SOMA
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June 7, 2010

Mr. Jerry Wickham
Alameda County
Department of Environmental Health Services
1131 Harbor Bay Parkway, Suite 250
Alameda, California 94502-6577

Subject: **Fuel Leak Case#RO0000265**
Site Address: 3609 International Blvd., Oakland, California

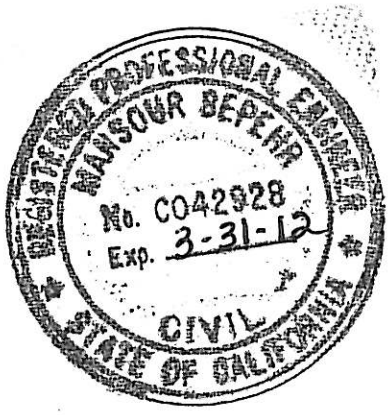
Dear Mr. Wickham:

SOMA's "Soil Vapor Intrusion Re-Evaluation" report for the subject property has been uploaded to the State's GeoTracker database and Alameda County's FTP site for your review.

Thank you for your time in reviewing our report. If you have any questions or comments, please call me at (925) 734-6400.

Sincerely,

Mansour Sepehr, Ph.D.,PE
Principal Hydrogeologist



Enclosure

cc: Mr. Abolghassem Razi w/report enclosure
Tony's Express Auto Service

Mr. Vince Tong w/report enclosure
Traction International

Soil Vapor Intrusion Re-Evaluation

3609 International Boulevard
Oakland, California

June 7, 2010

Project 2332

Prepared for:
Mr. Abolghassem Razi
50 Stewart Drive
Tiburon, California

SOMA ENVIRONMENTAL ENGINEERING, INC.
6620 Owens Drive Suite A Pleasanton CA 94588 Ph: 925.734.6400 F: 925.734-6401 www.somaenv.com

CERTIFICATION

SOMA Environmental Engineering, Inc. has prepared this report on behalf of Mr. Abolghassem Razi, property owner of 3609 International Boulevard, Oakland, California, to comply with the request of Alameda County Environmental Health Services in correspondence dated April 1, 2010.

Mansour Sepehr, PhD, PE
Principal Hydrogeologist

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

1. INTRODUCTION

1.1 Overview

SOMA Environmental Engineering, Inc. (SOMA) has prepared this report on behalf of Mr. Abolghassem Razi, owner of the property at 3609 International Boulevard, Oakland, California situated at the intersection of International Boulevard and 36th Avenue (Figure 1). This soil vapor sampling was conducted in accordance with Alameda County Environmental Health Services (ACEHS) approval of the workplan in correspondence dated April 1, 2010.

A gasoline station, Tony's Express Auto Services, operates on the site, which is located in an area of primarily commercial and residential use. During Third Quarter 2002, the station was remodeled and several hydraulic hoists were removed. The station no longer has an auto repair facility. Figure 2 shows locations of the main service station, dispenser islands, underground storage tanks (USTs), on-site groundwater monitoring wells, and other site features and neighboring properties. A summary of previous environmental assessments and remediation background is included in Appendix A.

1.2 Site Hydrogeology

Data from groundwater monitoring events indicates that depth to groundwater beneath the site ranges between 5.72 and 17.82 feet below ground surface (bgs). Figure 2A shows locations of on- and off-site groundwater monitoring wells. Groundwater flows toward French drain C (FDC) and extraction well EX-1 at an approximate gradient of 0.062 feet/feet. Based on results of a pumping test conducted by SOMA, hydraulic conductivity of the saturated sediments ranges between 1.5 and 18.3 feet per day. Assuming an effective porosity of saturated sediments of 0.35, the groundwater flow velocity ranges between 22 and 267 feet per year.

2. SCOPE OF WORK

On November 14, 2008, SOMA oversaw advancement of seven soil vapor boreholes around the periphery of the site to the southwest and the site building, for evaluation of potential vapor intrusion into the two buildings (on-site and the adjacent apartment complex). Soil vapor study results showed that soil vapor concentration around the convenience store are generally lower than Environmental Screening Levels (ESLs) set forth by California Regional Water Quality Control Board (CRWQCB) for commercial land use type, but adjacent to the apartment building, at SV-5, concentrations of total petroleum hydrocarbons as gasoline (TPH-g) exceeded ESL value for a commercial setting. Although ESLs may not be the most appropriate standard for the subject site, as discussed

in sections below, they were utilized as a reference during evaluation of soil vapor concentrations.

Based on results described in the Third Quarter 2009 Monitoring Report, SOMA recommended that ACEHS adopt No Further Action (NFA) status for the site. ACEHS responded in January 26, 2010 correspondence that they could not consider the site for NFA status until potential for vapor intrusion into the apartment building on the adjacent property to the southwest is evaluated. Per ACEHS request, the existing groundwater extraction system was shut down on January 28, 2010, to allow equilibrium conditions to be established prior to soil vapor sampling.

Since the soil vapor study in 2008, two multi-phase extraction (MPE) events have been conducted at the site utilizing wells MW-8 and MW-4R, located between the site and adjacent apartment building. To determine whether these events reduced TPH-g concentrations next to the residential dwelling, SOMA proposed advancement of two subslab soil vapor boreholes adjacent to the dwelling and collection of soil vapor samples. Per ACEHS correspondence dated April 1, 2010, SOMA advanced four soil vapor boreholes to a total depth of 5 feet bgs in the vicinity of former soil gas sampling boreholes adjacent as well as 18-20 feet from the nearest walls of the apartment building.

The scope of work included the following tasks:

1. Permit acquisition, preparation of Health and Safety Plan (HASP), underground utility clearance
2. Soil vapor borehole advancement and soil vapor sampling
3. Laboratory analysis
4. Report preparation evaluating the potential for vapor intrusion into residential dwelling

These tasks are described in detail below.

3. SOIL VAPOR STUDY

3.1 Permit Acquisition, Health and Safety Plan Preparation, and Subsurface Utility Clearance

Prior to initiating field activities, SOMA obtained a well permit from Alameda County Public Works Agency (No. W2010-0264, Appendix B).

SOMA prepared a site-specific Health and Safety Plan (HASP). The HASP is a requirement of the federal Occupational Safety and Health Administration

(OSHA), “Hazardous Waste Operation and Emergency Response” guidelines (29 CFR 1910.120) and the California Occupational Safety and Health Administration (Cal/OSHA) “Hazardous Waste Operation and Emergency Response” guidelines (CCR Title 8, section 5192). The HASP is designed to address safety provisions during field activities and protect the field crew from physical and chemical hazards resulting from drilling and sampling. It establishes personnel responsibilities, general safe work practices, field procedures, personal protective equipment standards, decontamination procedures, and emergency action plans. Field staff and contractors reviewed and signed the HASP prior to beginning field operations.

On April 26, 2010, prior to drilling activities, SOMA's field crew visited the site, marked proposed boring locations using chalk-based white paint, and oversaw a survey of proposed drilling locations by a private utility locator (OHJ Subsurface Utility Locators) to locate any additional subsurface conduits. Underground Service Alert (USA) clearance verifying that drilling areas were clear of underground utilities was obtained April 26, 2010 (Ticket 113943).

3.2 Soil Vapor Sampling

ACEHS stated that soil vapor sampling was to be conducted no sooner than 90 days following termination of the groundwater extraction system; therefore, SOMA schedule the sampling event for after April 28, 2010. To evaluate potential for vapor intrusion into the apartment building, as requested by ACEHS, on May 5, 2010, SOMA visited the site to oversee advancement of four soil vapor sampling boreholes by RSI Drilling (RSI). Due to mechanical difficulties, RSI did not get to the site. The field work was rescheduled for the following day, May 6, when SOMA oversaw as RSI advanced four soil vapor sampling boreholes along the southwestern property boundary. Prior to beginning drilling activities, SOMA confirmed that no significant precipitation had occurred in the area within the previous five days. No groundwater was encountered in the borings during the soil vapor sampling.

As shown in Figure 2, SV-8 through SV-11 were advanced to a depth of 5 feet bgs between SV-2 and SV-3, and adjacent to SV-4 and SV-5, along the property boundary between the site and the adjacent apartment building. The soil vapor sampling procedure uses Geoprobe to draw a soil vapor sample from the subsurface and into the sampling manifold. The soil vapor sampling diagram is shown in Figure 3. Samples were collected according to established guidelines outlined in Appendix C. Boring logs are included in Appendix D. General field procedures are attached in Appendix E.

A Geoprobe rod was hydraulically advanced to approximately 5 feet bgs, the target vapor sampling depth. The lead drill rod was fitted with a sampling adaptor known as a Post-Run Tubing (PRT) adaptor. Approximately 15 feet of 1/4-inch-outer diameter (OD) nylaflow sampling tube was connected into the sampling

port at the end of the rod. The sampling tube was then capped with a vapor-tight valve. Once the target sampling depth was reached, the probe was retracted 6 inches and allowed to equilibrate for approximately 20 to 30 minutes.

Hydrated bentonite was placed around the drill rod to inhibit surface air migration down the outer portion of the drill rod. SOMA utilized Torrents manifold setup (Appendix C), which allows automatic leak checking of the canister sample train. A pre- and post-sample vacuum reading was recorded for each sample Summa canister on the chain-of-custody documents. The initial vacuum of each canister was greater than (-) 25 inches of Hg; therefore, all canisters were utilized during the field test. Once the sampling train was assembled, all connections between the summa canisters and valve on the downhole side of the regulator were leak tested for 10 minutes by opening and closing the purge canister valve to place a test vacuum on the assembly. When the sampler opens and then closes the purge can, a vacuum is created within the canister lines and fittings. When this vacuum is maintained, the train is considered leak free. In addition, because there is only one connection (probe tubing to sample train) the potential for leaks is greatly reduced.

The sampling manifold was pressure tested and approximately three volumes of gas were purged from the manifold and boring prior to sampling. When gauge vacuum was maintained for 10 minutes and it had been at least 20-30 minutes since the drill rod was sealed at the surface with bentonite, the purge canister valve and the valve on the downhole side of the regulator were opened to begin purging ambient air from the sampling apparatus and borehole. The purge canister valve was closed when three volumes of air had been purged from the sample apparatus and borehole.

Adequacy of purging was determined based on inches of pressure drop on the purge canister, as well as time required for purging based on anticipated purged volume. The volume of air sampled is a linear function of the canister vacuum pressure drop, and was calculated accordingly based on the initial vacuum reading. The purge volume or “dead space volume” was estimated based on a summation of volume of the sample container (i.e., glass bulbs), internal volume of tubing used, and annular space around the probe tip.

Following is the calculation for the appropriate purge volume and purge time:

> The effective volume of 1/4-inch OD diameter Teflon tubing is about 4.4 mL/ft; the average vapor flow rate through the sampling tube was 167 mL/min, the total length of the Teflon tubing was approximately 15 feet. Because it is recommended that purge volumes and sample volumes be collected at the same flow rate, SOMA utilized a soil gas sampling manifold with a built-in flow restrictor (both the purge canister and sample canister are in line after the flow restrictor), the flow restrictor was calibrated by the laboratory to 167 mL/min (Figure 3). Additionally, the

volume of the 6-inch-long retracting probe rod was about 80 mL. During the sampling event, three tube volumes were purged through the sampling tubes. Therefore, the total purged air volume (three volume purge) was calculated as follows:

Total volume of purged air = (4.4 mL/ft x 15 ft + 80 mL) x 3 = 438.00 mL

Since volume of air sampled is a linear function of the canister vacuum pressure drop, it was calculated accordingly based on the initial vacuum reading. For example, if initial vacuum was (-) 30 inches of Hg, 438.00 mL corresponded to a drop of 2.19 inches of Hg. To calculate time during purging, 438.00 mL is divided by 167 mL/min, which equals 2.62 minutes for purging.

SOMA utilized 6-L summa canisters, and sampling was terminated when the sample canister gauge indicated approximately (-) 5 inches Hg of vacuum remaining in the canister. Therefore, sample collection duration at flow rate of 167 mL/min was approximated at:

Sample collection time = 5,000 mL / 167 mL/min = 29.94 minutes

For canisters with initial vacuum above (-) 30 inches Hg, sample duration was recalculated accordingly. For example if the initial vacuum was recorded at (-) 29 inches of Hg, sample collection duration at flow rate of 167 mL/min was approximated at:

Sample collection time = 4,965 mL / 167 mL/min = 29.73 minutes

Pressure drops along with sample collection times at each location were recorded on chain-of-custody documents.

Leakage during soil gas sampling may dilute samples with ambient air and produce results that underestimate actual site concentrations or contaminate the sample with external contaminants. A leak test was conducted to determine whether leakage was present. During sampling, isopropyl alcohol (2-propanol, IPA) was used as a tracer to test for leaks. This was accomplished by placing gauze soaked with isopropyl alcohol along the drill rod, and around valves, joints, and pressure regulators. The gauze with isopropyl alcohol was remoistened continuously every 5 minutes.

A duplicate field sample was collected from boring SV-11, at the same location and depth immediately after the original sample. The sampler put on new, unused gloves prior to assembling the sampling train and collecting each vapor sample to limit potential cross-contamination. Any reusable parts were field decontaminated. The general procedure for decontaminating sampling equipment was as follows: clean equipment with a brush using a non-phosphate

detergent solution, rinse equipment with control water (i.e., water having a known chemistry), use deionized/distilled water rinse to finish decontamination.

Following soil vapor sampling, borings were abandoned with a neat cement grout mixture tremmied into place and completed at the surface with materials to match existing grade.

