0)	ND (<1.0)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	**0.89**	ND (<1.0)	ND (<0.5)	ND (<0.5 to 50)
Environmental Screening Levels																							
Table F-1a. Groundwater screening levels where groundwater IS a potential drinking water resource				100	100	100	100	100	1,500	1.0	*200*	*69*	5.0	5.0	6.0	25	NE	*66*	0.50	0.50	80	0.50	Varies by compound
Table F-1b. Groundwater screening levels where groundwater IS NOT a potential drinking water resource				500	640	640	640	640	1,500	27	NE	NE	63	130	590	25	NE	NE	100	4.8	170	1.8	Varies by compound

General Notes:

µg/L: Micrograms per liter (parts per billion equivalent)
feet bts: Sample depth in feet below the top of surface
ND (<10): Not detected at or above the laboratory reporting limit
NA: Not analyzed; inadequate sample volume seeped into bore hole
NE: Not established

TPH: Total petroleum hydrocarbons
- TPHg: Purgeable TPH gasoline range organics (C5-C12) by Environmental Protection Agency (EPA) Method 8260B.
- TPHd: Extractable TPH diesel range organics (C10-C28) by EPA Method 8015B with silica gell cleanup.
- TPHss: Extractable TPH stoddard solvent range organics (C9-C13) by EPA Method 8015B with silica gell cleanup.
- TPHmo: Extractable TPH motor oil range organics (C24-C36) by EPA Method 8015B with silica gell cleanup.
- TPHms: Extractable TPH as mineral spirits (mineral spirits range organics: C10 to C28) by EPA Method 8015B with silica gel cleanup.

VOCs: Volatile organic compounds by EPA Method 8260B
- PCE: Tetrachloroethene by EPA Method 8260B
- TCE: Trichloroethene by EPA Method 8260B
- 1,2-DCE 1,2-Dichloroethene by EPA Method 8260B
- 1,2-DCA 1,2-Dichloroethane by EPA Method 8260B

Environmental Screening Levels (ESLs) taken from the San Francisco Bay Region, Regional Water Quality Control Board (RWQCB, December 2013):
Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater, Interim Final – November 2007, last updated December 2013.
Table F-1a ESLs correspond to scenario where groundwater IS a current or potential source of drinking water
Table F-1b ESLs correspond to scenario where groundwater IS NOT a current or potential source of drinking water
ESLs for TPHg correspond to TPH (gasolines)
ESLs for TPHd, TPHms and TPHss correspond to TPH (middle distillates)
ESLs for TPHmo correspond to TPH (residual fuels)

The RWQCB (December 2013) has not published compound-specific ESLs for isomers of butylbenzene or propylbenzene. As an alternative, the EPA Region 9, *Regional Screening Levels* , last updated in January 2015, are presented (in italic). These RSLs are derived for tap water, human health risk purposes.

Detailed Notes:

* Noted by laboratory as primarily due to discrete peaks

Table 1. Water Levels and Laboratory Analytical Results for Groundwater Monitoring Wells, 215 California Drive, Burlingame, California

Field Point	Sample ID	Sample Date	Depth-to-Water	Top of Casing Elevation	Groundwater Surface Elevation	Total Petroleum Hydrocarbons, TPH						Volatile Organic Compounds, VOC's														
						TPHg	TPHss	TPHms	TPHd	TPHmo	TPHho	MTBE	Benzene	Naphthalene	sec-BB	tert-BB	PCE	TCE	Chlorobenzene	cis-1,2-DCE	1,2-DCA	Ethylbenzene	Toluene	Vinyl Chloride	Xylenes	Other VOC's
			feet TOC	feet datum	feet datum	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-1	MW-1-GW	8/29/2013	11.33	35.14	23.81	**86** (1)	ND (<50)	ND (<50)	ND (<50)	ND (<200)	NA	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**3.1**	ND (<1.0)	**11**	**3.4**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		3/21/2014	10.52	35.14	24.62	**560** (1)	**210**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**1.5**	**2.9**	ND (<1.0)	ND (<1.0)	**46**	**5.5**	ND (<1.0)	ND (<1.0)	ND (<1.0)	**14**	ND (<1.0)	ND (<1.0 to 12)
		6/13/2014	11.09	35.14	24.05	**360** (1)	**230**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**1.3**	**2.9**	ND (<1.0)	ND (<1.0)	**49**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		9/26/2014	11.03	35.14	24.11	**460** (1)	**190**	NA	**53**	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**1.0**	**2.4**	ND (<1.0)	ND (<1.0)	**42**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		12/19/2014	9.46	35.14	25.68	**360** (1)	**200**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**1.0**	**1.7**	ND (<1.0)	ND (<1.0)	**25**	**3.4**	ND (<1.0)	ND (<1.0)	ND (<1.0)	**6.8**	ND (<1.0)	ND (<1.0 to 12)
		4/24/2015	11.18	35.14	23.96	**350** (1)	**210**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**29**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**2.2**	ND (<1.0)	ND (<1.0 to 12)
MW-2	MW-2-GW	8/29/2013	12.25	36.26	24.01	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<200)	NA	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**9.4**	**2.4**	**3.8**	**11**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		3/21/2014	11.20	36.26	25.06	**800** (1)	**310**	NA	**180**	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**4.7**	**5.8**	ND (<1.0)	ND (<1.0)	**23**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		6/13/2014	12.03	36.26	24.23	**560** (1)	**270**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**3.1**	**6.3**	ND (<1.0)	ND (<1.0)	**36**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		9/26/2014	12.21	36.26	24.05	**620** (1)	**220**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**1.3**	**5.2**	ND (<1.0)	ND (<1.0)	**38**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		12/19/2014	10.28	36.26	25.98	**630** (1)	**210**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**3.6**	**4.5**	ND (<1.0)	ND (<1.0)	**21**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		4/24/2015	12.15	36.26	24.11	**590** (1)	**240**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**1.1**	**2.2**	ND (<1.0)	ND (<1.0)	**22**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
MW-3	MW-3-GW	8/29/2013	12.30	35.30	23.00	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<200)	NA	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**14**	**2.5**	ND (<1.0)	**8.7**	**1.2**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		3/21/2014	11.52	35.30	23.78	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**12**	**1.6**	ND (<1.0)	**3.6**	**1.0**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		6/13/2014	12.09	35.30	23.21	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**12**	**1.7**	ND (<1.0)	**5.0**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		9/26/2014	11.99	35.30	23.31	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**15**	**1.9**	ND (<1.0)	**4.3**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		12/19/2014	10.49	35.30	24.81	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**9.6**	**1.2**	ND (<1.0)	**2.5**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		4/24/2015	12.01	35.30	23.29	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**14**	**1.8**	ND (<1.0)	**6.1**	**1.4**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
MW-4	MW-4-GW	8/29/2013	12.50	35.46	22.96	ND (<50)	ND (<50)	ND (<50)	ND (<50)	ND (<200)	NA	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**44**	**9.8**	ND (<1.0)	**44**	ND (<1.0)	ND (<1.0)	ND (<1.0)	**1.5**	ND (<1.0)	ND (<1.0 to 12)
		3/21/2014	11.55	35.46	23.91	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**92**	**20**	ND (<1.0)	**28**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		6/13/2014	12.20	35.46	23.26	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**95**	**19**	ND (<1.0)	**30**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		9/26/2014	12.21	35.46	23.25	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**110**	**23**	ND (<1.0)	**34**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		12/19/2014	10.18	35.46	25.28	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**76**	**16**	ND (<1.0)	**22**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		4/24/2015	12.20	35.46	23.26	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**110**	**17**	ND (<1.0)	**39**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
MW-5	MW-5-GW	8/29/2013	11.21	35.71	24.50	**68** (1)	ND (<50)	ND (<50)	ND (<50)	ND (<200)	NA	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		3/21/2014	10.39	35.71	25.32	**71** (1)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**8.6**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		6/13/2014	11.10	35.71	24.61	**230** (1)	**190**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**1.7**	**1.3**	**1.1**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		9/26/2014	10.96	35.71	24.75	**210** (1)	**180**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		12/19/2014	9.00	35.71	26.71	ND (<50)	ND (<50)	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	**10**	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
		4/24/2015	11.18	35.71	24.53	**200** (1)	**190**	NA	ND (<50)	ND (<200)	ND (<200)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0)	ND (<1.0 to 12)
Regulatory Comparison Levels																										
SWRCB Low-Threat Closure Policy Groundwater Specific Criteria*						NE	NE	NE	NE	NE	NE	3,000	1,000	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
RWQCB-SF ESL** Table F-1a (drinking water resource)						100	100	100	100	100	100	5.0	1.0	6.1	200 (2)	69 (2)	5.0	5.0	25	6.0	0.50	30	40	0.50	20	Varies by compound
RWQCB-SF ESL** Table F-1b (non-drinking water resource)						500	640	640	640	640	640	1,800	27	24	200 (2)	69 (2)	63	130	25	590	100	43	130	1.8	100	Varies by compound

Table Notes

General:

µg/L: Micrograms per liter (parts per billion equivalent)
feet bts: Sample depth in feet below the top of surface
ND (<50): Not detected at or above the laboratory reporting limit
NA: Not analyzed
NE: Not established
Depth to water in feet below top of well casing
Surveyed elevation of top of well casing relative to bench mark (NAVD88), feet datum
The survey data are based on a survey completed on September 3 and 6, 2013 by CSS Environmental Services, Inc
Groundwater elevation = surveyed elevation minus depth-to-water

Table 1. Water Levels and Laboratory Analytical Results for Groundwater Monitoring Wells,
215 California Drive, Burlingame, California