3.3 Laboratory Analyses

Soil vapor samples were delivered to Torrent Laboratory, Inc. a California state-certified environmental laboratory for analysis under appropriate sample handling protocol. The samples were analyzed for the following:

- EPA Method TO-14A (TO-15): benzene, toluene, ethylbenzene, total xylenes (collectively termed BTEX); methyl tertiary-butyl ether (MtBE); and volatile organic compounds (VOCs)
- EPA TO-3: TPH-g

In addition to isopropyl alcohol, SOMA analyzed atmospheric gases O_2, CO_2, and methane (ATM 1946). The reporting limit for O_2, CO_2, and methane was specified to be less than concentrations of these gases in the atmosphere. SOMA ensured that laboratory-reporting limits for chemicals of concern were below shallow soil gas ESLs that address inhalation of contaminants in an indoor setting, set by CRWQCB–San Francisco Bay.

3.4 Results and Discussion

The sampling manifold held the test vacuum prior to sampling. Furthermore, no significant breakthrough was indicated during the vapor sample collection, as the IPA (leak check compound) was either non-detectable or detected at low concentrations. Most IPA levels were below 10,000 µg/m^3, the detection limit recommended in DTSC guidance (DTSC, 2003). IPA was detected at low concentrations ranging from 950 µg/m^3 to 13,000 µg/m^3. IPA was detected at 13,000 µg/m^3 in sample SV-11-1, in the confirmation sample SV-11-2 IPA was detected below the recommended detection limit at 5,080 µg/m^3. Due to the fact that large quantities of IPA were applied continuously during sample collection, above detections could be attributed to IPA permeation through the tubing and not indicative of a sampling system leak. Due to the nature of IPA, if any significant leak had occurred, the concentration levels would be much higher and not just above the detection limit.

All analytes except for TPH-g were either not detected above the laboratory-detection limits or were detected at concentrations below ESL. TPH-g concentrations ranged from below the laboratory-reporting limit at SV-10 to 60,000 µg/m^3 at SV-9. Benzene concentrations ranged from non-detectable to

detectable at concentrations below ESL, with the highest detection at SV-8 at 10.2 µg/m^3. MtBE was not detected above the laboratory-reporting limit. Oxygen was detected in all samples at concentrations ranging from 17 to 17.1 %, methane was not detected above the laboratory reporting limit as compared to detections during previous sampling from 0.0002 to 0.0061 percent; carbon dioxide was not detected as compared to detections during previous sampling from 0.069 to 1.7 percent. Soil vapor analytical data is summarized in Table 1; certified analytical reports and chain-of-custody documentation are included in Appendix F.

3.5 Apartment Complex Reconnaissance and Sampling Evaluation

In order to evaluate potential for vapor intrusion, on May 21, 2010 a reconnaissance of the apartment complex immediately south of the site was led by an apartment building management staff. During the site inspection, SOMA observed the following:

- Pertinent property boundaries, to the north east and west
- Underground parking garage (with ground surface at approximately 8 feet bgs) located on the eastern end of the property
- Building (slab-on-grade) interior and exterior
- Parking garage (occupying the first floor of the eastern portion of the apartment building, Figure 2) with a wire-type gate that allows air ventilation (photographs in Appendix G)
- A landscaped area (approximately 18 to 20 feet wide) extending from west to east along the property boundary immediately adjacent to the subject site

The following summarizes SOMA's observations:

- No crawl spaces or basement were present in the apartment complex, and therefore none were observed during the site inspection
- No petroleum odors, no floor drains or sumps, no stained soil or discoloration were observed during inspection
- No complaints regarding odors were brought to SOMA's attention during site visit
- No degraded floors or walls, no dry wells or injection wells or septic systems were observed during inspection
- Building foundation, apartment complex floor and parking garage floor appeared to be in good working condition
- No fractures or other preferential pathways, which would expedite vapor migration, were observed in soil cores or at the site
- The first floor of the building is used for storage and parking, apartments and other living areas are situated on the second floor above the parking

Based on field observations, boring SV-10 is closest boring to the apartment units, with approximately 8 feet of concrete surface that includes a sloped concrete walkway separating the two. In this boring, TPH-g, benzene, and other analytes were detected at concentrations either significantly below ESL or below laboratory-reporting limits. The rest of the borings are separated from the adjacent apartment complex by approximately 18 to 20 feet of irrigated and landscaped surfaces. The landscaped surfaces consist of irrigated grassy lawn area and planted shrubs (bushes), located adjacent to the fence separating the two properties. Figure 2 was updated to reflect the new and pertinent site features. Photographs taken during site reconnaissance, illustrating above-mentioned features, are included in Appendix G.

As shown on Figure 4, the contour map of TPH-g in soil vapor soil gas, TPH-g concentrations are not uniformly distributed throughout the 70-foot-long area tested, suggesting that discontinuous areas of contamination exist in close proximity to the eastern portion of the French drain and well MW-4, located on-site.

CRWQCB–San Francisco has developed shallow soil gas ESLs using the USEPA spreadsheet version of the Johnson and Ettinger (J&E Model, 1991) model for soil gas intrusion into buildings that addresses inhalation of contaminants in an indoor setting. The ESLs assume a one-story building with 100 m^2 foundation area with soil of high permeability (fill material-sand) underlying the building foundation. The encountered site-specific lithology at soil vapor sampling locations is less permeable than that utilized in ESL calculation, and consisted of silty clay; furthermore, the adjacent apartment complex has much larger foundation area. Since the assumptions for derivation of ESL levels for soil vapor are vastly different from actual site conditions, utilizing these ESLs may not be applicable considering site-specific conditions. In addition, the recent soil gas samples were not collected directly beneath or adjacent to the apartment complex: because of limited access they were collected approximately 18 to 20 feet away from it, except at SV-10 approximately 8 feet from the complex. As stated earlier, the reported contaminant concentrations in vapor samples collected from SV-10 were below ESL levels for residential land use. In addition, all soil vapor samples were collected just a few feet downgradient from the French drain, where the highest site-wide concentrations are expected to occur.

Soil gas screening levels do not take into account the actual chemical mass present, and could be overly conservative for evaluating long-term impacts to indoor air. At sites where a limited amount of impacted soil or groundwater is present and natural attenuation and site remediation are active, the concentration of a chemical in soil gas can be expected to decrease over time as the supply of the chemical is depleted. This would lead to steadily decreasing impacts to indoor air and, while impacts to indoor air may initially exceed ESLs; average long-term impacts could conceivably fall below ESLs. Soil gas analytical data is

summarized in Table 1; certified analytical reports and chain-of-custody documentation are in Appendix F.

Comparison of soil gas analytical data (Table 1) to ESLs for residential land use scenario (CRWQCB, November 2007, revised May 2008) indicates that except for TPH-g, no analytes detected in any soil gas samples exceed their respective ESL values. It should be noted that TPH-g is not included in the list of chemicals to be considered for the vapor intrusion pathway (DTSC, 2004). Furthermore, the DTSC guidance states that: *"If the chemicals listed in Table 1 are not present at a site, vapor intrusion is not possible and no further consideration of this exposure pathway is needed"* (DTSC, 2004). The list of chemicals to be considered for vapor intrusion (Table 1) is included in Appendix H.

Therefore, although chemicals may be present in the subsurface, if contaminant vapors concentrations inside the building do not exceed the established indoor ESL levels the exposure pathway from the contaminant source to the building occupant (receptor) is deemed incomplete, and the receptors cannot be considered at risk for vapor intrusion.

3.6 Human Health Risk Evaluation

To calculate the indoor air impacts, potential exposure to TPH-g detected in soil gas was evaluated further, using the updated J&E Model. The United States Environmental Protection Agency (USEPA) developed this model in 1998 which estimates human health risks from subsurface vapor intrusion into buildings. The J&E Model incorporates human health criteria specific to California, as developed by the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA).

The hypothetical residents occupying the apartment complex (bottom garage/storage level) south of the site were evaluated during this assessment. This worst case scenario was utilized to determine impacts to hypothetical current and future residents of the ground floor (currently occupied by parking garage and storage facilities). SOMA utilized the current maximum soil gas concentration for TPH-g (60,000 µg/m^3). TPH-g was added to J&E Model since it was not part of the available chemicals, and evaluated using the assumption that it is composed of aliphatic hydrocarbons utilizing an inhalation RfC of 0.7 mg/m^3. Regulatory recommended default values were adopted for the variables utilized in J&E Model. The following specific information was utilized in J&E Model:

- Depth below grade to the bottom of enclosed space floor, estimate (60 cm)
- Vadose zone soil type (SIC-silty clay)
- Averaging time for carcinogens (70 years)
- Averaging time for noncarcinogens (30 years)
- Exposure duration (30 years)

- Exposure frequency (350 days/year)
- Soil gas sampling depth below grade (152.4 cm)

Based on physical properties of TPH-g and detection of other contaminants at concentrations below the laboratory-reporting limit or ESL, and as illustrated by results from the HERD Soil-Gas Screening Model (Appendix H), it was determined that no cancer risk (TPH-g in indoor air) for hypothetical site residents exists at this time. Furthermore, based on current 5 feet bgs soil gas sampling data, the toxicity hazard index was calculated at 0.011. The calculated hazard does not exceed the acceptable level of 1 for the hypothetical population evaluated during this risk assessment. A hazard index of less than or equal to 1.0 suggests that adverse health effects would not be expected following a lifetime of exposure, even in sensitive members of the population. The simulated indoor air concentration of TPH-g utilizing the site specific parameters was estimated at 8.06 $\mu g/m^3$, which is below the recommended indoor air ESL levels for residential exposure for TPH-g (as a non-carcinogen) at 10 $\mu g/m^3$. Therefore, based on the above findings, it could be concluded that the site does not pose an unacceptable risk to human health (indoor air vapor intrusion pathway) even in areas of maximum observed concentrations. J&E Model data sheets are included in Appendix H.

Based on the shallow soil gas data collected adjacent to the southern property boundary, it would appear that there is no significant risk to human health from vapor intrusion of TPH-g. Based on these results, SOMA recommends adopting NFA status for this site.

4. CONCLUSIONS AND RECOMENDATIONS

- During this investigation, SOMA evaluated the relevant exposure pathway for the site and vicinity by volatilization from affected soil and groundwater, diffusion/advection through the vadose zone, and residential indoor accumulation and inhalation. The soil vapor borings were advanced on-site in close proximity to the French drain area (where some residual contamination is located). Advanced borings are located 18-20 feet from apartment complex.

- Soil gas samples were collected from the site to evaluate the health risk associated with the indoor inhalation exposure pathway. Samples were analyzed for VOCs, including but not limited to TPH-g, BTEX, MtBE, 2-propanol, oxygen, carbon dioxide, and methane. The IPA compound was either non-detectable or detected at low concentration, indicating there was no significant breakthrough during vapor sample collection. Results of recent soil gas sampling indicate that fine grain soils (silts and

clays) surrounding the French drain are retaining petroleum hydrocarbons. TPH-g was the only VOC detected above the ESL values.

- The reconnaissance of the apartment complex indicated that first floor of the complex is occupied by a parking garage and storage areas, and a strip of landscaped area (18 to 20 feet in width) separates the apartment complex and the subject site, where soil gas samples were collected.

- To calculate the indoor air impacts, using the updated J&E Model the potential exposure to TPH-g detected in soil gas was evaluated further. Based on results from soil gas sampling at 5 feet bgs, the indoor air impacts for a worst case scenario (for a hypothetical future and current resident occupying the garage level of the apartment building) were evaluated. The toxicity hazard index for TPH-g was calculated utilizing the site specific parameters at 0.011, which does not exceed acceptable levels (hazard index of 1) for the hypothetical population evaluated during this risk assessment. The simulated indoor air concentration of TPH-g was estimated at 8.06 $\mu g/m^3$, which is below the recommended indoor air ESL values for residential exposure to TPH-g (as a non-carcinogen) at 10 $\mu g/m^3$.

Although volatile chemicals may be present in the subsurface around the French drain area, the calculated hazard index and indoor air concentration of TPH-g do not exceed the established hazard index values for non-carcinogenic chemicals, therefore, the exposure pathway from the contaminant source to the building occupant (receptor) is deemed incomplete and no significant risk to human health from vapor intrusion of TPH-g exists at this time.

Therefore, based on results of current soil gas investigation, SOMA recommends adopting NFA status for this site.

5. REFERENCES

Department of Toxic Substances Control (DTSC), California Environmental Protection Agency. Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion into Indoor Air, Interim Final. December 15, 2004.

Department of Toxic Substances Control (DTSC), California Environmental Protection Agency. Advisory-Active Soil Gas Investigations. January 28, 2003.

FIGURES

N

approximate scale in feet

0 150 300

Figure 1: Site vicinity map.

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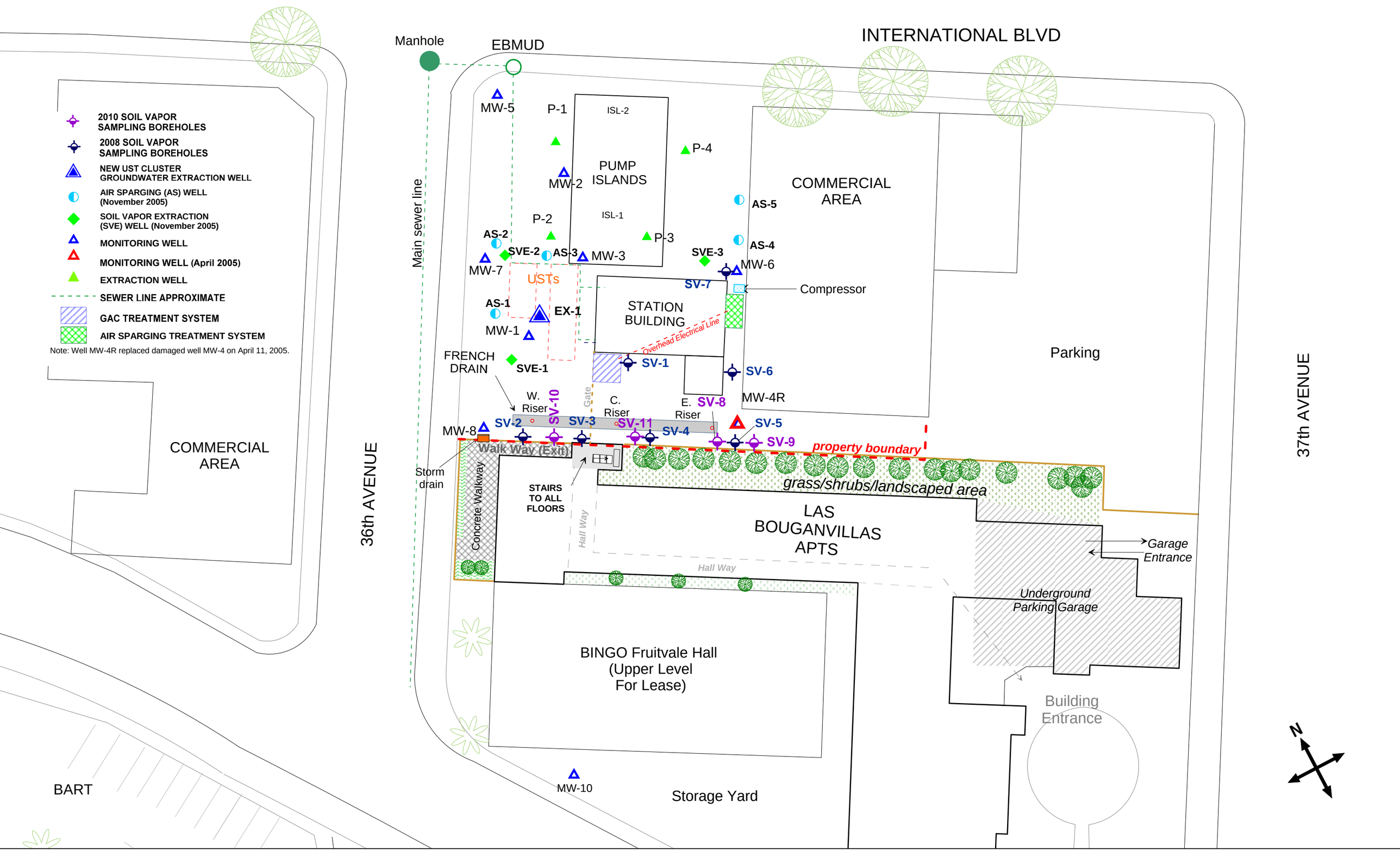

Figure 2: Site Map Showing Locations of Wells, GAC and SVE Systems, Soil Vapor Sampling Boreholes, and Site Features

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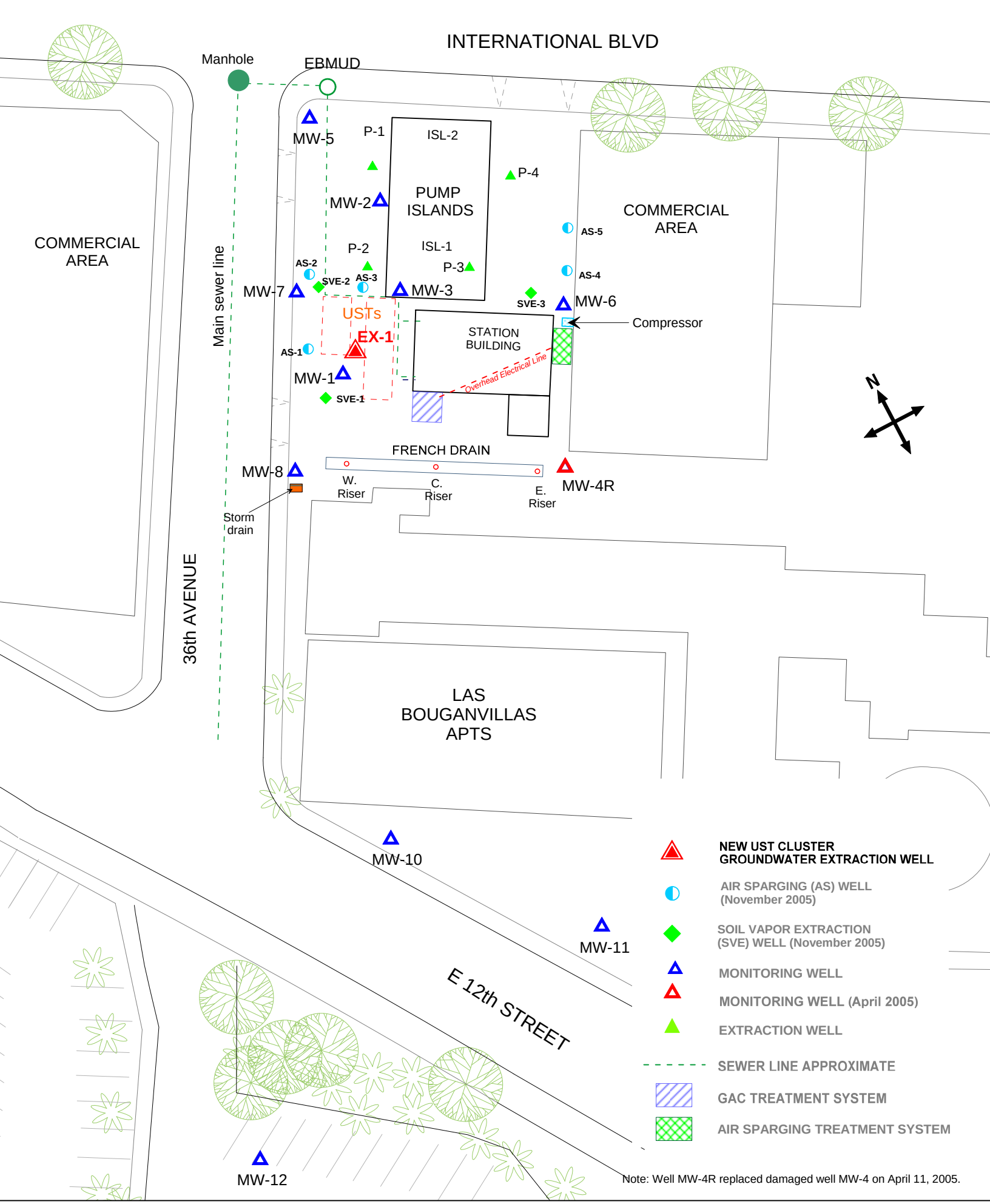

Note: Well MW-4R replaced damaged well MW-4 on April 11, 2005.

approximate scale in feet

0 20 40

Figure 2A: Site Map Showing Locations of On-Site and Off-Site Wells

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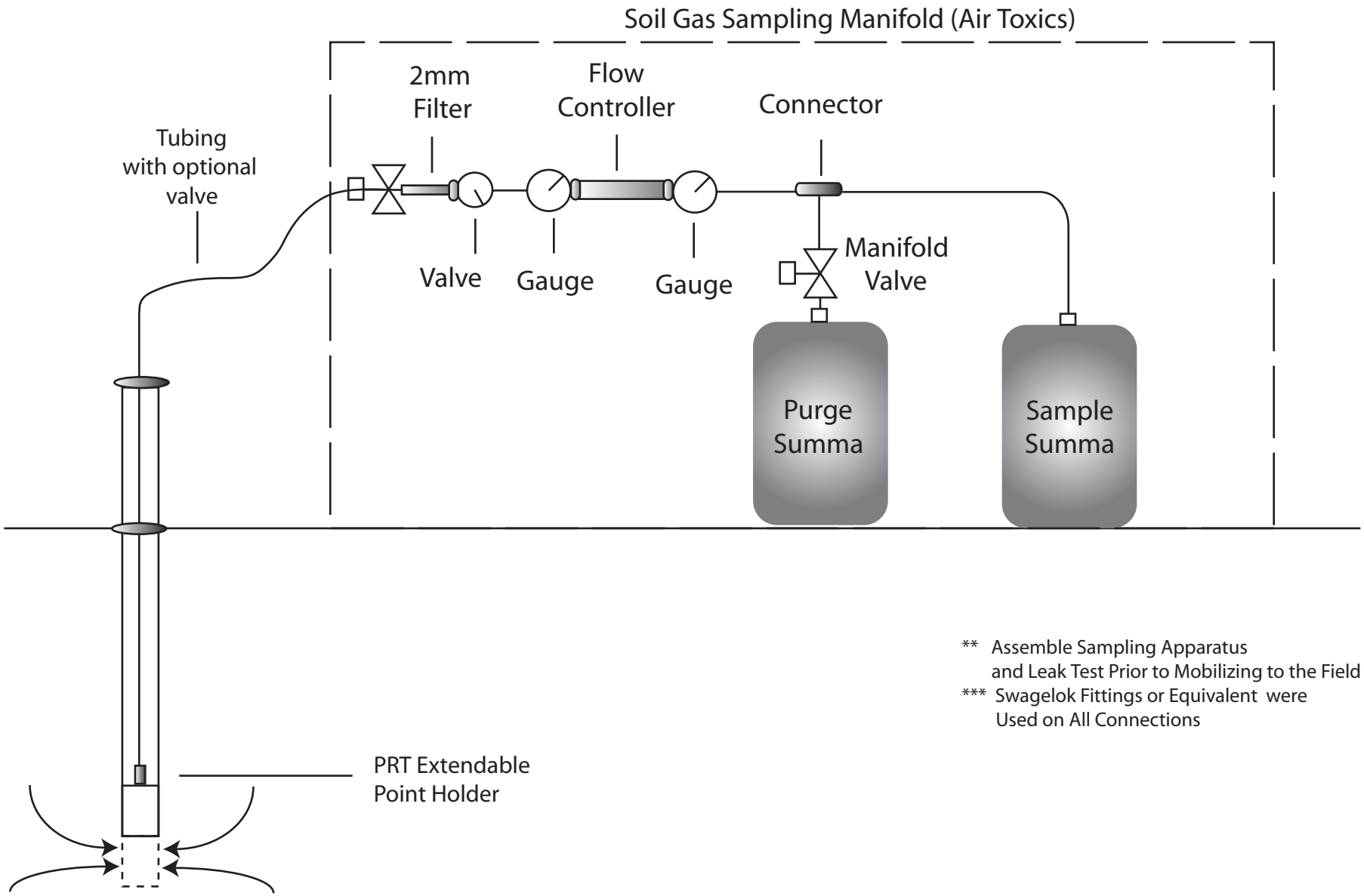

Figure 3: Soil Vapor Sampling Diagram

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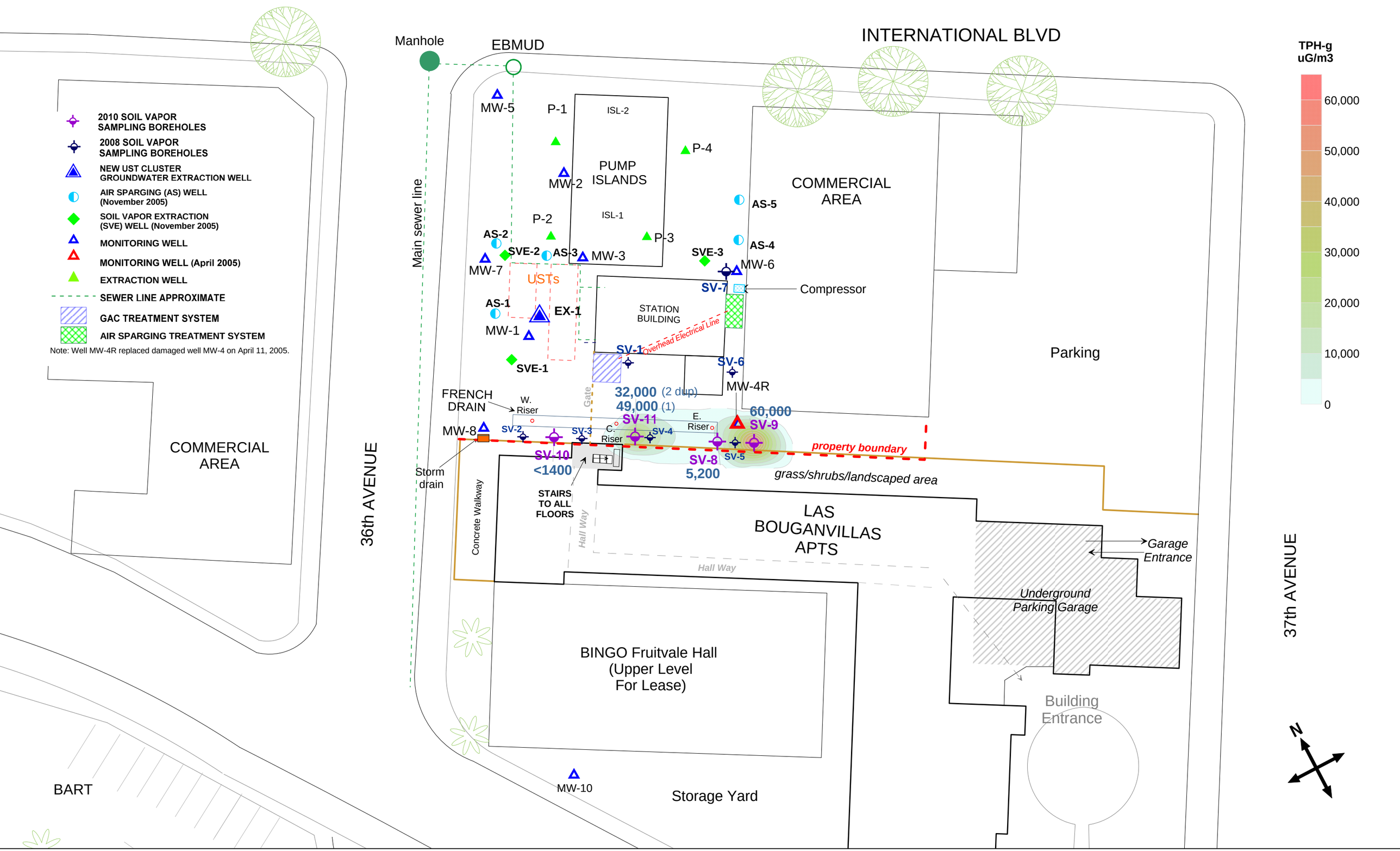