TPH: Total petroleum hydrocarbons

TPHg:	Purgeable TPH as gasoline range organics by Environmental Protection Agency (EPA) Method 8260B for August 2013, and by EPA Method 8015B for March 2014
TPHss:	Extractable TPH as Stoddard solvent range organics by EPA Method 8015B with silica gel cleanup
TPHms:	Extractable TPH mineral spirits range organics by EPA Method 8015B with silica gel cleanup
TPHd:	Extractable TPH diesel range organics by EPA Method 8015B with silica gel cleanup
TPHmo:	Extractable TPH motor oil range organics by EPA Method 8015B with silica gel cleanup
TPHho:	Extractable TPH hydraulic oil range organics by EPA Method 8015B with silica gel cleanup

VOCs: Volatile organic compounds by EPA Method 8260B

MTBE:	Methy tert-butly ether
PCE:	Tetrachloroethene
TCE:	Trichloroethene
sec-BB	sec-Butylbenzene
tert-BB:	tert-Butylbenzene
cis-1,2-DCE:	cis-1,2-Dichloroethene
1,2-DCA:	1,2-Dichloroethane

* State Water Resources Control Board Low-Threat Underground Storage Tank Case Closure Policy, adopted resolution 2012-0016,
http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0016atta.pdf

** Environmental Screening Levels (ESLs) taken from the San Francisco Bay Region, Regional Water Quality Control Board (RWQCB, December 2013):
Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater , Interim Final – November 2007, updated December 2013.
Table F-1a ESLs correspond to scenario where groundwater IS a current or potential source of drinking water.
Table F-1b ESLs correspond to scenario where groundwater IS NOT a current or potential source of drinking water.
TPHg: ESL for TPH (gasolines)
TPHd, TPHss, and TPHms: ESL for TPH (diesel fuel)
TPHmo and TPHho: ESL for TPH (residual fuels)

Detail:

(1) According to the laboratory, the sample chromatogram does not exhibit a characteristic pattern of gasoline. The chromatogram exhibits a pattern indicative of stoddard solvent.

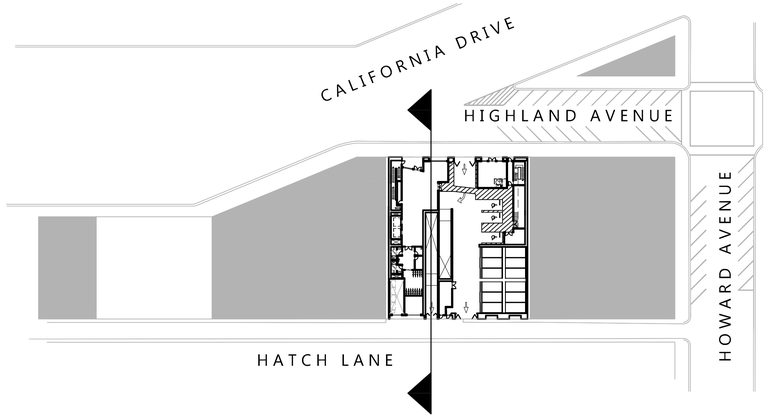
(2) The RWQCB (December 2013) has not published compound-specific ESLs for isomers of butylbenzene. As an alternative, the EPA Region 9, *Regional Screening Levels* , last updated in January 2015, provides regional screening levels (RSLs) for tap water for certain isomers of butylbenzene.

APPENDIX B

Current Elevation View of Planned Office Building and Garage

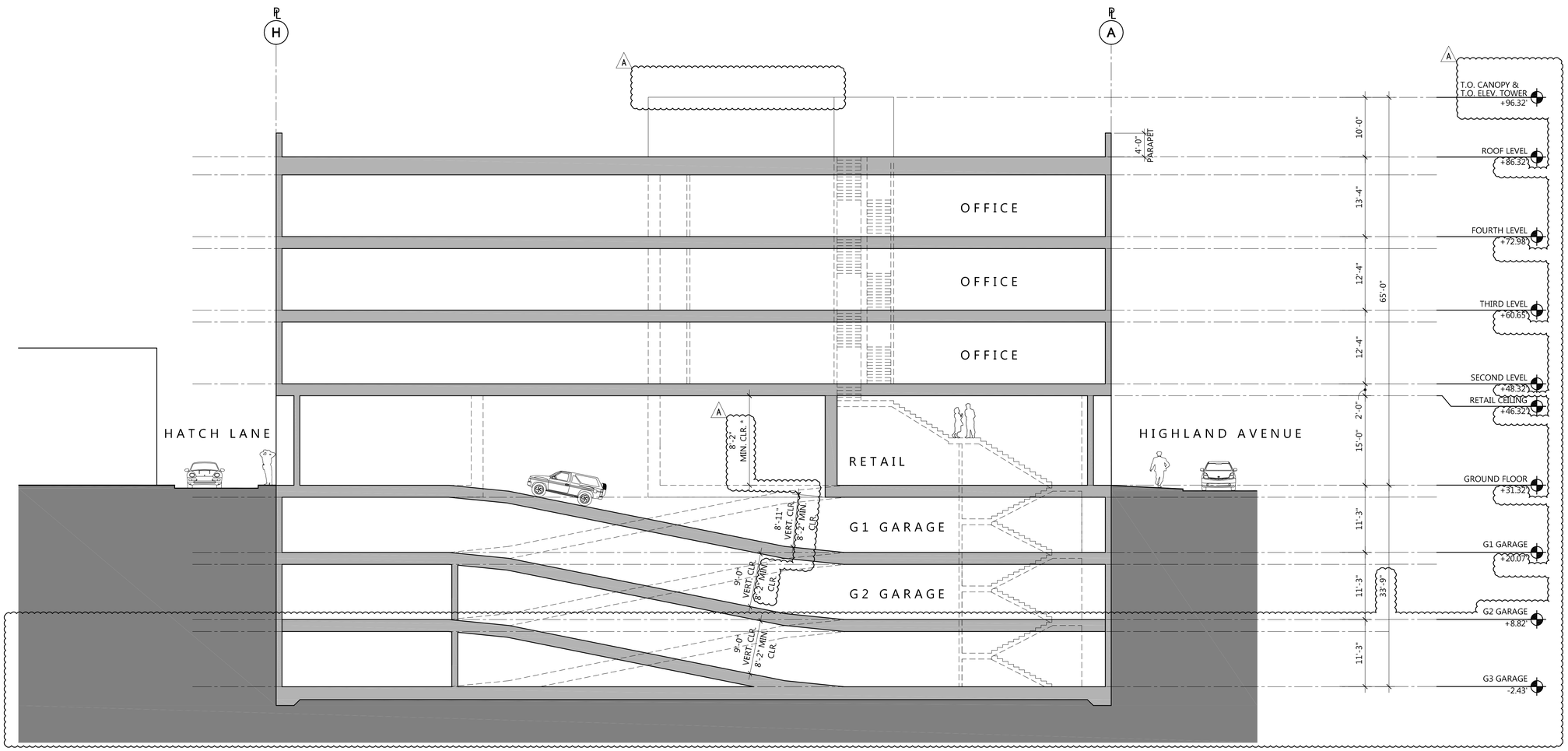
NOTES

1. THE ACCESSIBLE PARKING MUST COMPLY WITH THE ACCESSIBILITY REQUIREMENTS OF THE 2013 CBC. SPECIFICALLY:
   a. ALL ENTRANCES TO AND VERTICAL CLEARANCES WITHIN THE PARKING STRUCTURE MUST HAVE A MINIMUM VERTICAL CLEARANCE OF 8'-2" WHERE REQUIRED FOR ACCESSIBILITY TO ACCESSIBLE SPACES.
   b. AT G1 GARAGE, THE CLEAR HEIGHT TO THE LOWEST SUSPENDED FIXTURE MUST BE ≥ 8'-2".



KEY PLAN

N



BUILDING SECTION

A3.3

1/8" = 1'-0"

2 JUNE 2015
PROJECT NO: 49810

225 CALIFORNIA DRIVE

BURLINGAME, CALIFORNIA (APN 029-211-080) DLC 225 CALIFORNIA, A CALIFORNIA LIMITED PARTNERSHIP

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APPENDIX C

ProUCL Output

UCL Statistics for Data Sets with Non-Detects

User Selected Options

Date/Time of Computation	########
From File	ProUCL soil input.xls
Full Precision	OFF
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

TPHg

General Statistics

Total Number of Observations	130	Number of Distinct Observations	48
		Number of Missing Observations	26
Number of Detects	29	Number of Non-Detects	101
Number of Distinct Detects	28	Number of Distinct Non-Detects	23
Minimum Detect	0.21	Minimum Non-Detect	0.098
Maximum Detect	1900	Maximum Non-Detect	350
Variance Detects	143404	Percent Non-Detects	77.69%
Mean Detects	260.4	SD Detects	378.7
Median Detects	150	CV Detects	1.454
Skewness Detects	3.076	Kurtosis Detects	12.39
Mean of Logged Detects	3.657	SD of Logged Detects	2.955

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.661	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.926	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.246	Lilliefors GOF Test
5% Lilliefors Critical Value	0.165	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	58.38	Standard Error of Mean	18.44
SD	206.5	95% KM (BCA) UCL	92.72
95% KM (t) UCL	88.93	95% KM (Percentile Bootstrap) UCL	89.17
95% KM (z) UCL	88.71	95% KM Bootstrap t UCL	110.9
90% KM Chebyshev UCL	113.7	95% KM Chebyshev UCL	138.8
97.5% KM Chebyshev UCL	173.5	99% KM Chebyshev UCL	241.8

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.113	Anderson-Darling GOF Test
5% A-D Critical Value	0.844	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.179	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.175	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.353	k star (bias corrected MLE)	0.339
Theta hat (MLE)	738.6	Theta star (bias corrected MLE)	768
nu hat (MLE)	20.45	nu star (bias corrected)	19.67
MLE Mean (bias corrected)	260.4	MLE Sd (bias corrected)	447.2

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0799	nu hat (KM)	20.79
Approximate Chi Square Value (20.79, α)	11.43	Adjusted Chi Square Value (20.79, β)	11.35
95% Gamma Approximate KM-UCL (use when n>=50)	106.2	95% Gamma Adjusted KM-UCL (use when n<50)	106.9