Figure 4: Contour Map Showing TPH-g Concentration in Soil Vapor

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TABLE

Table 1
Soil Vapor Analytical Results
3609 International Blvd.
Oakland, California
May 6, 2010

Compound	Sample ID					ESLs	
	SV-8 (uG/m3)	SV-9 (uG/m3)	SV-10 (uG/m3)	SV-11-1 (uG/m3)	SV-11-2 (uG/m3)	Residential (uG/m3)	Commercial (uG/m3)
TPH-g	5,200	**60,000**	<1,400	**49,000**	**32,000**	10,000	29,000
Benzene	10.20	<16	6.98	<16	<16	84	280
Toluene	11.00	<19	5.62	<19	<19	63,000	180,000
Ethyl Benzene	<11.0	<22	<4.3	<22	<22	980	3,300
Total Xylenes	<22	<43	<8.6	<43	<43	21,000	58,000
MtBE	<9.0	<18	<3.6	<18	<18	9,400	31,000
Acetone	<48	<96	<19	<96	<96	660,000	1,800,000
Hexane	<8.8	<18	<3.5	<18	<18	NL	NL
Carbon Tetrachloride	<16	<32	<6.3	<32	<32	19	63
2-Propanol	6,280	11,700	950	13,000	5,080	NL	NL
2-Butanone	<7.5	<15	<3.0	<15	<15	1,000,000	2,900,000
Ethanol	NA	NA	NA	NA	NA	NL	NL
-	(%)	(%)	(%)	(%)	(%)	-	-
Oxygen	17	17.1	17.1	17.1	17.1	NA	NA
Methane	<0.0007	<0.0006	<0.0006	<0.0006	<0.0006	NA	NA
Carbon Dioxide	<0.033	<0.031	<0.031	<0.032	<0.030	NA	NA

Notes:

TPH-g: Total Petroleum Hydrocarbons, gasoline range

Modified EPA Method TO-15, TO-3, ASTM D-1946

NA: Not Analyzed

NL: Not Listed

< Less than reporting limit

Lab Duplicates: duplicate samples run by the laboratory for QC purposes

Duplicate SUMA canisters sumbitted for SV-11 (-1 and -2)

Table E, Indoor Air and Shallow Soil Gas

APPENDIX A

Site History

1992: Soil Tech Engineering, Inc. conducted an initial environmental investigation to determine whether soil near the product lines and USTs had been impacted by petroleum hydrocarbons.

July 1993: Soil Tech Engineering, Inc. removed one single-walled 10,000-gallon gasoline UST, one single-walled 6,000-gallon gasoline UST, and one 550-gallon waste oil UST, and replaced them with the three double-walled USTs currently beneath the Site: one 10,000-gallon gasoline UST, and two 6,000-gallon gasoline USTs. UST locations are shown in Figure 2.

December 1997: Mr. Razi retained Western Geo-Engineers to conduct additional investigations and quarterly groundwater monitoring, results of which indicated elevated levels of petroleum hydrocarbons and methyl tertiary-butyl ethyl (MtBE) in groundwater.

April 1999: Mr. Razi retained SOMA to conduct groundwater monitoring, risk-based corrective action (RBCA) and corrective action plan (CAP) studies, and soil and groundwater remediation. RBCA study categorized the site as a high-risk groundwater site, thereby warranting soil and groundwater remediation in on- and off-site areas. The source of petroleum hydrocarbons in groundwater was believed to be the USTs removed in 1993, which had stored gasoline. CAP study results indicated that installation of a French drain combined with a vapor extraction system would be the most cost-effective remediation alternative.

August 1999: SOMA installed a French drain and groundwater treatment system to prevent further migration of chemically impacted groundwater. This treatment system has been in operation since early December 1999.

July 2000: Following ACEHS approval, SOMA installed a vapor extraction system as recommended in the CAP document dated July 1, 1999.

January 2002: Environmental Fabric removed old product dispensers and installed new ones in the fuel islands.

July 25, 2003: SOMA installed an additional on-site extraction pump in the western French drain riser, to create a capture zone around the USTs and contain off-site migration in the southwestern corner of the site.

April 1, 2005: SOMA conducted a pilot test to evaluate use of ozone sparging to actively remediate groundwater at the site. The test revealed that the unsaturated zone was permeable enough to allow operation of an ozone sparging system. However, ozone injection, especially in the region of more impacted wells MW-1 and MW-3 in the vicinity of the UST cavity, posed a potential explosion hazard. Based on safety concerns, air-sparging technology was selected for site remediation.

November 17 to 23, 2005: SOMA oversaw installation of air sparge and vapor extraction wells by Woodward Drilling of Rio Vista, California.

February 22 to March 6, 2006: SOMA oversaw installation of the air sparge system by ACRC, Inc. of San Ramon, California.

February 5, 2007: An extraction well, EX-1, was installed in the vicinity of the UST cavity due to the continued significant contaminant source within this region. The well diameter is 4 inches with an approximate depth of 20 feet.

April 2007 : SOMA began extracting groundwater from the new groundwater extraction well EX-1.

Impacted groundwater from the well is being treated and discharged through the granular activated carbon (GAC) system. Increased groundwater contaminant removal within the UST cavity is being achieved since startup of extraction from EX-1. Well and remedial line locations are shown in Figure 2.

December 2007 to October 2008: Following a pilot test in December 2007, SOMA conducted six monthly multi-phase extraction (MPE) events on the site from March through October 2008. As of the October 2008 MPE event, the cumulative total mass of VOCs extracted by MPE from extraction wells is 612.64 lbs; this includes 64 lbs extracted during the December 2007 pilot test, 24.3 lbs during the March 2008 event, 43.06 lbs during the April 2008 event, 46.19 lbs during the May 2008 event, 58.0 lbs during the June 2008 event, 239.48 lbs during the September 2008 Event and 137.61 lbs during the October 2008 Event.

October-November 2008: ACEHS approved SOMA's workplan for vapor intrusion evaluation in their letter dated October 7, 2008. SOMA performed the approved soil vapor sampling on November 14, 2008. TPH-g was elevated in one of the seven soil vapor samples and it was concluded that the fine-grained soils surrounding the French drain were acting as a filter retaining petroleum hydrocarbons. Results of above sampling are summarized in Table A1.

Groundwater monitoring has been on going at the site since December 1997. During the Third Quarter 2009 monitoring event, the highest TPH-g concentration was detected at MW-8 at 6,500 μg/L. TPH-g concentrations have decreased in all sampled wells. MtBE concentrations in groundwater have decreased across the site and were observed at concentrations below the ESL. The highest benzene, toluene and xylene concentrations were detected at MW-8 at 120 μg/L, 22 μg/L, and 480 μg/L. The highest ethyl benzene was detected in MW-6 at 70 μg/L.

The GAC and SVE systems have been effective in reducing peak contaminant levels beneath the site. Since initial start up, approximately 250.82 lbs of

hydrocarbons and 87.78 lbs of MtBE have been removed from groundwater. Approximately 967.2 pounds of petroleum hydrocarbons have been removed from the vadose zone. The treatment system was shut down on January 28, 2010 per CRWQCB directive.

MPE events at the site have effectively reduced contaminant concentrations; a cumulative total mass of VOCs extracted by MPE during pilot testing and the eight subsequent MPE events is 817.34 lbs. Benzene concentrations are dramatically reduced compared to pre-MPE event sampling in the source area.

APPENDIX B

Well Permit

Alameda County Public Works Agency - Water Resources Well Permit

399 Elmhurst Street
Hayward, CA 94544-1395
Telephone: (510)670-6633 Fax:(510)782-1939

Application Approved on: 04/21/2010 By jamesy

Permit Numbers: W2010-0264
Permits Valid from 05/03/2010 to 05/05/2010

Application Id: 1271711280381 **City of Project Site:** Oakland
Site Location: Tonys Express Auto Services
3609 International Blvd.
Project Start Date: 05/03/2010 **Completion Date:** 05/05/2010
Assigned Inspector: Contact Ron Smalley at (510) 670-5407 or ronaldws@acpwa.org

Applicant: SOMA Environmental Engineering - Erica Fisker **Phone:** 925-734-6400 x106
6620 Owens Drive, Suite A, Pleasanton, CA 94588
Property Owner: Abolghassem Razi **Phone:** 415-669-2545
25 N. Terrace, Tiburon, CA 94920
Client: ** same as Property Owner **
Contact: Lizzie Hightower **Phone:** --
Cell: 925-858-4437

Total Due: $265.00
Receipt Number: WR2010-0123 **Total Amount Paid:** $265.00
Payer Name : SOMA Environmental Engineering, Inc. Paid By: VISA **PAID IN FULL**

Works Requesting Permits:

Borehole(s) for Geo Probes-Sampling 24 to 72 hours only - 4 Boreholes
Driller: RSI Drilling - Lic #: 802334 - Method: DP **Work Total: $265.00**

Specifications

Permit Number	Issued Dt	Expire Dt	# Boreholes	Hole Diam	Max Depth
W2010-0264	04/21/2010	08/01/2010	4	2.75 in.	5.00 ft

Specific Work Permit Conditions

1. Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings. All cuttings remaining or unused shall be containerized and hauled off site. The containers shall be clearly labeled to the ownership of the container and labeled hazardous or non-hazardous.

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

3. Permittee shall assume entire responsibility for all activities and uses under this permit and shall indemnify, defend and save the Alameda County Public Works Agency, its officers, agents, and employees free and harmless from any and all expense, cost, liability in connection with or resulting from the exercise of this Permit including, but not limited to, properly damage, personal injury and wrongful death.

4. Applicant shall contact Ron Smalley for an inspection time at 510-670-5407 at least five (5) working days prior to starting, once the permit has been approved. Confirm the scheduled date(s) at least 24 hours prior to drilling.

5. Permittee, permittee's contractors, consultants or agents shall be responsible to assure that all material or waters generated during drilling, boring destruction, and/or other activities associated with this Permit will be safely handled,

properly managed, and disposed of according to all applicable federal, state, and local statutes regulating such. In no case shall these materials and/or waters be allowed to enter, or potentially enter, on or off-site storm sewers, dry wells, or waterways or be allowed to move off the property where work is being completed.

6. Copy of approved drilling permit must be on site at all times. Failure to present or show proof of the approved permit application on site shall result in a fine of $500.00.

7. Prior to any drilling activities onto any public right-of-ways, it shall be the applicants responsibilities to contact and coordinate a Underground Service Alert (USA), obtain encroachment permit(s), excavation permit(s) or any other permits required for that City or to the County and follow all City or County Ordinances. It shall also be the applicants responsibilities to provide to the Cities or to Alameda County a Traffic Safety Plan for any lane closures or detours planned. No work shall begin until all the permits and requirements have been approved or obtained.

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

APPENDIX C

Soil Vapor Sampling Procedures

USING A GEOPROBE TO COLLECT SUBSURFACE VAPOR SAMPLES FOR HUMAN HEALTH RISK EVALUATION

- Do not mobilize to sample subsurface vapor if measurable precipitation or site irrigation near the sampling location has occurred within the previous 5 days;

- Drill continuous cores as necessary to identify permeable strata (target vapor sampling locations) then backfill the borings with Portland cement (previous assessment may have provided this data);

- Connect a PRT adaptor to approximately 10 to 15 feet of tubing (assuming the total depth of the boring will be approximately 5 feet below grade), install a vapor tight valve on the other end of the tubing, close the vapor tight valve, and seat the PRT adaptor into the bottom of the lead drill rod;

- Hydraulically push the Geoprobe rod to the target vapor sampling depth then raise the drill rod approximately 6 inches';

- Place hydrated bentonite around the drill rod to inhibit surface air migration down the outer portion of the drill rod (do not simply add water to a pile of bentonite chips or pellets placed around the drill rod);

- Connect a tee fitting to the top of each purge and sample Summa canister and install a pressure gauge on the top of this fitting;

- Connect 1 to 2 feet of tubing to the tee fitting on each purge and sample canister (the consultant may opt to install an optional valve on the downhole side of the tee connected to the purge canister);

- Connect the free ends of each of the above tubes to a separate (third) tee fitting;

- Connect a 100 to 200 milliliter/minute flow regulator to the downhole side of the third tee fitting and connect the laboratory supplied particulate filter to the downhole side of the regulator (if required);

- Connect the vapor-tight valve in Bullet #3 to the downhole side of the filter (or regulator if the filter was built-in to the regulator);

- Vacuum test the connections between the summa canisters and valve on the downhole side of the regulator for 10 minutes by opening and closing the purge canister valve to place a test vacuum on the assembly (terminate further work if gauge vacuum can not be maintained for 10 minutes);

- If gauge vacuum was maintained for 10 minutes and it has been at least 30 minutes since the drill rod was sealed at the surface with bentonite, then open the purge canister valve and

the valve on the downhole side of the regulator to begin purging ambient air from the sampling apparatus and borehole (record the time purging commenced);

- Close the purge canister valve when three volumes of air have been purged from the sample apparatus and borehole (the consultant must know how to calculate the appropriate purge volume prior to mobilization - the adequacy of purging must be based on the inches of pressure drop on the purge canister gauge and not time);

- Open the sample canister valve to begin sample collection (record the time sample collection begins);

- Drop a few pieces of isopropyl alcohol (leak test compound) moistened gauze down the inside of the drill rod and on the downhole side of the valve on the borehole side of the regulator (tinfoil is useful to hold the gauze in place - be careful not to pour isopropyl alcohol directly on the tubing and sample apparatus connections);

- Remoisten the gauze with isopropyl alcohol every 5 minutes";

- Close the sample canister valve when the sample canister gauge indicates approximately 5 inches Hg of vacuum remain in the canister (this should take approximately 25 minutes for a 6L Summa canister connected to a 200 milliliters/minute flow regulator);

- Record the time sample collection was stopped and replace the tee fitting on the sample canister with the laboratory supplied brass plug;

- Label the sample and record on the chain of custody the sample name, final vacuum, and the canister and flow controller serial numbers;

- Store the sample in a container that blocks sunlight and do not subject the sample to significant changes in pressure and temperature (avoid airline shipping of sample containers);

- Remove the drilling rod and sampling apparatus and backfill the borehole with Portland cement mixed at 6 gallons of water per 94-pound bag of cement.

FOOTNOTES:

1 - Hard drilling conditions may shear off the PRT fitting during drilling. In these conditions you must install the PRT fitting/valve assembly after reaching the target drilling depth, but before lifting the drilling rod 6 inches.

2 - Isopropyl alcohol moistened gauze must be added to all fitting connections if the reduction in sample canister gauge vacuum indicates sample collection will exceed one hour.

GENERAL NOTES:

Assemble and leak check the sampling apparatus prior to mobilizing to the field.

Use Swagelok® type fittings or equivalent for all connections. Wear a new pair of gloves when you assemble the sampling apparatus to limit potential cross-contamination.

APPENDIX D

Boring Logs

ENVIRONMENTAL ENGINEERING, INC.

DIAGRAM: SV-8

PAGE 1 OF 1

PROJECT: 2332

DATE DRILLED: 4/6/10

SITE LOCATION: 3609 International Blvd., Oakland

CASING ELEVATION: NA

DRILLING COMPANY: RSI Drilling

DEPTH TO GW: NA

DRILLING METHOD: Geoprobe Hydraulically Driven Sampling

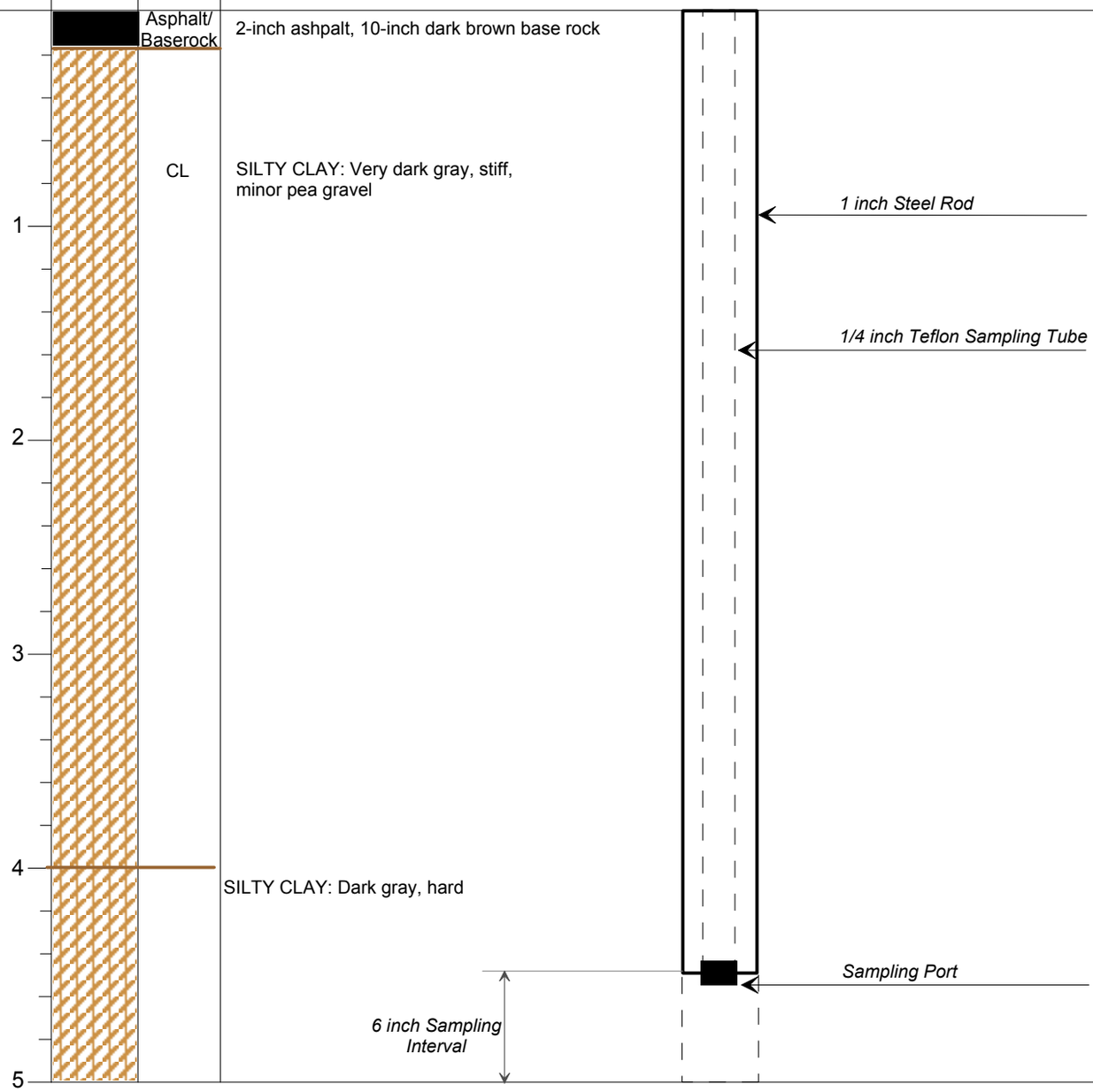
T.O.C. TO SCREEN: NA

SCREEN LENGTH: NA

NOTES: Lithology is extrapolated from MW-4 (8/30/1995)

APPROVED BY: M. Sepehr. Ph. D., P.E.

SV-5 SOIL PROBE DIAGRAM



ENVIRONMENTAL ENGINEERING, INC.	DIAGRAM: SV-9	PAGE 1 OF 1

PROJECT: 2332

DATE DRILLED: 4/6/10

SITE LOCATION: 3609 International Blvd., Oakland

CASING ELEVATION: NA

DRILLING COMPANY: RSI Drilling

DEPTH TO GW: NA

DRILLING METHOD: Geoprobe Hydraulically Driven Sampling

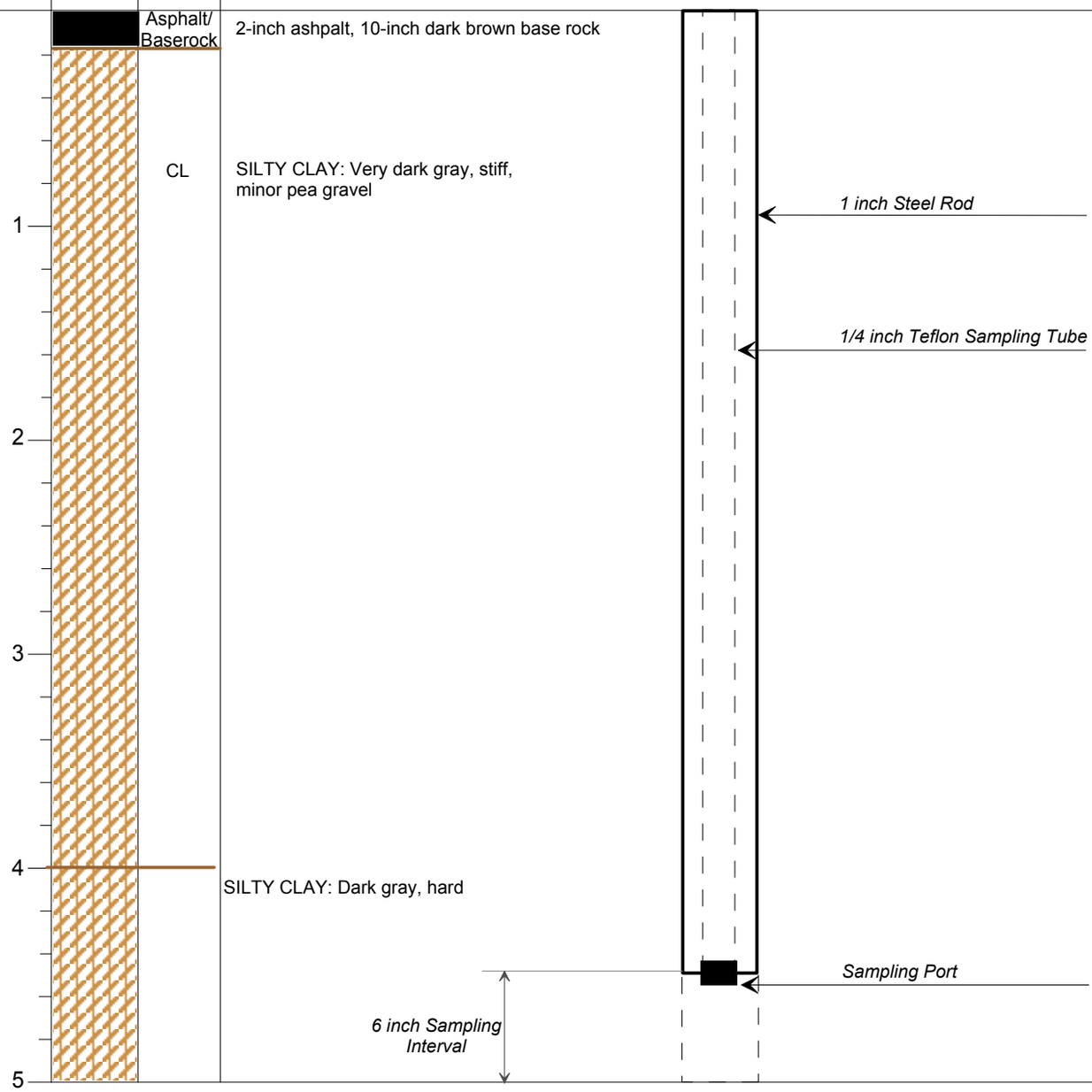
T.O.C. TO SCREEN: NA

SCREEN LENGTH: NA

NOTES: Lithology is extrapolated from MW-4 (8/30/1995)

APPROVED BY: M. Sepehr. Ph. D., P.E.

SV-5 SOIL PROBE DIAGRAM



ENVIRONMENTAL ENGINEERING, INC.	DIAGRAM: SV-10	PAGE 1 OF 1

PROJECT: 2332

DATE DRILLED: 4/6/10

SITE LOCATION: 3609 International Blvd., Oakland

CASING ELEVATION: NA

DRILLING COMPANY: RSI Drilling

DEPTH TO GW: NA

DRILLING METHOD: Geoprobe Hydraulically Driven Sampling

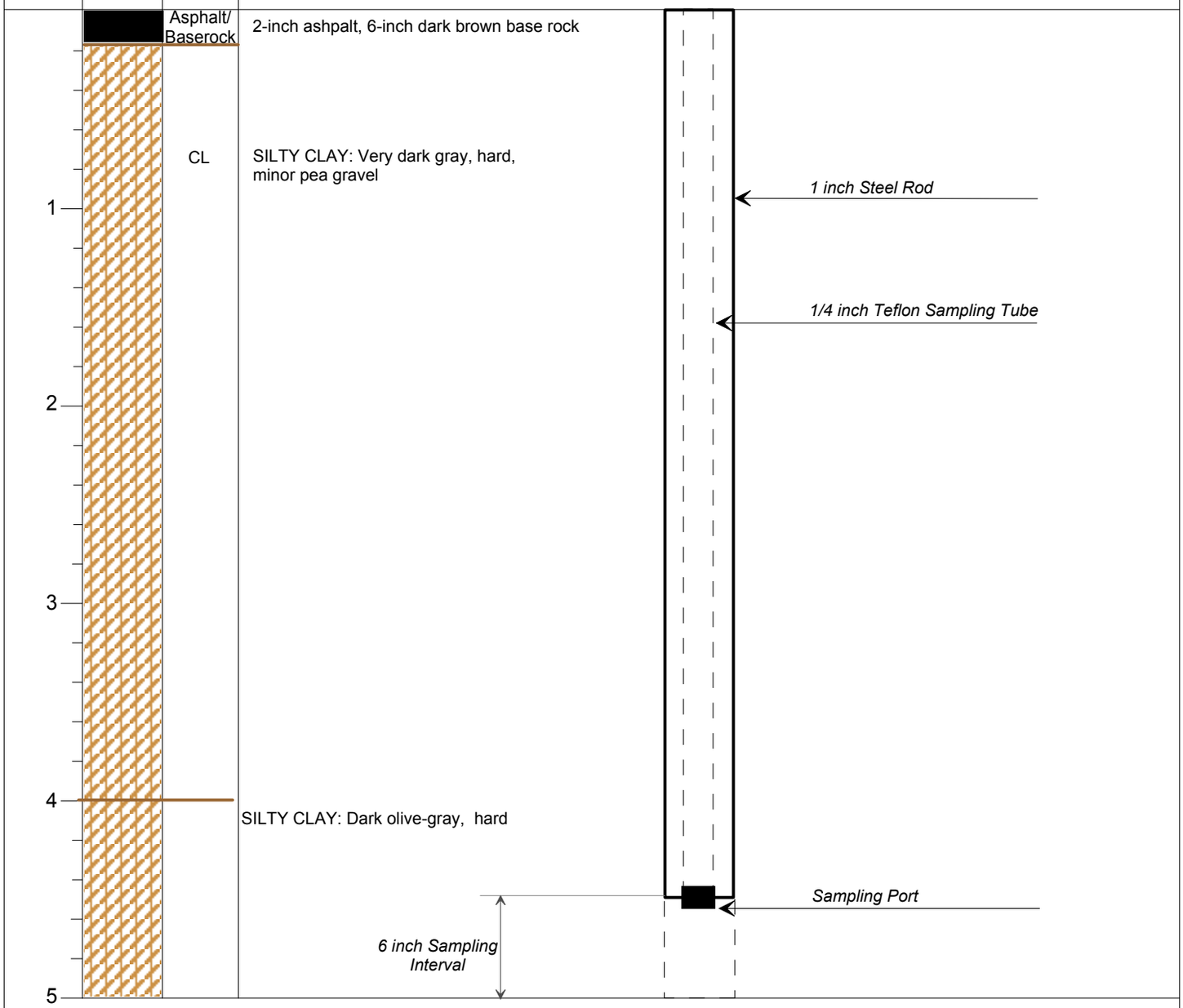
T.O.C. TO SCREEN: NA

SCREEN LENGTH: NA

NOTES: Lithology is extrapolated from MW-8 (8/31/1995)

APPROVED BY: M. Sepehr. Ph. D., P.E.