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detected data is small such as < 0.1
For such situations, GROS method tends to yield inflated values of UCLs and BTVs
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	58.1
Maximum	1900	Median	0.01
SD	207.3	CV	3.568
k hat (MLE)	0.117	k star (bias corrected MLE)	0.119
Theta hat (MLE)	498.1	Theta star (bias corrected MLE)	487.9
nu hat (MLE)	30.33	nu star (bias corrected)	30.96
MLE Mean (bias corrected)	58.1	MLE Sd (bias corrected)	168.4
		Adjusted Level of Significance (β)	0.0482
Approximate Chi Square Value (30.96, α)	19.25	Adjusted Chi Square Value (30.96, β)	19.15
95% Gamma Approximate UCL (use when n>=50)	93.45	95% Gamma Adjusted UCL (use when n<50)	93.95

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.832	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.926	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.224	Lilliefors GOF Test
5% Lilliefors Critical Value	0.165	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	58.15	Mean in Log Scale	-3.354
SD in Original Scale	207.3	SD in Log Scale	4.855
95% t UCL (assumes normality of ROS data)	88.27	95% Percentile Bootstrap UCL	90.95
95% BCA Bootstrap UCL	102.2	95% Bootstrap t UCL	107.8
95% H-UCL (Log ROS)	91070		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	61.77	Mean in Log Scale	-0.489
SD in Original Scale	207.2	SD in Log Scale	2.977
95% t UCL (Assumes normality)	91.87	95% H-Stat UCL	166.8

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use
97.5% KM (Chebyshev) UCL 173.5

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TPHss

General Statistics

Total Number of Observations	138	Number of Distinct Observations	40
		Number of Missing Observations	18
Number of Detects	35	Number of Non-Detects	103
Number of Distinct Detects	32	Number of Distinct Non-Detects	9
Minimum Detect	1.3	Minimum Non-Detect	1.1
Maximum Detect	1400	Maximum Non-Detect	6
Variance Detects	91154	Percent Non-Detects	74.64%

Mean Detects	250.9	SD Detects	301.9
Median Detects	160	CV Detects	1.203
Skewness Detects	2.061	Kurtosis Detects	5.278
Mean of Logged Detects	4.504	SD of Logged Detects	1.857

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.783	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.934	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.204	Lilliefors GOF Test
5% Lilliefors Critical Value	0.15	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	64.47	Standard Error of Mean	15.99
SD	185.1	95% KM (BCA) UCL	92.55
95% KM (t) UCL	90.95	95% KM (Percentile Bootstrap) UCL	92.62
95% KM (z) UCL	90.77	95% KM Bootstrap t UCL	101.5
90% KM Chebyshev UCL	112.4	95% KM Chebyshev UCL	134.2
97.5% KM Chebyshev UCL	164.3	99% KM Chebyshev UCL	223.6

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.237	Anderson-Darling GOF Test
5% A-D Critical Value	0.802	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.0755	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.156	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.605	k star (bias corrected MLE)	0.572
Theta hat (MLE)	415	Theta star (bias corrected MLE)	438.8
nu hat (MLE)	42.32	nu star (bias corrected)	40.03
MLE Mean (bias corrected)	250.9	MLE Sd (bias corrected)	331.8

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.121	nu hat (KM)	33.47
Approximate Chi Square Value (33.47, α)	21.24	Adjusted Chi Square Value (33.47, β)	21.14
95% Gamma Approximate KM-UCL (use when n>=50)	101.6	95% Gamma Adjusted KM-UCL (use when n<50)	102.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	63.65
Maximum	1400	Median	0.01
SD	186.1	CV	2.924
k hat (MLE)	0.123	k star (bias corrected MLE)	0.125
Theta hat (MLE)	519	Theta star (bias corrected MLE)	510
nu hat (MLE)	33.84	nu star (bias corrected)	34.44
MLE Mean (bias corrected)	63.65	MLE Sd (bias corrected)	180.2
		Adjusted Level of Significance (β)	0.0483
Approximate Chi Square Value (34.44, α)	22.02	Adjusted Chi Square Value (34.44, β)	21.91
95% Gamma Approximate UCL (use when n>=50)	99.56	95% Gamma Adjusted UCL (use when n<50)	100

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.916	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.934	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.161	Lilliefors GOF Test

5% Lilliefors Critical Value	0.15	Detected Data Not Lognormal at 5% Significance Level	

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	64.62	Mean in Log Scale	0.12
SD in Original Scale	185.8	SD in Log Scale	3.376
95% t UCL (assumes normality of ROS data)	90.81	95% Percentile Bootstrap UCL	91.74
95% BCA Bootstrap UCL	100.3	95% Bootstrap t UCL	99.69
95% H-UCL (Log ROS)	1436		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	64.33	Mean in Log Scale	0.936
SD in Original Scale	185.9	SD in Log Scale	2.332
95% t UCL (Assumes normality)	90.53	95% H-Stat UCL	80.46

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	90.95	95% GROS Approximate Gamma UCL	99.56
95% Approximate Gamma KM-UCL	101.6		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TPHd

General Statistics

Total Number of Observations	153	Number of Distinct Observations	54
		Number of Missing Observations	3
Number of Detects	52	Number of Non-Detects	101
Number of Distinct Detects	45	Number of Distinct Non-Detects	11
Minimum Detect	1.2	Minimum Non-Detect	1.1
Maximum Detect	1400	Maximum Non-Detect	51
Variance Detects	101962	Percent Non-Detects	66.01%
Mean Detects	195.4	SD Detects	319.3
Median Detects	68	CV Detects	1.634
Skewness Detects	2.29	Kurtosis Detects	4.991
Mean of Logged Detects	3.686	SD of Logged Detects	2.119

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.654	Normal GOF Test on Detected Observations Only	
5% Shapiro Wilk P Value	7.33E-15	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.271	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	67.23	Standard Error of Mean	16.82
SD	206	95% KM (BCA) UCL	93.42
95% KM (t) UCL	95.06	95% KM (Percentile Bootstrap) UCL	95.24
95% KM (z) UCL	94.89	95% KM Bootstrap t UCL	103.7
90% KM Chebyshev UCL	117.7	95% KM Chebyshev UCL	140.5
97.5% KM Chebyshev UCL	172.3	99% KM Chebyshev UCL	234.6

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.084	Anderson-Darling GOF Test	
5% A-D Critical Value	0.836	Detected Data Not Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.128	Kolmogrov-Smirnoff GOF	
5% K-S Critical Value	0.132	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.412	k star (bias corrected MLE)	0.401
Theta hat (MLE)	474.2	Theta star (bias corrected MLE)	487.2
nu hat (MLE)	42.86	nu star (bias corrected)	41.72
MLE Mean (bias corrected)	195.4	MLE Sd (bias corrected)	308.6

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.106	nu hat (KM)	32.58
Approximate Chi Square Value (32.58, α)	20.53	Adjusted Chi Square Value (32.58, β)	20.44
95% Gamma Approximate KM-UCL (use when n>=50)	106.7	95% Gamma Adjusted KM-UCL (use when n<50)	107.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	66.43
Maximum	1400	Median	0.01
SD	207	CV	3.116
k hat (MLE)	0.131	k star (bias corrected MLE)	0.133
Theta hat (MLE)	507.3	Theta star (bias corrected MLE)	500.4
nu hat (MLE)	40.07	nu star (bias corrected)	40.62
MLE Mean (bias corrected)	66.43	MLE Sd (bias corrected)	182.3
		Adjusted Level of Significance (β)	0.0484
Approximate Chi Square Value (40.62, α)	27.02	Adjusted Chi Square Value (40.62, β)	26.91
95% Gamma Approximate UCL (use when n>=50)	99.89	95% Gamma Adjusted UCL (use when n<50)	100.3

Lognormal GOF Test on Detected Observations Only

Lilliefors Test Statistic	0.116	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.123	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	66.72	Mean in Log Scale	-0.36
SD in Original Scale	206.9	SD in Log Scale	3.679
95% t UCL (assumes normality of ROS data)	94.4	95% Percentile Bootstrap UCL	95.6
95% BCA Bootstrap UCL	104.2	95% Bootstrap t UCL	107.2
95% H-UCL (Log ROS)	3115		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.344	95% H-UCL (KM -Log)	60.36
KM SD (logged)	2.088	95% Critical H Value (KM-Log)	3.407
KM Standard Error of Mean (logged)	0.171		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	67.52	Mean in Log Scale	1.241
SD in Original Scale	206.6	SD in Log Scale	2.257
95% t UCL (Assumes normality)	95.17	95% H-Stat UCL	85.72

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Detected Data appear Approximate Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	95.06	95% GROS Approximate Gamma UCL	99.89
95% Approximate Gamma KM-UCL	106.7		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TPHmo

General Statistics

Total Number of Observations	152	Number of Distinct Observations	34
		Number of Missing Observations	4
Number of Detects	11	Number of Non-Detects	141
Number of Distinct Detects	10	Number of Distinct Non-Detects	25
Minimum Detect	36.8	Minimum Non-Detect	20
Maximum Detect	1700	Maximum Non-Detect	590
Variance Detects	274963	Percent Non-Detects	92.76%
Mean Detects	697	SD Detects	524.4
Median Detects	410	CV Detects	0.752
Skewness Detects	0.586	Kurtosis Detects	-0.719
Mean of Logged Detects	6.162	SD of Logged Detects	1.088

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.904	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.253	Lilliefors GOF Test
5% Lilliefors Critical Value	0.267	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	71	Standard Error of Mean	18.88
SD	220.8	95% KM (BCA) UCL	104.3
95% KM (t) UCL	102.3	95% KM (Percentile Bootstrap) UCL	104.4
95% KM (z) UCL	102.1	95% KM Bootstrap t UCL	114.6
90% KM Chebyshev UCL	127.6	95% KM Chebyshev UCL	153.3
97.5% KM Chebyshev UCL	188.9	99% KM Chebyshev UCL	258.9