SV-3 SOIL PROBE DIAGRAM



ENVIRONMENTAL ENGINEERING, INC.	DIAGRAM: SV-11	PAGE 1 OF 1

PROJECT: 2332

DATE DRILLED: 4/6/10

SITE LOCATION: 3609 International Blvd., Oakland

CASING ELEVATION: NA

DRILLING COMPANY: RSI Drilling

DEPTH TO GW: NA

DRILLING METHOD: Geoprobe Hydraulically Driven Sampling

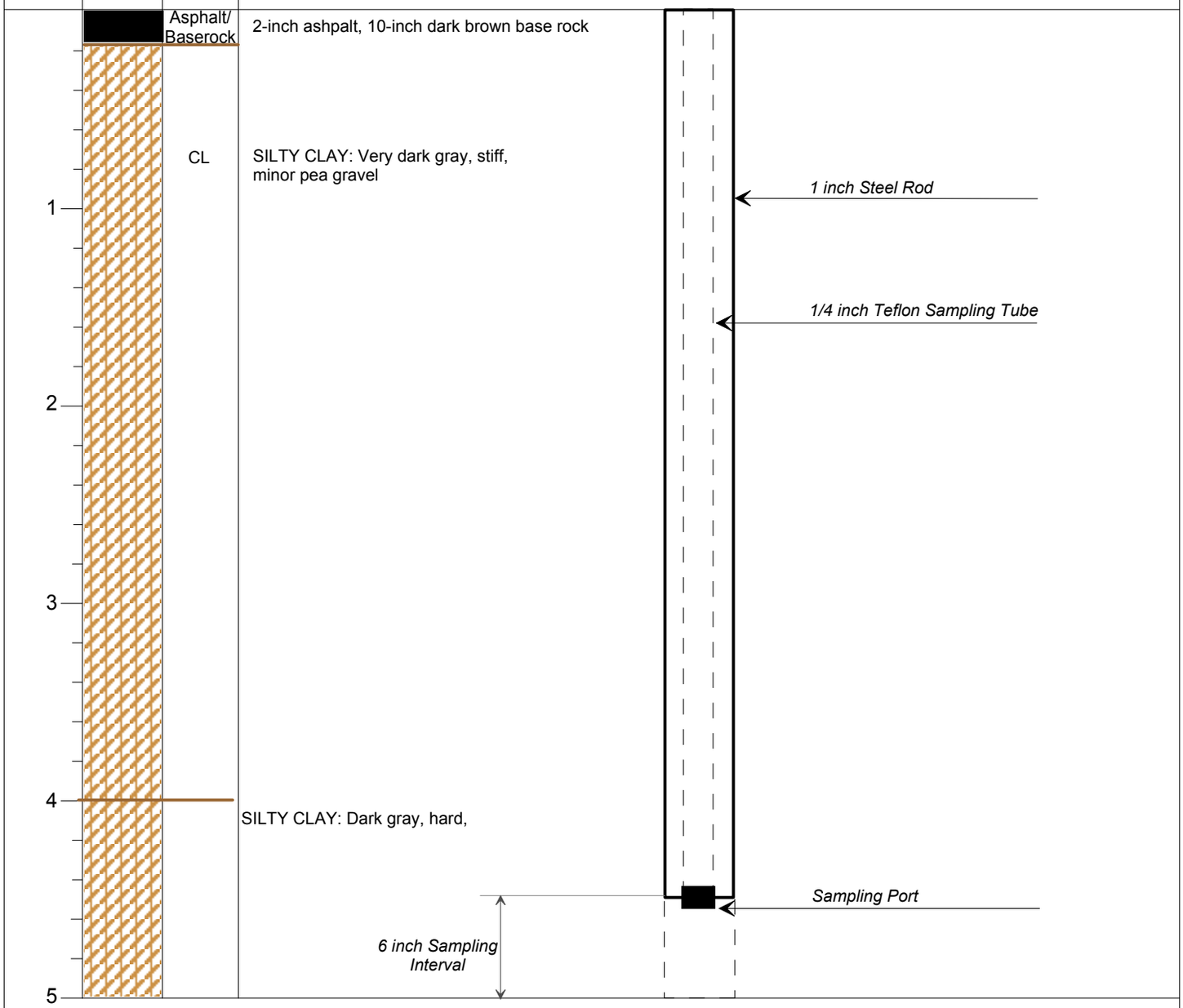
T.O.C. TO SCREEN: NA

SCREEN LENGTH: NA

NOTES: Lithology is extrapolated from MW-4 (8/30/1995)

APPROVED BY: M. Sepehr. Ph. D., P.E.

SV-4 SOIL PROBE DIAGRAM



APPENDIX E

General Field Procedures

Utility Locating

Prior to drilling, boring locations are marked with white paint or other discernible marking and cleared for underground utilities through Underground Service Alert (USA). In addition, the first five feet of each borehole are air-knifed, or carefully advanced with a hand auger if shallow soil samples are necessary, to help evaluate the borehole location for underground structures or utilities.

Borehole Advancement

Pre-cleaned push rods (typically one to two inches in diameter) are advanced using a hydraulic push type rig for the purpose of collecting samples and evaluating subsurface conditions. The drill rod serves as a soil sampler, and an acetate liner is inserted into the annulus of the drill rod prior to advancement. Once the sample is collected, the rods and sampler are retracted and the sample tubes are removed from the sampler head. The sampler head is then cleaned, filled with clean sample tubes, inserted into the borehole and advanced to the next sampling point where the sample collection process is repeated.

Soil Sample Collection

The undisturbed soil samples intended for laboratory analysis are cut away from the acetate sample liner using a hacksaw, or equivalent tool, in sections approximately 6 inches in length. The 6 inch samples are lined at each end with Teflon® sheets and capped with plastic caps. Labels documenting job number, borehole identification, collection date, and depth are affixed to each sample. The samples are then placed into an ice-filled cooler for delivery under chain-of-custody to a laboratory certified by the State of California to perform the specified tests. The remaining collected soil that has not been selected for laboratory analysis is logged using the United Soil Classification System (USCS) under the direction of a State Registered Professional Geologist, and is field screened for organic vapors using a photo-ionization detector (PID), or an equivalent tool. Soil cuttings generated are stored in Department of Transportation (DOT) approved 55-gallon steel drums, or an equivalent storage container.

Groundwater Sample Collection

Once the desired groundwater sampling depth has been reached, a Hydropunch tip is affixed to the head of the sampling rods. The Hydropunch tip is advanced between approximately 6 inches to one foot within the desired groundwater sampling zone (effort is made to emplace the Hydropunch screen across the center and lower portion of the water table), and retracted to expose the Hydropunch screen.

Grab groundwater samples are collected by lowering a pre-cleaned, single-sample polypropylene, disposable bailer down the annulus of the sampler rod. The groundwater sample is discharged from the bailer to the sample container through a bottom emptying flow control valve to minimize volatilization.

Because the sampling section of the non-discrete groundwater sampler is not protected or sealed, this sampler should only be used where cross contamination from overlying materials is not a concern. Discrete groundwater samplers are driven to the sample interval, then o-rings, a protective tube/sheath, and an expendable point provide a water-tight seal.

Collected water samples are discharged directly into laboratory-provided, pre-cleaned vials or

containers and sealed with Teflon-lined septum, screw-on lids. Labels documenting sample number, well identification, collection date, and type of preservative (if applicable, e.g., HCl for TPPH, BTEX, and fuel oxygenates) are affixed to each sample. The samples are then placed into an ice-filled cooler for delivery under chain-of-custody to a laboratory certified by the State of California to perform the specified tests.

Borehole Completion

Upon completion of drilling and sampling, the rods are retracted. Neat cement grout, mixed at a ratio of 6 gallons of water per 94 pounds of Portland cement, is introduced, *via* a tremmie pipe, and pumped to displace standing water in the borehole. Displaced groundwater is collected at the surface into DOT approved 55-gallon steel drums, or an equivalent storage container. In areas where the borehole penetrates asphalt or concrete, the borehole is capped with an equivalent thickness of asphalt or concrete patch to match finished grade.

Organic Vapor Procedures

Soil samples are collected for analysis in the field for ionizable organic compounds using a PID with a 10.2 eV lamp. The test procedure *involves* measuring approximately 30 grams from an undisturbed soil sample, placing this subsample in a Ziploc--type bag or in a clean glass jar, and sealing the jar with aluminum foil secured under a ring-type threaded lid. The container is warmed for approximately 20 minutes (in the sun); then the head-space within the container is tested for total organic *vapor,* measured in parts per million as benzene (ppm; volume/volume). The instrument is calibrated prior to drilling. The results of the field-testing are noted on the boring logs. PID readings are useful for indicating relative levels of contamination, but cannot be used to evaluate petroleum hydrocarbon levels with the confidence of laboratory analyses.

Equipment Decontamination

Equipment that could potentially contact subsurface media and compromise the integrity of the samples is carefully decontaminated prior to drilling and sampling. Drill augers and other large pieces of equipment are decontaminated using high pressure hot water spray. Samplers, groundwater pumps, liners and other equipment are decontaminated in an Alconox scrub solution and double rinsed in clean tap water rinse followed by a final distilled water rinse.

The rinsate and other wastewater are contained in 55-gallon DOT-approved drums, labeled (to identify the contents, generation date and project) and stored on-site pending waste profiling and disposal.

Soil Cuttings and Rinsate/Purge Water

Soil cuttings and rinsate/purge water generated during drilling and sampling are stored onsite in DOT-approved 55-gallon steel drums pending characterization. A label is affixed to the drums indicating the contents of the drum, suspected contaminants, date of generation, and the boring number from which the waste is generated. The drums are removed from the site by a licensed waste disposal contractor under manifest to an appropriate facility for treatment/recycling.

APPENDIX F

Certified Laboratory Analytical Reports and Chain-Of-Custody Documentation

Soma Envirronmental
6620 Owens Dr. Suite A
Pleasanton, California 94588
Tel: 925-734-6400
Fax: 925-734-6401

RE: 3609 International Blvd.,Oakland,CA

Work Order No.: 1005051

Dear Joyce Bobek:

Torrent Laboratory, Inc. received 5 sample(s) on May 07, 2010 for the analyses presented in the following Report.

All data for associated QC met EPA or laboratory specification(s) except where noted in the case narrative.

Torrent Laboratory, Inc. is certified by the State of California, ELAP #1991. If you have any questions regarding these test results, please feel free to contact the Project Management Team at (408)263-5258; ext 204.

Patti Sandrock

May 14, 2010
Date

Date: 5/14/2010

Client: Soma Envirronmental

Project: 3609 International Blvd.,Oakland,CA

Work Order: 1005051

CASE NARRATIVE

No issues encountered with the receiving, preparation, analysis or reporting of the results associated with this work order.

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

SV-8 1005051-001A

Parameters:	Analysis Method	DF	MDL	PQL	Results %
Oxygen	D1946	1.30	0.0325	0.0325	17.0

SV-8 1005051-001A5.0x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
TPH-Gasoline	ETO3	5.0	880	1800	5200

SV-8 1005051-001A50x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
2-Propanol (Isopropyl Alcohol)	ETO15	50	49	500	6280

SV-8 1005051-001A5x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
Benzene	ETO15	5	3.4	8.0	10.2
Toluene	ETO15	5	4.8	9.5	11.0

SV-9 1005051-002A

Parameters:	Analysis Method	DF	MDL	PQL	Results %
Oxygen	D1946	1.25	0.0313	0.0313	17.1

SV-9 1005051-002A10x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3

All compounds were non-detectable for this sample.

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

SV-9 1005051-002A50.0x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
TPH-Gasoline	ETO3	50.0	8800	18000	60000

SV-9 1005051-002A50x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
2-Propanol (Isopropyl Alcohol)	ETO15	50	49	500	11700

SV-10 1005051-003A

Parameters:	Analysis Method	DF	MDL	PQL	Results %
Oxygen	D1946	1.22	0.0305	0.0305	17.1

SV-10 1005051-003A2x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
Benzene	ETO15	2	1.4	3.2	6.98
Toluene	ETO15	2	1.9	3.8	5.62

SV-10 1005051-003A4x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3

All compounds were non-detectable for this sample.