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.422	Anderson-Darling GOF Test
5% A-D Critical Value	0.743	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.223	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.26	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.444	k star (bias corrected MLE)	1.111
Theta hat (MLE)	482.6	Theta star (bias corrected MLE)	627.4
nu hat (MLE)	31.77	nu star (bias corrected)	24.44
MLE Mean (bias corrected)	697	MLE Sd (bias corrected)	661.3

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.103	nu hat (KM)	31.45

Approximate Chi Square Value (31.45, α)	19.63	Adjusted Chi Square Value (31.45, β)	19.54
95% Gamma Approximate KM-UCL (use when n>=50)	113.7	95% Gamma Adjusted KM-UCL (use when n<50)	114.2

Gamma ROS Statistics using Imputed Non-Detects
GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs
GROS may not be used when kstar of detected data is small such as < 0.1
For such situations, GROS method tends to yield inflated values of UCLs and BTVs
For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	50.45
Maximum	1700	Median	0.01
SD	225.9	CV	4.478
k hat (MLE)	0.104	k star (bias corrected MLE)	0.107
Theta hat (MLE)	483.8	Theta star (bias corrected MLE)	473.2
nu hat (MLE)	31.7	nu star (bias corrected)	32.41
MLE Mean (bias corrected)	50.45	MLE Sd (bias corrected)	154.5
		Adjusted Level of Significance (β)	0.0484
Approximate Chi Square Value (32.41, α)	20.4	Adjusted Chi Square Value (32.41, β)	20.3
95% Gamma Approximate UCL (use when n>=50)	80.16	95% Gamma Adjusted UCL (use when n<50)	80.52

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.879	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.85	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.208	Lilliefors GOF Test
5% Lilliefors Critical Value	0.267	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	59.67	Mean in Log Scale	1.346
SD in Original Scale	224.5	SD in Log Scale	2.234
95% t UCL (assumes normality of ROS data)	89.8	95% Percentile Bootstrap UCL	91.69
95% BCA Bootstrap UCL	101.4	95% Bootstrap t UCL	105.5
95% H-UCL (Log ROS)	89.56		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	3.294	95% H-UCL (KM -Log)	45.69
KM SD (logged)	0.872	95% Critical H Value (KM-Log)	2.093
KM Standard Error of Mean (logged)	0.101		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	83.18	Mean in Log Scale	3.602
SD in Original Scale	221.2	SD in Log Scale	0.891
95% t UCL (Assumes normality)	112.9	95% H-Stat UCL	63.6

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	102.3	95% KM (Percentile Bootstrap) UCL	104.4

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

TPHms

General Statistics

Total Number of Observations	69	Number of Distinct Observations	23
		Number of Missing Observations	87
Number of Detects	16	Number of Non-Detects	53
Number of Distinct Detects	16	Number of Distinct Non-Detects	7
Minimum Detect	2.1	Minimum Non-Detect	1.1
Maximum Detect	800	Maximum Non-Detect	10
Variance Detects	54401	Percent Non-Detects	76.81%
Mean Detects	137.8	SD Detects	233.2
Median Detects	38	CV Detects	1.693
Skewness Detects	2.328	Kurtosis Detects	4.722
Mean of Logged Detects	3.553	SD of Logged Detects	1.894

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.612	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.887	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.34	Lilliefors GOF Test
5% Lilliefors Critical Value	0.222	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	32.85	Standard Error of Mean	15.3
SD	123.1	95% KM (BCA) UCL	59.76
95% KM (t) UCL	58.38	95% KM (Percentile Bootstrap) UCL	59.52
95% KM (z) UCL	58.03	95% KM Bootstrap t UCL	118.8
90% KM Chebyshev UCL	78.77	95% KM Chebyshev UCL	99.57
97.5% KM Chebyshev UCL	128.4	99% KM Chebyshev UCL	185.1

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.569	Anderson-Darling GOF Test
5% A-D Critical Value	0.803	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.159	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.228	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.467	k star (bias corrected MLE)	0.421
Theta hat (MLE)	294.8	Theta star (bias corrected MLE)	327
nu hat (MLE)	14.96	nu star (bias corrected)	13.49
MLE Mean (bias corrected)	137.8	MLE Sd (bias corrected)	212.3

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0712	nu hat (KM)	9.831
Approximate Chi Square Value (9.83, α)	3.836	Adjusted Chi Square Value (9.83, β)	3.757
95% Gamma Approximate KM-UCL (use when n>=50)	84.19	95% Gamma Adjusted KM-UCL (use when n<50)	85.98

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	31.96
Maximum	800	Median	0.01
SD	124.2	CV	3.887
k hat (MLE)	0.127	k star (bias corrected MLE)	0.131
Theta hat (MLE)	251	Theta star (bias corrected MLE)	243.1
nu hat (MLE)	17.57	nu star (bias corrected)	18.14

MLE Mean (bias corrected)	31.96	MLE Sd (bias corrected)	88.16
		Adjusted Level of Significance (β)	0.0465
Approximate Chi Square Value (18.14, α)	9.493	Adjusted Chi Square Value (18.14, β)	9.359
95% Gamma Approximate UCL (use when n>=50)	61.08	95% Gamma Adjusted UCL (use when n<50)	61.95

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.945	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.887	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.165	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.222	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	32.18	Mean in Log Scale	-1.735
SD in Original Scale	124.2	SD in Log Scale	3.814
95% t UCL (assumes normality of ROS data)	57.11	95% Percentile Bootstrap UCL	57.34
95% BCA Bootstrap UCL	71.84	95% Bootstrap t UCL	113.8
95% H-UCL (Log ROS)	2336		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	0.924	95% H-UCL (KM -Log)	18.17
KM SD (logged)	1.701	95% Critical H Value (KM-Log)	2.562
KM Standard Error of Mean (logged)	0.213		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	33.1	Mean in Log Scale	0.887
SD in Original Scale	123.9	SD in Log Scale	1.852
95% t UCL (Assumes normality)	57.98	95% H-Stat UCL	24.99

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	58.38	95% GROS Approximate Gamma UCL	61.08
95% Approximate Gamma KM-UCL	84.19		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Acetone

General Statistics

Total Number of Observations	131	Number of Distinct Observations	62
		Number of Missing Observations	25
Number of Detects	12	Number of Non-Detects	119
Number of Distinct Detects	12	Number of Distinct Non-Detects	52
Minimum Detect	50	Minimum Non-Detect	3.4
Maximum Detect	92	Maximum Non-Detect	5100
Variance Detects	160.8	Percent Non-Detects	90.84%
Mean Detects	68.92	SD Detects	12.68
Median Detects	69	CV Detects	0.184
Skewness Detects	0.153	Kurtosis Detects	-0.552
Mean of Logged Detects	4.217	SD of Logged Detects	0.187

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.978	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.859	Detected Data appear Normal at 5% Significance Level	
Lilliefors Test Statistic	0.0797	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.256	Detected Data appear Normal at 5% Significance Level	

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	10.37	Standard Error of Mean	2.023
SD	20.58	95% KM (BCA) UCL	13.6
95% KM (t) UCL	13.72	95% KM (Percentile Bootstrap) UCL	13.71
95% KM (z) UCL	13.69	95% KM Bootstrap t UCL	13.96
90% KM Chebyshev UCL	16.43	95% KM Chebyshev UCL	19.18
97.5% KM Chebyshev UCL	23	99% KM Chebyshev UCL	30.49

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.157	Anderson-Darling GOF Test	
5% A-D Critical Value	0.731	Detected data appear Gamma Distributed at 5% Significance Level	
K-S Test Statistic	0.0941	Kolmogrov-Smirnoff GOF	
5% K-S Critical Value	0.245	Detected data appear Gamma Distributed at 5% Significance Level	

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	31.82	k star (bias corrected MLE)	23.92
Theta hat (MLE)	2.166	Theta star (bias corrected MLE)	2.881
nu hat (MLE)	763.6	nu star (bias corrected)	574
MLE Mean (bias corrected)	68.92	MLE Sd (bias corrected)	14.09

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.254	nu hat (KM)	66.5
Approximate Chi Square Value (66.50, α)	48.73	Adjusted Chi Square Value (66.50, β)	48.56
95% Gamma Approximate KM-UCL (use when n>=50)	14.14	95% Gamma Adjusted KM-UCL (use when n<50)	14.19

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	17.65
Maximum	92	Median	9.983
SD	19.81	CV	1.122
k hat (MLE)	0.366	k star (bias corrected MLE)	0.363
Theta hat (MLE)	48.19	Theta star (bias corrected MLE)	48.63
nu hat (MLE)	95.98	nu star (bias corrected)	95.12
MLE Mean (bias corrected)	17.65	MLE Sd (bias corrected)	29.3
		Adjusted Level of Significance (β)	0.0482
Approximate Chi Square Value (95.12, α)	73.62	Adjusted Chi Square Value (95.12, β)	73.42
95% Gamma Approximate UCL (use when n>=50)	22.81	95% Gamma Adjusted UCL (use when n<50)	22.87

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.974	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.859	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.108	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.256	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	30.98	Mean in Log Scale	3.358

SD in Original Scale	14.15	SD in Log Scale	0.368
95% t UCL (assumes normality of ROS data)	33.03	95% Percentile Bootstrap UCL	33.2
95% BCA Bootstrap UCL	33.21	95% Bootstrap t UCL	33.38
95% H-UCL (Log ROS)	32.52		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.542	95% H-UCL (KM -Log)	8.516
KM SD (logged)	0.925	95% Critical H Value (KM-Log)	2.127
KM Standard Error of Mean (logged)	0.0909		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	133.1	Mean in Log Scale	2.804
SD in Original Scale	475.4	SD in Log Scale	1.737
95% t UCL (Assumes normality)	201.9	95% H-Stat UCL	117.2

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	13.72	95% KM (Percentile Bootstrap) UCL	13.71

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

cis-1,2-DCE

General Statistics

Total Number of Observations	103	Number of Distinct Observations	31
		Number of Missing Observations	5
Number of Detects	2	Number of Non-Detects	101
Number of Distinct Detects	2	Number of Distinct Non-Detects	29
Minimum Detect	2.4	Minimum Non-Detect	2
Maximum Detect	13	Maximum Non-Detect	2500
Variance Detects	56.18	Percent Non-Detects	98.06%
Mean Detects	7.7	SD Detects	7.495
Median Detects	7.7	CV Detects	0.973
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	1.72	SD of Logged Detects	1.195

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only
Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.143	Standard Error of Mean	0.165
SD	1.119	95% KM (BCA) UCL	N/A
95% KM (t) UCL	2.417	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	2.415	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	2.639	95% KM Chebyshev UCL	2.864
97.5% KM Chebyshev UCL	3.175	99% KM Chebyshev UCL	3.788

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	1.705	k star (bias corrected MLE)	N/A
Theta hat (MLE)	4.516	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	6.821	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	3.67	nu hat (KM)	755.9
		Adjusted Level of Significance (β)	0.0477
Approximate Chi Square Value (755.94, α)	693.1	Adjusted Chi Square Value (755.94, β)	692.3
95% Gamma Approximate KM-UCL (use when n>=50)	2.337	95% Gamma Adjusted KM-UCL (use when n<50)	2.34

Lognormal GOF Test on Detected Observations Only
Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.312	Mean in Log Scale	-2.364
SD in Original Scale	1.296	SD in Log Scale	1.331
95% t UCL (assumes normality of ROS data)	0.523	95% Percentile Bootstrap UCL	0.55
95% BCA Bootstrap UCL	0.703	95% Bootstrap t UCL	1.349
95% H-UCL (Log ROS)	0.318		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	27.13	Mean in Log Scale	1.029
SD in Original Scale	132.3	SD in Log Scale	1.316
95% t UCL (Assumes normality)	48.77	95% H-Stat UCL	9.231

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use
95% KM (BCA) UCL N/A
Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

PCE

General Statistics

Total Number of Observations	151	Number of Distinct Observations	39
		Number of Missing Observations	5
Number of Detects	8	Number of Non-Detects	143
Number of Distinct Detects	7	Number of Distinct Non-Detects	37
Minimum Detect	2.9	Minimum Non-Detect	2
Maximum Detect	10	Maximum Non-Detect	2500
Variance Detects	4.462	Percent Non-Detects	94.70%
Mean Detects	5.225	SD Detects	2.112
Median Detects	4.8	CV Detects	0.404
Skewness Detects	1.883	Kurtosis Detects	4.619
Mean of Logged Detects	1.594	SD of Logged Detects	0.354

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.806	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data Not Normal at 5% Significance Level	
Lilliefors Test Statistic	0.323	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.313	Detected Data Not Normal at 5% Significance Level	

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.296	Standard Error of Mean	0.117
SD	0.951	95% KM (BCA) UCL	2.507
95% KM (t) UCL	2.49	95% KM (Percentile Bootstrap) UCL	2.5
95% KM (z) UCL	2.489	95% KM Bootstrap t UCL	2.52
90% KM Chebyshev UCL	2.648	95% KM Chebyshev UCL	2.807
97.5% KM Chebyshev UCL	3.028	99% KM Chebyshev UCL	3.463

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.476	Anderson-Darling GOF Test
5% A-D Critical Value	0.716	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.27	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.295	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	8.624	k star (bias corrected MLE)	5.473
Theta hat (MLE)	0.606	Theta star (bias corrected MLE)	0.955
nu hat (MLE)	138	nu star (bias corrected)	87.57
MLE Mean (bias corrected)	5.225	MLE Sd (bias corrected)	2.233

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	5.834	nu hat (KM)	1762
Approximate Chi Square Value (N/A, α)	1665	Adjusted Chi Square Value (N/A, β)	1664
95% Gamma Approximate KM-UCL (use when n>=50)	2.429	95% Gamma Adjusted KM-UCL (use when n<50)	2.431

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	0.424
Maximum	10	Median	0.01
SD	1.289	CV	3.041
k hat (MLE)	0.259	k star (bias corrected MLE)	0.258
Theta hat (MLE)	1.639	Theta star (bias corrected MLE)	1.644
nu hat (MLE)	78.1	nu star (bias corrected)	77.88
MLE Mean (bias corrected)	0.424	MLE Sd (bias corrected)	0.835
		Adjusted Level of Significance (β)	0.0484
Approximate Chi Square Value (77.88, α)	58.55	Adjusted Chi Square Value (77.88, β)	58.39
95% Gamma Approximate UCL (use when n>=50)	0.564	95% Gamma Adjusted UCL (use when n<50)	0.565

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.925	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.818	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.253	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.313	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.408	Mean in Log Scale	0.148
SD in Original Scale	1.151	SD in Log Scale	0.586
95% t UCL (assumes normality of ROS data)	1.563	95% Percentile Bootstrap UCL	1.575
95% BCA Bootstrap UCL	1.606	95% Bootstrap t UCL	1.62
95% H-UCL (Log ROS)	1.507		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	0.787	95% H-UCL (KM -Log)	2.354
KM SD (logged)	0.257	95% Critical H Value (KM-Log)	1.716
KM Standard Error of Mean (logged)	0.039		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	26.84	Mean in Log Scale	1.18
SD in Original Scale	114.6	SD in Log Scale	1.378
95% t UCL (Assumes normality)	42.28	95% H-Stat UCL	11.26

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	2.49	95% GROS Approximate Gamma UCL	0.564
95% Approximate Gamma KM-UCL	2.429		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Chlorobenzene

General Statistics

Total Number of Observations	103	Number of Distinct Observations	41
		Number of Missing Observations	5
Number of Detects	20	Number of Non-Detects	83
Number of Distinct Detects	18	Number of Distinct Non-Detects	27
Minimum Detect	4.1	Minimum Non-Detect	2
Maximum Detect	1300	Maximum Non-Detect	2500
Variance Detects	82379	Percent Non-Detects	80.58%
Mean Detects	102.9	SD Detects	287
Median Detects	14	CV Detects	2.789
Skewness Detects	4.22	Kurtosis Detects	18.33
Mean of Logged Detects	3.135	SD of Logged Detects	1.531

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.365	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.905	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.376	Lilliefors GOF Test
5% Lilliefors Critical Value	0.198	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	22.19	Standard Error of Mean	13.25
SD	130.3	95% KM (BCA) UCL	48.58
95% KM (t) UCL	44.19	95% KM (Percentile Bootstrap) UCL	46.09
95% KM (z) UCL	43.99	95% KM Bootstrap t UCL	130.7

90% KM Chebyshev UCL	61.95	95% KM Chebyshev UCL	79.96
97.5% KM Chebyshev UCL	105	99% KM Chebyshev UCL	154.1

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.95	Anderson-Darling GOF Test
5% A-D Critical Value	0.817	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.239	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.207	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.433	k star (bias corrected MLE)	0.402
Theta hat (MLE)	237.5	Theta star (bias corrected MLE)	256.2
nu hat (MLE)	17.33	nu star (bias corrected)	16.07
MLE Mean (bias corrected)	102.9	MLE Sd (bias corrected)	162.4

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.029	nu hat (KM)	5.974
Approximate Chi Square Value (5.97, α)	1.627	Adjusted Chi Square Value (5.97, β)	1.595
95% Gamma Approximate KM-UCL (use when n>=50)	81.49	95% Gamma Adjusted KM-UCL (use when n<50)	83.11

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	19.99
Maximum	1300	Median	0.01
SD	130.5	CV	6.525
k hat (MLE)	0.129	k star (bias corrected MLE)	0.132
Theta hat (MLE)	155.2	Theta star (bias corrected MLE)	152
nu hat (MLE)	26.53	nu star (bias corrected)	27.09
MLE Mean (bias corrected)	19.99	MLE Sd (bias corrected)	55.13
		Adjusted Level of Significance (β)	0.0477
Approximate Chi Square Value (27.09, α)	16.22	Adjusted Chi Square Value (27.09, β)	16.1
95% Gamma Approximate UCL (use when n>=50)	33.39	95% Gamma Adjusted UCL (use when n<50)	33.63

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.9	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.905	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.185	Lilliefors GOF Test
5% Lilliefors Critical Value	0.198	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Approximate Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	20.19	Mean in Log Scale	-1.335
SD in Original Scale	130.4	SD in Log Scale	2.758
95% t UCL (assumes normality of ROS data)	41.52	95% Percentile Bootstrap UCL	44.72
95% BCA Bootstrap UCL	65.65	95% Bootstrap t UCL	139.6
95% H-UCL (Log ROS)	37.77		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.205	95% H-UCL (KM -Log)	8.964
KM SD (logged)	1.189	95% Critical H Value (KM-Log)	2.388
KM Standard Error of Mean (logged)	0.124		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	44.09	Mean in Log Scale	1.414
SD in Original Scale	181.9	SD in Log Scale	1.625
95% t UCL (Assumes normality)	73.83	95% H-Stat UCL	24.38

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Detected Data appear Approximate Lognormal Distributed at 5% Significance Level

Suggested UCL to Use
95% KM (Chebyshev) UCL 79.96

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

sec-BB

General Statistics

Total Number of Observations	151	Number of Distinct Observations	50
		Number of Missing Observations	5
Number of Detects	29	Number of Non-Detects	122
Number of Distinct Detects	27	Number of Distinct Non-Detects	29
Minimum Detect	4.1	Minimum Non-Detect	2
Maximum Detect	5600	Maximum Non-Detect	440
Variance Detects	1965632	Percent Non-Detects	80.79%
Mean Detects	818.4	SD Detects	1402
Median Detects	40	CV Detects	1.713
Skewness Detects	2.041	Kurtosis Detects	4.093
Mean of Logged Detects	4.403	SD of Logged Detects	2.553