SV-10 1005051-003A50x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
2-Propanol (Isopropyl Alcohol)	ETO15	50	49	500	950

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

SV-11-1 1005051-004A

Parameters:	Analysis Method	DF	MDL	PQL	Results %
Oxygen	D1946	1.26	0.0315	0.0315	17.1

SV-11-1 1005051-004A10x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3

All compounds were non-detectable for this sample.

SV-11-1 1005051-004A50.0x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
TPH-Gasoline	ETO3	50.0	8800	18000	49000

SV-11-1 1005051-004A50x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
2-Propanol (Isopropyl Alcohol)	ETO15	50	49	500	13000

SV-11-2 1005051-005A

Parameters:	Analysis Method	DF	MDL	PQL	Results %
Oxygen	D1946	1.19	0.0298	0.0298	17.1

SV-11-2 1005051-005A10x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3

All compounds were non-detectable for this sample.

Torrent LABORATORY, INC.

Sample Result Summary

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

SV-11-2 1005051-005A50.0x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
TPH-Gasoline	ETO3	50.0	8800	18000	32000

SV-11-2 1005051-005A50x

Parameters:	Analysis Method	DF	MDL	PQL	Results ug/m3
2-Propanol (Isopropyl Alcohol)	ETO15	50	49	500	12700

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-8	**Lab Sample ID:**	1005051-001A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:28	**Certified Clean WO # :**	
Canister/Tube ID:	883	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
2-Propanol (Isopropyl Alcohol)	ETO15	NA	05/10/10	50	49	500	6280	2,512.00		400861	NA
Dichlorodifluoromethane	ETO15	NA	05/10/10	5	7.6	25	ND	ND		400861	NA
1,1-Difluoroethane	ETO15	NA	05/10/10	5	2.5	6.8	ND	ND		400861	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	05/10/10	5	25	70	ND	ND		400861	NA
Chloromethane	ETO15	NA	05/10/10	5	1.6	5.3	ND	ND		400861	NA
Vinyl Chloride	ETO15	NA	05/10/10	5	3.3	13	ND	ND		400861	NA
1,3-Butadiene	ETO15	NA	05/10/10	5	2.2	5.5	ND	ND		400861	NA
Bromomethane	ETO15	NA	05/10/10	5	3.6	9.8	ND	ND		400861	NA
Chloroethane	ETO15	NA	05/10/10	5	2.5	6.5	ND	ND		400861	NA
Trichlorofluoromethane	ETO15	NA	05/10/10	5	9.0	28	ND	ND		400861	NA
1,1-Dichloroethene	ETO15	NA	05/10/10	5	3.1	10	ND	ND		400861	NA
Freon 113	ETO15	NA	05/10/10	5	4.2	19	ND	ND		400861	NA
Carbon Disulfide	ETO15	NA	05/10/10	5	4.1	16	ND	ND		400861	NA
Methylene Chloride	ETO15	NA	05/10/10	5	2.9	8.8	ND	ND		400861	NA
Acetone	ETO15	NA	05/10/10	5	4.4	48	ND	ND		400861	NA
trans-1,2-Dichloroethene	ETO15	NA	05/10/10	5	3.2	10	ND	ND		400861	NA
Hexane	ETO15	NA	05/10/10	5	2.6	8.8	ND	ND		400861	NA
MTBE	ETO15	NA	05/10/10	5	4.3	9.0	ND	ND		400861	NA
tert-Butanol	ETO15	NA	05/10/10	5	4.6	11	ND	ND		400861	NA
Diisopropyl ether (DIPE)	ETO15	NA	05/10/10	5	4.4	11	ND	ND		400861	NA
1,1-Dichloroethane	ETO15	NA	05/10/10	5	3.8	10	ND	ND		400861	NA
ETBE	ETO15	NA	05/10/10	5	3.4	11	ND	ND		400861	NA
cis-1,2-Dichloroethene	ETO15	NA	05/10/10	5	2.7	10	ND	ND		400861	NA
Chloroform	ETO15	NA	05/10/10	5	6.2	25	ND	ND		400861	NA
Vinyl Acetate	ETO15	NA	05/10/10	5	2.8	8.8	ND	ND		400861	NA
Carbon Tetrachloride	ETO15	NA	05/10/10	5	4.3	16	ND	ND		400861	NA
1,1,1-trichloroethane	ETO15	NA	05/10/10	5	4.2	14	ND	ND		400861	NA
2-Butanone (MEK)	ETO15	NA	05/10/10	5	3.1	7.5	ND	ND		400861	NA
Ethyl Acetate	ETO15	NA	05/10/10	5	3.7	9.0	ND	ND		400861	NA
Tetrahydrofuran	ETO15	NA	05/10/10	5	1.5	7.5	ND	ND		400861	NA
Benzene	ETO15	NA	05/10/10	5	3.4	8.0	10.2	3.19		400861	NA
TAME	ETO15	NA	05/10/10	5	1.8	11	ND	ND		400861	NA
1,2-Dichloroethane (EDC)	ETO15	NA	05/10/10	5	4.9	10	ND	ND		400861	NA
Trichloroethylene	ETO15	NA	05/10/10	5	6.9	27	ND	ND		400861	NA
1,2-Dichloropropane	ETO15	NA	05/10/10	5	6.6	23	ND	ND		400861	NA
Bromodichloromethane	ETO15	NA	05/10/10	5	4.4	17	ND	ND		400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-8	**Lab Sample ID:**	1005051-001A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:28	**Certified Clean WO # :**	
Canister/Tube ID:	883	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
1,4-Dioxane	ETO15	NA	05/10/10	5	6.2	18	ND	ND		400861	NA
trans-1,3-Dichloropropene	ETO15	NA	05/10/10	5	4.3	11	ND	ND		400861	NA
Toluene	ETO15	NA	05/10/10	5	4.8	9.5	11.0	2.89		400861	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	05/10/10	5	4.2	10	ND	ND		400861	NA
cis-1,3-Dichloropropene	ETO15	NA	05/10/10	5	5.6	11	ND	ND		400861	NA
Tetrachloroethylene	ETO15	NA	05/10/10	5	7.9	17	ND	ND		400861	NA
1,1,2-Trichloroethane	ETO15	NA	05/10/10	5	4.6	14	ND	ND		400861	NA
Dibromochloromethane	ETO15	NA	05/10/10	5	8.7	21	ND	ND		400861	NA
1,2-Dibromoethane (EDB)	ETO15	NA	05/10/10	5	10	39	ND	ND		400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	50	65	135	111 %			400861	NA
2-Hexanone	ETO15	NA	05/10/10	5	5.6	21	ND	ND		400861	NA
Ethyl Benzene	ETO15	NA	05/10/10	5	5.0	11	ND	ND		400861	NA
Chlorobenzene	ETO15	NA	05/10/10	5	3.6	12	ND	ND		400861	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	05/10/10	5	5.2	17	ND	ND		400861	NA
m,p-Xylene	ETO15	NA	05/10/10	5	8.1	22	ND	ND		400861	NA
o-Xylene	ETO15	NA	05/10/10	5	4.0	11	ND	ND		400861	NA
Styrene	ETO15	NA	05/10/10	5	3.4	11	ND	ND		400861	NA
Bromoform	ETO15	NA	05/10/10	5	5.5	25	ND	ND		400861	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	05/10/10	5	3.5	17	ND	ND		400861	NA
4-Ethyl Toluene	ETO15	NA	05/10/10	5	4.1	12	ND	ND		400861	NA
1,3,5-Trimethylbenzene	ETO15	NA	05/10/10	5	3.8	12	ND	ND		400861	NA
1,2,4-Trimethylbenzene	ETO15	NA	05/10/10	5	3.4	12	ND	ND		400861	NA
1,4-Dichlorobenzene	ETO15	NA	05/10/10	5	3.2	15	ND	ND		400861	NA
1,3-Dichlorobenzene	ETO15	NA	05/10/10	5	4.2	15	ND	ND		400861	NA
Benzyl Chloride	ETO15	NA	05/10/10	5	3.1	13	ND	ND		400861	NA
1,2-Dichlorobenzene	ETO15	NA	05/10/10	5	4.5	15	ND	ND		400861	NA
Hexachlorobutadiene	ETO15	NA	05/10/10	5	12	28	ND	ND		400861	NA
1,2,4-Trichlorobenzene	ETO15	NA	05/10/10	5	17	37	ND	ND		400861	NA
Naphthalene	ETO15	NA	05/10/10	5	7.3	26	ND	ND		400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	5	65	135	93.7 %			400861	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
TPH-Gasoline	ETO3	NA	05/10/10	5.0	880	1800	5200	1,477.27	x	400883	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-8	**Lab Sample ID:**	1005051-001A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:28	**Certified Clean WO # :**	
Canister/Tube ID:	883	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL %	Results %	Results ppmv	Lab Qualifier	Analytical Batch	Prep Batch
Carbon Dioxide	D1946	NA	05/14/10	1.30	0.033	0.033	ND	ND		400885	NA
Oxygen	D1946	NA	05/14/10	1.30	0.0325	0.0325	17.0			400885	NA
Methane	D1946	NA	05/14/10	1.30	0.0007	0.0007	ND	ND		400885	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-9	**Lab Sample ID:**	1005051-002A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:04	**Certified Clean WO # :**	
Canister/Tube ID:	1432	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Dichlorodifluoromethane	ETO15	NA	05/10/10	10	15	50	ND	ND		400861	NA
1,1-Difluoroethane	ETO15	NA	05/10/10	10	5.0	14	ND	ND		400861	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	05/10/10	10	49	140	ND	ND		400861	NA
Chloromethane	ETO15	NA	05/10/10	10	3.2	11	ND	ND		400861	NA
Vinyl Chloride	ETO15	NA	05/10/10	10	6.7	26	ND	ND		400861	NA
1,3-Butadiene	ETO15	NA	05/10/10	10	4.5	11	ND	ND		400861	NA
Bromomethane	ETO15	NA	05/10/10	10	7.2	20	ND	ND		400861	NA
Chloroethane	ETO15	NA	05/10/10	10	5.0	13	ND	ND		400861	NA
Trichlorofluoromethane	ETO15	NA	05/10/10	10	18	56	ND	ND		400861	NA
1,1-Dichloroethene	ETO15	NA	05/10/10	10	6.1	20	ND	ND		400861	NA
Freon 113	ETO15	NA	05/10/10	10	8.5	39	ND	ND		400861	NA
Carbon Disulfide	ETO15	NA	05/10/10	10	8.1	31	ND	ND		400861	NA
Methylene Chloride	ETO15	NA	05/10/10	10	5.8	18	ND	ND		400861	NA
Acetone	ETO15	NA	05/10/10	10	8.8	96	ND	ND		400861	NA
trans-1,2-Dichloroethene	ETO15	NA	05/10/10	10	6.4	20	ND	ND		400861	NA
Hexane	ETO15	NA	05/10/10	10	5.3	18	ND	ND		400861	NA
MTBE	ETO15	NA	05/10/10	10	8.7	18	ND	ND		400861	NA
tert-Butanol	ETO15	NA	05/10/10	10	9.1	21	ND	ND		400861	NA
Diisopropyl ether (DIPE)	ETO15	NA	05/10/10	10	8.8	21	ND	ND		400861	NA
1,1-Dichloroethane	ETO15	NA	05/10/10	10	7.5	21	ND	ND		400861	NA
ETBE	ETO15	NA	05/10/10	10	6.8	21	ND	ND		400861	NA
cis-1,2-Dichloroethene	ETO15	NA	05/10/10	10	5.4	20	ND	ND		400861	NA
Chloroform	ETO15	NA	05/10/10	10	12	49	ND	ND		400861	NA
Vinyl Acetate	ETO15	NA	05/10/10	10	5.7	18	ND	ND		400861	NA
Carbon Tetrachloride	ETO15	NA	05/10/10	10	8.6	32	ND	ND		400861	NA
1,1,1-trichloroethane	ETO15	NA	05/10/10	10	8.5	28	ND	ND		400861	NA
2-Butanone (MEK)	ETO15	NA	05/10/10	10	6.3	15	ND	ND		400861	NA
Ethyl Acetate	ETO15	NA	05/10/10	10	7.4	18	ND	ND		400861	NA
Tetrahydrofuran	ETO15	NA	05/10/10	10	3.0	15	ND	ND		400861	NA
Benzene	ETO15	NA	05/10/10	10	6.9	16	ND	ND		400861	NA
TAME	ETO15	NA	05/10/10	10	3.6	21	ND	ND		400861	NA
1,2-Dichloroethane (EDC)	ETO15	NA	05/10/10	10	9.9	21	ND	ND		400861	NA
Trichloroethylene	ETO15	NA	05/10/10	10	14	54	ND	ND		400861	NA
1,2-Dichloropropane	ETO15	NA	05/10/10	10	13	46	ND	ND		400861	NA
Bromodichloromethane	ETO15	NA	05/10/10	10	8.9	34	ND	ND		400861	NA
1,4-Dioxane	ETO15	NA	05/10/10	10	12	36	ND	ND		400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-9	**Lab Sample ID:**	1005051-002A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:04	**Certified Clean WO # :**	
Canister/Tube ID:	1432	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
trans-1,3-Dichloropropene	ETO15	NA	05/10/10	10	8.7	23	ND	ND		400861	NA
Toluene	ETO15	NA	05/10/10	10	9.5	19	ND	ND		400861	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	05/10/10	10	8.5	21	ND	ND		400861	NA