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.659	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.926	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.331	Lilliefors GOF Test
5% Lilliefors Critical Value	0.165	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	159	Standard Error of Mean	56.65
SD	684	95% KM (BCA) UCL	270.3
95% KM (t) UCL	252.8	95% KM (Percentile Bootstrap) UCL	254.3
95% KM (z) UCL	252.2	95% KM Bootstrap t UCL	298.9
90% KM Chebyshev UCL	329	95% KM Chebyshev UCL	406
97.5% KM Chebyshev UCL	512.8	99% KM Chebyshev UCL	722.7

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	1.73	Anderson-Darling GOF Test
5% A-D Critical Value	0.856	Detected Data Not Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.204	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.177	Detected Data Not Gamma Distributed at 5% Significance Level

Detected Data Not Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	0.299	k star (bias corrected MLE)	0.291
Theta hat (MLE)	2734	Theta star (bias corrected MLE)	2809
nu hat (MLE)	17.36	nu star (bias corrected)	16.9

MLE Mean (bias corrected)	818.4	MLE Sd (bias corrected)	1516

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.054	nu hat (KM)	16.32
Approximate Chi Square Value (16.32, α)	8.19	Adjusted Chi Square Value (16.32, β)	8.135
95% Gamma Approximate KM-UCL (use when n>=50)	316.9	95% Gamma Adjusted KM-UCL (use when n<50)	319.1

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	157.2
Maximum	5600	Median	0.01
SD	686.7	CV	4.369
k hat (MLE)	0.102	k star (bias corrected MLE)	0.104
Theta hat (MLE)	1539	Theta star (bias corrected MLE)	1504
nu hat (MLE)	30.84	nu star (bias corrected)	31.56
MLE Mean (bias corrected)	157.2	MLE Sd (bias corrected)	486.2
		Adjusted Level of Significance (β)	0.0484
Approximate Chi Square Value (31.56, α)	19.72	Adjusted Chi Square Value (31.56, β)	19.63
95% Gamma Approximate UCL (use when n>=50)	251.5	95% Gamma Adjusted UCL (use when n<50)	252.7

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.874	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.926	Detected Data Not Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.171	Lilliefors GOF Test
5% Lilliefors Critical Value	0.165	Detected Data Not Lognormal at 5% Significance Level

Detected Data Not Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	157.3	Mean in Log Scale	-3.154
SD in Original Scale	686.7	SD in Log Scale	4.734
95% t UCL (assumes normality of ROS data)	249.7	95% Percentile Bootstrap UCL	253.9
95% BCA Bootstrap UCL	274.9	95% Bootstrap t UCL	303.2
95% H-UCL (Log ROS)	45485		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	164	Mean in Log Scale	1.523
SD in Original Scale	685.8	SD in Log Scale	1.958
95% t UCL (Assumes normality)	256.4	95% H-Stat UCL	52.4

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

97.5% KM (Chebyshev) UCL	512.8

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

tert-BB

General Statistics

Total Number of Observations	151	Number of Distinct Observations	50
		Number of Missing Observations	5
Number of Detects	17	Number of Non-Detects	134
Number of Distinct Detects	14	Number of Distinct Non-Detects	37
Minimum Detect	10	Minimum Non-Detect	2
Maximum Detect	120	Maximum Non-Detect	2500
Variance Detects	1153	Percent Non-Detects	88.74%
Mean Detects	38.24	SD Detects	33.96
Median Detects	28	CV Detects	0.888
Skewness Detects	1.548	Kurtosis Detects	1.557
Mean of Logged Detects	3.329	SD of Logged Detects	0.795

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.779	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.892	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.244	Lilliefors GOF Test
5% Lilliefors Critical Value	0.215	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	6.472	Standard Error of Mean	1.457
SD	16.6	95% KM (BCA) UCL	9.331
95% KM (t) UCL	8.884	95% KM (Percentile Bootstrap) UCL	8.955
95% KM (z) UCL	8.869	95% KM Bootstrap t UCL	10.02
90% KM Chebyshev UCL	10.84	95% KM Chebyshev UCL	12.82
97.5% KM Chebyshev UCL	15.57	99% KM Chebyshev UCL	20.97

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.708	Anderson-Darling GOF Test
5% A-D Critical Value	0.753	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.201	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.212	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.736	k star (bias corrected MLE)	1.469
Theta hat (MLE)	22.02	Theta star (bias corrected MLE)	26.03
nu hat (MLE)	59.04	nu star (bias corrected)	49.95
MLE Mean (bias corrected)	38.24	MLE Sd (bias corrected)	31.54

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.152	nu hat (KM)	45.9
Approximate Chi Square Value (45.90, α)	31.36	Adjusted Chi Square Value (45.90, β)	31.24
95% Gamma Approximate KM-UCL (use when n>=50)	9.474	95% Gamma Adjusted KM-UCL (use when n<50)	9.509

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	4.314
Maximum	120	Median	0.01
SD	16.43	CV	3.809
k hat (MLE)	0.149	k star (bias corrected MLE)	0.15
Theta hat (MLE)	29	Theta star (bias corrected MLE)	28.72
nu hat (MLE)	44.92	nu star (bias corrected)	45.36
MLE Mean (bias corrected)	4.314	MLE Sd (bias corrected)	11.13

		Adjusted Level of Significance (β)	0.0484
Approximate Chi Square Value (45.36, α)	30.91	Adjusted Chi Square Value (45.36, β)	30.79
95% Gamma Approximate UCL (use when n>=50)	6.33	95% Gamma Adjusted UCL (use when n<50)	6.354

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.925	Shapiro Wilk GOF Test	
5% Shapiro Wilk Critical Value	0.892	Detected Data appear Lognormal at 5% Significance Level	
Lilliefors Test Statistic	0.18	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.215	Detected Data appear Lognormal at 5% Significance Level	

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	5.425	Mean in Log Scale	0.0488
SD in Original Scale	16.19	SD in Log Scale	1.646
95% t UCL (assumes normality of ROS data)	7.605	95% Percentile Bootstrap UCL	7.69
95% BCA Bootstrap UCL	8.132	95% Bootstrap t UCL	8.781
95% H-UCL (Log ROS)	5.987		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	1.019	95% H-UCL (KM -Log)	4.9
KM SD (logged)	0.909	95% Critical H Value (KM-Log)	2.125
KM Standard Error of Mean (logged)	0.0798		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	30.69	Mean in Log Scale	1.409
SD in Original Scale	114.9	SD in Log Scale	1.556
95% t UCL (Assumes normality)	46.17	95% H-Stat UCL	19.55

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	8.884	95% GROS Approximate Gamma UCL	6.33
95% Approximate Gamma KM-UCL	9.474		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Ethylbenzene

General Statistics

Total Number of Observations	108	Number of Distinct Observations	3200.00%
Number of Detects	2	Number of Non-Detects	106
Number of Distinct Detects	2	Number of Distinct Non-Detects	31
Minimum Detect	10	Minimum Non-Detect	2
Maximum Detect	12	Maximum Non-Detect	4900
Variance Detects	2	Percent Non-Detects	98.15%
Mean Detects	11	SD Detects	1.414
Median Detects	11	CV Detects	0.129
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	2.394	SD of Logged Detects	0.129

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only
Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.188	Standard Error of Mean	0.187
SD	1.294	95% KM (BCA) UCL	N/A
95% KM (t) UCL	2.497	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	2.495	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	2.748	95% KM Chebyshev UCL	3.001
97.5% KM Chebyshev UCL	3.353	99% KM Chebyshev UCL	4.045

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	120.7	k star (bias corrected MLE)	N/A
Theta hat (MLE)	0.0912	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	482.7	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	2.86	nu hat (KM)	617.7
		Adjusted Level of Significance (β)	0.0478
Approximate Chi Square Value (617.74, α)	561.1	Adjusted Chi Square Value (617.74, β)	560.4
95% Gamma Approximate KM-UCL (use when n>=50)	2.408	95% Gamma Adjusted KM-UCL (use when n<50)	2.411

Lognormal GOF Test on Detected Observations Only
Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	2.456	Mean in Log Scale	0.768
SD in Original Scale	1.548	SD in Log Scale	0.489
95% t UCL (assumes normality of ROS data)	2.703	95% Percentile Bootstrap UCL	2.704
95% BCA Bootstrap UCL	2.763	95% Bootstrap t UCL	2.778
95% H-UCL (Log ROS)	2.647		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	63.66	Mean in Log Scale	1.26
SD in Original Scale	290.6	SD in Log Scale	1.673
95% t UCL (Assumes normality)	110.1	95% H-Stat UCL	22.93

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	2.497	95% KM (% Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Naphthalene

General Statistics

Total Number of Observations	103	Number of Distinct Observations	51
		Number of Missing Observations	5
Number of Detects	2	Number of Non-Detects	101
Number of Distinct Detects	2	Number of Distinct Non-Detects	50
Minimum Detect	8.7	Minimum Non-Detect	2
Maximum Detect	60	Maximum Non-Detect	2500
Variance Detects	1316	Percent Non-Detects	98.06%
Mean Detects	34.35	SD Detects	36.27
Median Detects	34.35	CV Detects	1.056
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	3.129	SD of Logged Detects	1.365

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only
Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.687	Standard Error of Mean	0.857
SD	5.927	95% KM (BCA) UCL	N/A
95% KM (t) UCL	4.109	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	4.096	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	5.257	95% KM Chebyshev UCL	6.421
97.5% KM Chebyshev UCL	8.037	99% KM Chebyshev UCL	11.21

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	1.369	k star (bias corrected MLE)	N/A
Theta hat (MLE)	25.09	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	5.476	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.206	nu hat (KM)	42.34
		Adjusted Level of Significance (β)	0.0477
Approximate Chi Square Value (42.34, α)	28.43	Adjusted Chi Square Value (42.34, β)	28.27
95% Gamma Approximate KM-UCL (use when n>=50)	4.003	95% Gamma Adjusted KM-UCL (use when n<50)	4.026

Lognormal GOF Test on Detected Observations Only
Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.674	Mean in Log Scale	-7.277
SD in Original Scale	5.965	SD in Log Scale	2.71
95% t UCL (assumes normality of ROS data)	1.649	95% Percentile Bootstrap UCL	1.838
95% BCA Bootstrap UCL	2.508	95% Bootstrap t UCL	130.5
95% H-UCL (Log ROS)	0.0839		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	28.32	Mean in Log Scale	1.277
SD in Original Scale	132.2	SD in Log Scale	1.336

95% t UCL (Assumes normality)	49.95	95% H-Stat UCL	12.24

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use
95% KM (BCA) UCL N/A
Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

n-PB

General Statistics

Total Number of Observations	151	Number of Distinct Observations	41
		Number of Missing Observations	5
Number of Detects	5	Number of Non-Detects	146
Number of Distinct Detects	4	Number of Distinct Non-Detects	37
Minimum Detect	52	Minimum Non-Detect	2
Maximum Detect	1100	Maximum Non-Detect	2500
Variance Detects	186347	Percent Non-Detects	96.69%
Mean Detects	334.4	SD Detects	431.7
Median Detects	190	CV Detects	1.291
Skewness Detects	2.139	Kurtosis Detects	4.679
Mean of Logged Detects	5.278	SD of Logged Detects	1.101

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.674	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.431	Lilliefors GOF Test
5% Lilliefors Critical Value	0.396	Detected Data Not Normal at 5% Significance Level

Detected Data Not Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	13.38	Standard Error of Mean	8.477
SD	92.58	95% KM (BCA) UCL	N/A
95% KM (t) UCL	27.41	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	27.32	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	38.81	95% KM Chebyshev UCL	50.33
97.5% KM Chebyshev UCL	66.32	99% KM Chebyshev UCL	97.73

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.571	Anderson-Darling GOF Test
5% A-D Critical Value	0.691	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.378	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.364	Detected Data Not Gamma Distributed at 5% Significance Level

Detected data follow Appr. Gamma Distribution at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	1.072	k star (bias corrected MLE)	0.562
Theta hat (MLE)	312	Theta star (bias corrected MLE)	595
nu hat (MLE)	10.72	nu star (bias corrected)	5.62
MLE Mean (bias corrected)	334.4	MLE Sd (bias corrected)	446.1

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0209	nu hat (KM)	6.307
Approximate Chi Square Value (6.31, α)	1.799	Adjusted Chi Square Value (6.31, β)	1.776
95% Gamma Approximate KM-UCL (use when n>=50)	46.91	95% Gamma Adjusted KM-UCL (use when n<50)	47.52

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	11.08
Maximum	1100	Median	0.01
SD	92.59	CV	8.355
k hat (MLE)	0.119	k star (bias corrected MLE)	0.121
Theta hat (MLE)	93.27	Theta star (bias corrected MLE)	91.69
nu hat (MLE)	35.88	nu star (bias corrected)	36.5
MLE Mean (bias corrected)	11.08	MLE Sd (bias corrected)	31.88
		Adjusted Level of Significance (β)	0.0484
Approximate Chi Square Value (36.50, α)	23.67	Adjusted Chi Square Value (36.50, β)	23.57
95% Gamma Approximate UCL (use when n>=50)	17.09	95% Gamma Adjusted UCL (use when n<50)	17.16

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.911	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.762	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.311	Lilliefors GOF Test
5% Lilliefors Critical Value	0.396	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	11.85	Mean in Log Scale	-1.767
SD in Original Scale	92.51	SD in Log Scale	2.474
95% t UCL (assumes normality of ROS data)	24.31	95% Percentile Bootstrap UCL	25.77
95% BCA Bootstrap UCL	34.9	95% Bootstrap t UCL	66.34
95% H-UCL (Log ROS)	7.998		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	0.855	95% H-UCL (KM -Log)	3.95
KM SD (logged)	0.863	95% Critical H Value (KM-Log)	2.085
KM Standard Error of Mean (logged)	0.0808		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	36.28	Mean in Log Scale	1.239
SD in Original Scale	144.7	SD in Log Scale	1.546
95% t UCL (Assumes normality)	55.77	95% H-Stat UCL	16.18

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics

Detected Data appear Approximate Gamma Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	27.41	95% GROS Approximate Gamma UCL	17.09
95% Approximate Gamma KM-UCL	46.91		

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)

However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

iso-PB

General Statistics

Total Number of Observations	103	Number of Distinct Observations	31
		Number of Missing Observations	5
Number of Detects	3	Number of Non-Detects	100
Number of Distinct Detects	3	Number of Distinct Non-Detects	29
Minimum Detect	4.3	Minimum Non-Detect	2
Maximum Detect	110	Maximum Non-Detect	2500
Variance Detects	2942	Percent Non-Detects	97.09%
Mean Detects	50.1	SD Detects	54.24
Median Detects	36	CV Detects	1.083
Skewness Detects	1.091	Kurtosis Detects	N/A
Mean of Logged Detects	3.248	SD of Logged Detects	1.647

Warning: Data set has only 3 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.949	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.269	Lilliefors GOF Test
5% Lilliefors Critical Value	0.512	Detected Data appear Normal at 5% Significance Level

Detected Data appear Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	3.517	Standard Error of Mean	1.433
SD	11.46	95% KM (BCA) UCL	N/A
95% KM (t) UCL	5.895	95% KM (Percentile Bootstrap) UCL	N/A
95% KM (z) UCL	5.873	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	7.815	95% KM Chebyshev UCL	9.762
97.5% KM Chebyshev UCL	12.46	99% KM Chebyshev UCL	17.77

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	0.88	k star (bias corrected MLE)	N/A
Theta hat (MLE)	56.95	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	5.278	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0942	nu hat (KM)	19.4
		Adjusted Level of Significance (β)	0.0477
Approximate Chi Square Value (19.40, α)	10.41	Adjusted Chi Square Value (19.40, β)	10.32
95% Gamma Approximate KM-UCL (use when n>=50)	6.554	95% Gamma Adjusted KM-UCL (use when n<50)	6.613

Gamma (KM) may not be used when k hat (KM) is < 0.1

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.969	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.247	Lilliefors GOF Test
5% Lilliefors Critical Value	0.512	Detected Data appear Lognormal at 5% Significance Level

Detected Data appear Lognormal at 5% Significance Level

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	1.463	Mean in Log Scale	-9.276
SD in Original Scale	11.37	SD in Log Scale	4.163
95% t UCL (assumes normality of ROS data)	3.323	95% Percentile Bootstrap UCL	3.599
95% BCA Bootstrap UCL	5.387	95% Bootstrap t UCL	562.6
95% H-UCL (Log ROS)	6.816		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	0.777	95% H-UCL (KM -Log)	2.713
KM SD (logged)	0.507	95% Critical H Value (KM-Log)	1.835
KM Standard Error of Mean (logged)	0.064		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	28.41	Mean in Log Scale	1.074
SD in Original Scale	132.6	SD in Log Scale	1.385
95% t UCL (Assumes normality)	50.09	95% H-Stat UCL	10.89

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Detected Data appear Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	5.895	95% KM (Percentile Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,2-DCA

General Statistics

Total Number of Observations	103	Number of Distinct Observations	31
		Number of Missing Observations	5
Number of Detects	2	Number of Non-Detects	101
Number of Distinct Detects	2	Number of Distinct Non-Detects	29
Minimum Detect	16	Minimum Non-Detect	2
Maximum Detect	51	Maximum Non-Detect	2500
Variance Detects	612.5	Percent Non-Detects	98.06%
Mean Detects	33.5	SD Detects	24.75
Median Detects	33.5	CV Detects	0.739
Skewness Detects	N/A	Kurtosis Detects	N/A
Mean of Logged Detects	3.352	SD of Logged Detects	0.82

Warning: Data set has only 2 Detected Values.
This is not enough to compute meaningful or reliable statistics and estimates.

Normal GOF Test on Detects Only
Not Enough Data to Perform GOF Test

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	2.656	Standard Error of Mean	0.745
SD	5.16	95% KM (BCA) UCL	N/A
95% KM (t) UCL	3.892	95% KM (Percentile Bootstrap) UCL	N/A

95% KM (z) UCL	3.881	95% KM Bootstrap t UCL	N/A
90% KM Chebyshev UCL	4.89	95% KM Chebyshev UCL	5.902
97.5% KM Chebyshev UCL	7.307	99% KM Chebyshev UCL	10.07

Gamma GOF Tests on Detected Observations Only
Not Enough Data to Perform GOF Test

Gamma Statistics on Detected Data Only

k hat (MLE)	3.295	k star (bias corrected MLE)	N/A
Theta hat (MLE)	10.17	Theta star (bias corrected MLE)	N/A
nu hat (MLE)	13.18	nu star (bias corrected)	N/A
MLE Mean (bias corrected)	N/A	MLE Sd (bias corrected)	N/A

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.265	nu hat (KM)	54.6
		Adjusted Level of Significance (β)	0.0477
Approximate Chi Square Value (54.60, α)	38.62	Adjusted Chi Square Value (54.60, β)	38.43
95% Gamma Approximate KM-UCL (use when n>=50)	3.755	95% Gamma Adjusted KM-UCL (use when n<50)	3.774

Lognormal GOF Test on Detected Observations Only
Not Enough Data to Perform GOF Test

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	0.664	Mean in Log Scale	-6.982
SD in Original Scale	5.25	SD in Log Scale	3.137
95% t UCL (assumes normality of ROS data)	1.523	95% Percentile Bootstrap UCL	1.65
95% BCA Bootstrap UCL	2.496	95% Bootstrap t UCL	77.1
95% H-UCL (Log ROS)	0.558		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	27.61	Mean in Log Scale	1.047
SD in Original Scale	132.3	SD in Log Scale	1.356
95% t UCL (Assumes normality)	49.26	95% H-Stat UCL	10.08

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Data do not follow a Discernible Distribution at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	3.892	95% KM (% Bootstrap) UCL	N/A

Warning: One or more Recommended UCL(s) not available!

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

1,1,2,2-TCA

General Statistics

Total Number of Observations	103	Number of Distinct Observations	35
		Number of Missing Observations	5
Number of Detects	7	Number of Non-Detects	96
Number of Distinct Detects	7	Number of Distinct Non-Detects	28
Minimum Detect	51	Minimum Non-Detect	2
Maximum Detect	240	Maximum Non-Detect	2500
Variance Detects	4433	Percent Non-Detects	93.20%

Mean Detects	102.3	SD Detects	66.58
Median Detects	71	CV Detects	0.651
Skewness Detects	1.847	Kurtosis Detects	3.47
Mean of Logged Detects	4.486	SD of Logged Detects	0.542

Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.779	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data Not Normal at 5% Significance Level
Lilliefors Test Statistic	0.252	Lilliefors GOF Test
5% Lilliefors Critical Value	0.335	Detected Data appear Normal at 5% Significance Level

Detected Data appear Approximate Normal at 5% Significance Level

Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

Mean	9.312	Standard Error of Mean	3.41
SD	30.93	95% KM (BCA) UCL	15.81
95% KM (t) UCL	14.97	95% KM (Percentile Bootstrap) UCL	15.03
95% KM (z) UCL	14.92	95% KM Bootstrap t UCL	16.44
90% KM Chebyshev UCL	19.54	95% KM Chebyshev UCL	24.18
97.5% KM Chebyshev UCL	30.61	99% KM Chebyshev UCL	43.24

Gamma GOF Tests on Detected Observations Only

A-D Test Statistic	0.502	Anderson-Darling GOF Test
5% A-D Critical Value	0.71	Detected data appear Gamma Distributed at 5% Significance Level
K-S Test Statistic	0.256	Kolmogrov-Smirnoff GOF
5% K-S Critical Value	0.313	Detected data appear Gamma Distributed at 5% Significance Level

Detected data appear Gamma Distributed at 5% Significance Level

Gamma Statistics on Detected Data Only

k hat (MLE)	3.685	k star (bias corrected MLE)	2.201
Theta hat (MLE)	27.76	Theta star (bias corrected MLE)	46.48
nu hat (MLE)	51.59	nu star (bias corrected)	30.81
MLE Mean (bias corrected)	102.3	MLE Sd (bias corrected)	68.95

Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.0906	nu hat (KM)	18.67
Approximate Chi Square Value (18.67, α)	9.876	Adjusted Chi Square Value (18.67, β)	9.786
95% Gamma Approximate KM-UCL (use when n>=50)	17.6	95% Gamma Adjusted KM-UCL (use when n<50)	17.77

Gamma (KM) may not be used when k hat (KM) is < 0.1

Gamma ROS Statistics using Imputed Non-Detects

GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs

GROS may not be used when kstar of detected data is small such as < 0.1

For such situations, GROS method tends to yield inflated values of UCLs and BTVs

For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates

Minimum	0.01	Mean	6.961
Maximum	240	Median	0.01
SD	30.49	CV	4.381
k hat (MLE)	0.132	k star (bias corrected MLE)	0.135
Theta hat (MLE)	52.72	Theta star (bias corrected MLE)	51.69
nu hat (MLE)	27.2	nu star (bias corrected)	27.74
MLE Mean (bias corrected)	6.961	MLE Sd (bias corrected)	18.97
		Adjusted Level of Significance (β)	0.0477
Approximate Chi Square Value (27.74, α)	16.73	Adjusted Chi Square Value (27.74, β)	16.61
95% Gamma Approximate UCL (use when n>=50)	11.54	95% Gamma Adjusted UCL (use when n<50)	11.63

Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.899	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.803	Detected Data appear Lognormal at 5% Significance Level

Lilliefors Test Statistic	0.231	Lilliefors GOF Test	
5% Lilliefors Critical Value	0.335	Detected Data appear Lognormal at 5% Significance Level	
Detected Data appear Lognormal at 5% Significance Level			

Lognormal ROS Statistics Using Imputed Non-Detects

Mean in Original Scale	10.84	Mean in Log Scale	1.16
SD in Original Scale	29.9	SD in Log Scale	1.382
95% t UCL (assumes normality of ROS data)	15.73	95% Percentile Bootstrap UCL	16.03
95% BCA Bootstrap UCL	18.26	95% Bootstrap t UCL	20.2
95% H-UCL (Log ROS)	11.82		

UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	0.97	95% H-UCL (KM -Log)	5.378
KM SD (logged)	0.995	95% Critical H Value (KM-Log)	2.203
KM Standard Error of Mean (logged)	0.11		

DL/2 Statistics

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	33.8	Mean in Log Scale	1.251
SD in Original Scale	134.5	SD in Log Scale	1.583
95% t UCL (Assumes normality)	55.8	95% H-Stat UCL	19.01

DL/2 is not a recommended method, provided for comparisons and historical reasons

Nonparametric Distribution Free UCL Statistics
Detected Data appear Approximate Normal Distributed at 5% Significance Level

Suggested UCL to Use

95% KM (t) UCL	14.97	95% KM (Percentile Bootstrap) UCL	15.03

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.
Recommendations are based upon data size, data distribution, and skewness.
These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006)
However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.

Xylenes

General Statistics

Total Number of Observations	108	Number of Distinct Observations	47
Number of Detects	1	Number of Non-Detects	107
Number of Distinct Detects	1	Number of Distinct Non-Detects	46

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, B

The data set for variable Xylenes was not processed!

n-Butylbenzene

General Statistics

Total Number of Observations	48	Number of Distinct Observations	24
Number of Detects	1	Number of Non-Detects	47
Number of Distinct Detects	1	Number of Distinct Non-Detects	23

Warning: Only one distinct data value was detected! ProUCL (or any other software) should not be used on such a data set!
It is suggested to use alternative site specific values determined by the Project Team to estimate environmental parameters (e.g., EPC, B

The data set for variable n-Butylbenzene was not processed!

APPENDIX D

Example J&E Model Sheets

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

Department of Toxic Substances Control
Vapor Intrusion Screening Model - Soil Gas

DATA ENTRY SHEET

Scenario: **Commercial**
Chemical: **Tetrachloroethylene**

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
4.70E+03	1.3E-04	6.2E-01	3.0E-07	4.1E-03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	4.70E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	60	24	S		

MORE ↓

ENTER Vandose zone SCS soil type (Lookup Soil Parameters)	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)		ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054		60.35

MORE ↓

Lookup Receptor Parameters

	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)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8	1.5
					(NEW)	(NEW)

END

INTERMEDIATE CALCULATIONS SHEET

Scenario: **Commercial**

Chemical: **Tetrachloroethylene**

Source-building separation, L_T (cm)	Vadose zone soil air-filled porosity, θ_a^V (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_{te} (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{rg} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, X_{crack} (cm)	Soil gas conc. ($\mu g/m^3$)	Bldg. ventilation rate, $Q_{building}$ (cm^3/s)
45	0.321	0.003	1.02E-07	0.998	1.01E-07	13,900	4.70E+03	5.21E+06

Area of enclosed space below grade, A_B (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H_{TS} (atm-m^3/mol)	Henry's law constant at ave. soil temperature, H'_{TS} (unitless)	Vapor viscosity at ave. soil temperature, μ_{TS} (g/cm-s)	Vadose zone effective diffusion coefficient, D^{eff}_V (cm^2/s)	Diffusion path length, L_d (cm)
1.21E+07	1.15E-04	15	9,410	1.68E-02	6.88E-01	1.80E-04	8.16E-03	45

Convection path length, L_p (cm)	Source vapor conc., C_{source} ($\mu g/m^3$)	Crack radius, r_{crack} (cm)	Average vapor flow rate into bldg., Q_{soil} (cm^3/s)	Crack effective diffusion coefficient, D^{crack} (cm^2/s)	Area of crack, A_{crack} (cm^2)	Exponent of equivalent foundation Peclet number, exp(Pe^f) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., $C_{building}$ ($\mu g/m^3$)
15	4.70E+03	0.10	1.01E+03	8.16E-03	1.39E+03	#NUM!	**1.32E-04**	6.22E-01

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
5.9E-06	3.5E-02

END

COUNTY OF SAN MATEO
HEALTH SYSTEM

Heather Forshey, MS, REHS
Director

Environmental Health
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September 30, 2015

SMCo Case# 660105
APN 029-211-080

The Jewell Partners LP.
C/O Linda Marver
P.O. Box 2396
Danville, CA 94526

SUBJECT: STERLING CLEANERS (FORMER), 215 CALIFORNIA DRIVE, BURLINGAME, CALIFORNIA

Dear Ms. Marver:

Thank you for the *Human Health Risk Assessment for Proposed Site Redevelopment* prepared and electronically uploaded to the State Water Resources Control Board's (SWRCB) GeoTracker website on September 2, 2015 by Green Environment Incorporated (GEI) for the subject site. Based on review of the subject report San Mateo County Groundwater Protection Program (GPP) concurs with the conclusions regarding risk under currently known conditions. However if during the proposed construction conditions change due to construction activities or previously unassessed contamination is discovered during excavation, then mitigation may be required. Please note that this report does not include a soils and groundwater management plan as required, or include a contingency plan to assess and monitor potential plume destabilization due to dewatering.

Please submit a proposed development schedule and a soils and groundwater management plan that includes waste determination justification no later than **February 15, 2016.**

I appreciate your cooperation. If you have any questions, please contact me by email at jmadden@smcgov.org or call me at (650) 372-6298.

Sincerely,

Jacob Madden, PG
Hazardous Materials Specialist
Groundwater Protection Program

cc: Mark Green, Green Environment Inc., mark@greenenvironment.com
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