cis-1,3-Dichloropropene	ETO15	NA	05/10/10	10	11	23	ND	ND		400861	NA
Tetrachloroethylene	ETO15	NA	05/10/10	10	16	34	ND	ND		400861	NA
1,1,2-Trichloroethane	ETO15	NA	05/10/10	10	9.3	28	ND	ND		400861	NA
Dibromochloromethane	ETO15	NA	05/10/10	10	17	43	ND	ND		400861	NA
1,2-Dibromoethane (EDB)	ETO15	NA	05/10/10	10	20	77	ND	ND		400861	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	05/10/10	50	49	500	11700	4,680.00		400861	NA
2-Hexanone	ETO15	NA	05/10/10	10	11	41	ND	ND		400861	NA
Ethyl Benzene	ETO15	NA	05/10/10	10	9.9	22	ND	ND		400861	NA
Chlorobenzene	ETO15	NA	05/10/10	10	7.1	23	ND	ND		400861	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	05/10/10	10	10	35	ND	ND		400861	NA
m,p-Xylene	ETO15	NA	05/10/10	10	16	43	ND	ND		400861	NA
o-Xylene	ETO15	NA	05/10/10	10	8.1	22	ND	ND		400861	NA
Styrene	ETO15	NA	05/10/10	10	6.9	22	ND	ND		400861	NA
Bromoform	ETO15	NA	05/10/10	10	11	50	ND	ND		400861	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	05/10/10	10	7.0	35	ND	ND		400861	NA
4-Ethyl Toluene	ETO15	NA	05/10/10	10	8.2	25	ND	ND		400861	NA
1,3,5-Trimethylbenzene	ETO15	NA	05/10/10	10	7.6	25	ND	ND		400861	NA
1,2,4-Trimethylbenzene	ETO15	NA	05/10/10	10	6.9	25	ND	ND		400861	NA
1,4-Dichlorobenzene	ETO15	NA	05/10/10	10	6.5	30	ND	ND		400861	NA
1,3-Dichlorobenzene	ETO15	NA	05/10/10	10	8.4	30	ND	ND		400861	NA
Benzyl Chloride	ETO15	NA	05/10/10	10	6.2	26	ND	ND		400861	NA
1,2-Dichlorobenzene	ETO15	NA	05/10/10	10	9.1	30	ND	ND		400861	NA
Hexachlorobutadiene	ETO15	NA	05/10/10	10	24	55	ND	ND		400861	NA
1,2,4-Trichlorobenzene	ETO15	NA	05/10/10	10	34	74	ND	ND		400861	NA
Naphthalene	ETO15	NA	05/10/10	10	15	52	ND	ND		400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	10	65	135	96.8 %			400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	50	65	135	114 %			400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-9	**Lab Sample ID:**	1005051-002A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:04	**Certified Clean WO # :**	
Canister/Tube ID:	1432	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
TPH-Gasoline	ETO3	NA	05/10/10	50.0	8800	18000	60000	17,045.45	x	400883	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL %	Results %	Results ppmv	Lab Qualifier	Analytical Batch	Prep Batch
Carbon Dioxide	D1946	NA	05/14/10	1.25	0.031	0.031	ND	ND		400885	NA
Oxygen	D1946	NA	05/14/10	1.25	0.0313	0.0313	17.1			400885	NA
Methane	D1946	NA	05/14/10	1.25	0.0006	0.0006	ND	ND		400885	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-10	**Lab Sample ID:**	1005051-003A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 11:06	**Certified Clean WO # :**	
Canister/Tube ID:	1423	**Received PSI :**	14.6
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Dichlorodifluoromethane	ETO15	NA	05/10/10	2	3.0	10	ND	ND		400861	NA
1,1-Difluoroethane	ETO15	NA	05/10/10	2	1.0	2.7	ND	ND		400861	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	05/10/10	2	9.9	28	ND	ND		400861	NA
Chloromethane	ETO15	NA	05/10/10	2	0.64	2.1	ND	ND		400861	NA
Vinyl Chloride	ETO15	NA	05/10/10	2	1.3	5.2	ND	ND		400861	NA
1,3-Butadiene	ETO15	NA	05/10/10	2	0.89	2.2	ND	ND		400861	NA
Bromomethane	ETO15	NA	05/10/10	2	1.4	3.9	ND	ND		400861	NA
Chloroethane	ETO15	NA	05/10/10	2	1.0	2.6	ND	ND		400861	NA
Trichlorofluoromethane	ETO15	NA	05/10/10	2	3.6	11	ND	ND		400861	NA
1,1-Dichloroethene	ETO15	NA	05/10/10	2	1.2	4.0	ND	ND		400861	NA
Freon 113	ETO15	NA	05/10/10	2	1.7	7.7	ND	ND		400861	NA
Carbon Disulfide	ETO15	NA	05/10/10	2	1.6	6.2	ND	ND		400861	NA
Methylene Chloride	ETO15	NA	05/10/10	2	1.2	3.5	ND	ND		400861	NA
Acetone	ETO15	NA	05/10/10	2	1.8	19	ND	ND		400861	NA
trans-1,2-Dichloroethene	ETO15	NA	05/10/10	2	1.3	4.0	ND	ND		400861	NA
Hexane	ETO15	NA	05/10/10	2	1.1	3.5	ND	ND		400861	NA
MTBE	ETO15	NA	05/10/10	2	1.7	3.6	ND	ND		400861	NA
tert-Butanol	ETO15	NA	05/10/10	2	1.8	4.2	ND	ND		400861	NA
Diisopropyl ether (DIPE)	ETO15	NA	05/10/10	2	1.8	4.2	ND	ND		400861	NA
1,1-Dichloroethane	ETO15	NA	05/10/10	2	1.5	4.1	ND	ND		400861	NA
ETBE	ETO15	NA	05/10/10	2	1.4	4.2	ND	ND		400861	NA
cis-1,2-Dichloroethene	ETO15	NA	05/10/10	2	1.1	4.0	ND	ND		400861	NA
Chloroform	ETO15	NA	05/10/10	2	2.5	9.8	ND	ND		400861	NA
Vinyl Acetate	ETO15	NA	05/10/10	2	1.1	3.5	ND	ND		400861	NA
Carbon Tetrachloride	ETO15	NA	05/10/10	2	1.7	6.3	ND	ND		400861	NA
1,1,1-trichloroethane	ETO15	NA	05/10/10	2	1.7	5.5	ND	ND		400861	NA
2-Butanone (MEK)	ETO15	NA	05/10/10	2	1.3	3.0	ND	ND		400861	NA
Ethyl Acetate	ETO15	NA	05/10/10	2	1.5	3.6	ND	ND		400861	NA
Tetrahydrofuran	ETO15	NA	05/10/10	2	0.60	3.0	ND	ND		400861	NA
Benzene	ETO15	NA	05/10/10	2	1.4	3.2	6.98	2.18		400861	NA
TAME	ETO15	NA	05/10/10	2	0.72	4.2	ND	ND		400861	NA
1,2-Dichloroethane (EDC)	ETO15	NA	05/10/10	2	2.0	4.1	ND	ND		400861	NA
Trichloroethylene	ETO15	NA	05/10/10	2	2.8	11	ND	ND		400861	NA
1,2-Dichloropropane	ETO15	NA	05/10/10	2	2.6	9.2	ND	ND		400861	NA
Bromodichloromethane	ETO15	NA	05/10/10	2	1.8	6.7	ND	ND		400861	NA
1,4-Dioxane	ETO15	NA	05/10/10	2	2.5	7.2	ND	ND		400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-10	**Lab Sample ID:**	1005051-003A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 11:06	**Certified Clean WO # :**	
Canister/Tube ID:	1423	**Received PSI :**	14.6
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
trans-1,3-Dichloropropene	ETO15	NA	05/10/10	2	1.7	4.5	ND	ND		400861	NA
Toluene	ETO15	NA	05/10/10	2	1.9	3.8	5.62	1.48		400861	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	05/10/10	2	1.7	4.1	ND	ND		400861	NA
cis-1,3-Dichloropropene	ETO15	NA	05/10/10	2	2.3	4.5	ND	ND		400861	NA
Tetrachloroethylene	ETO15	NA	05/10/10	2	3.2	6.8	ND	ND		400861	NA
1,1,2-Trichloroethane	ETO15	NA	05/10/10	2	1.9	5.5	ND	ND		400861	NA
Dibromochloromethane	ETO15	NA	05/10/10	2	3.5	8.5	ND	ND		400861	NA
1,2-Dibromoethane (EDB)	ETO15	NA	05/10/10	2	4.1	15	ND	ND		400861	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	05/10/10	50	49	500	950	380.00		400861	NA
2-Hexanone	ETO15	NA	05/10/10	2	2.2	8.2	ND	ND		400861	NA
Ethyl Benzene	ETO15	NA	05/10/10	2	2.0	4.3	ND	ND		400861	NA
Chlorobenzene	ETO15	NA	05/10/10	2	1.4	4.6	ND	ND		400861	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	05/10/10	2	2.1	6.9	ND	ND		400861	NA
m,p-Xylene	ETO15	NA	05/10/10	2	3.2	8.6	ND	ND		400861	NA
o-Xylene	ETO15	NA	05/10/10	2	1.6	4.3	ND	ND		400861	NA
Styrene	ETO15	NA	05/10/10	2	1.4	4.4	ND	ND		400861	NA
Bromoform	ETO15	NA	05/10/10	2	2.2	10	ND	ND		400861	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	05/10/10	2	1.4	6.9	ND	ND		400861	NA
4-Ethyl Toluene	ETO15	NA	05/10/10	2	1.6	4.9	ND	ND		400861	NA
1,3,5-Trimethylbenzene	ETO15	NA	05/10/10	2	1.5	4.9	ND	ND		400861	NA
1,2,4-Trimethylbenzene	ETO15	NA	05/10/10	2	1.4	4.9	ND	ND		400861	NA
1,4-Dichlorobenzene	ETO15	NA	05/10/10	2	1.3	6.0	ND	ND		400861	NA
1,3-Dichlorobenzene	ETO15	NA	05/10/10	2	1.7	6.0	ND	ND		400861	NA
Benzyl Chloride	ETO15	NA	05/10/10	2	1.2	5.2	ND	ND		400861	NA
1,2-Dichlorobenzene	ETO15	NA	05/10/10	2	1.8	6.0	ND	ND		400861	NA
Hexachlorobutadiene	ETO15	NA	05/10/10	2	4.8	11	ND	ND		400861	NA
1,2,4-Trichlorobenzene	ETO15	NA	05/10/10	2	6.8	15	ND	ND		400861	NA
Naphthalene	ETO15	NA	05/10/10	2	2.9	10	ND	ND		400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	2	65	135	81.0 %			400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	50	65	135	99.0 %			400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-10	**Lab Sample ID:**	1005051-003A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 11:06	**Certified Clean WO # :**	
Canister/Tube ID:	1423	**Received PSI :**	14.6
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
TPH-Gasoline	ETO3	NA	05/10/10	4	700	1400	ND	ND		400883	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL %	Results %	Results ppmv	Lab Qualifier	Analytical Batch	Prep Batch
Carbon Dioxide	D1946	NA	05/14/10	1.22	0.031	0.031	ND	ND		400885	NA
Oxygen	D1946	NA	05/14/10	1.22	0.0305	0.0305	17.1			400885	NA
Methane	D1946	NA	05/14/10	1.22	0.0006	0.0006	ND	ND		400885	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-11-1	**Lab Sample ID:**	1005051-004A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:52	**Certified Clean WO # :**	
Canister/Tube ID:	885	**Received PSI :**	14.6
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Dichlorodifluoromethane	ETO15	NA	05/10/10	10	15	50	ND	ND		400861	NA
1,1-Difluoroethane	ETO15	NA	05/10/10	10	5.0	14	ND	ND		400861	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	05/10/10	10	49	140	ND	ND		400861	NA
Chloromethane	ETO15	NA	05/10/10	10	3.2	11	ND	ND		400861	NA
Vinyl Chloride	ETO15	NA	05/10/10	10	6.7	26	ND	ND		400861	NA
1,3-Butadiene	ETO15	NA	05/10/10	10	4.5	11	ND	ND		400861	NA
Bromomethane	ETO15	NA	05/10/10	10	7.2	20	ND	ND		400861	NA
Chloroethane	ETO15	NA	05/10/10	10	5.0	13	ND	ND		400861	NA
Trichlorofluoromethane	ETO15	NA	05/10/10	10	18	56	ND	ND		400861	NA
1,1-Dichloroethene	ETO15	NA	05/10/10	10	6.1	20	ND	ND		400861	NA
Freon 113	ETO15	NA	05/10/10	10	8.5	39	ND	ND		400861	NA
Carbon Disulfide	ETO15	NA	05/10/10	10	8.1	31	ND	ND		400861	NA
Methylene Chloride	ETO15	NA	05/10/10	10	5.8	18	ND	ND		400861	NA
Acetone	ETO15	NA	05/10/10	10	8.8	96	ND	ND		400861	NA
trans-1,2-Dichloroethene	ETO15	NA	05/10/10	10	6.4	20	ND	ND		400861	NA
Hexane	ETO15	NA	05/10/10	10	5.3	18	ND	ND		400861	NA
MTBE	ETO15	NA	05/10/10	10	8.7	18	ND	ND		400861	NA
tert-Butanol	ETO15	NA	05/10/10	10	9.1	21	ND	ND		400861	NA
Diisopropyl ether (DIPE)	ETO15	NA	05/10/10	10	8.8	21	ND	ND		400861	NA
1,1-Dichloroethane	ETO15	NA	05/10/10	10	7.5	21	ND	ND		400861	NA
ETBE	ETO15	NA	05/10/10	10	6.8	21	ND	ND		400861	NA
cis-1,2-Dichloroethene	ETO15	NA	05/10/10	10	5.4	20	ND	ND		400861	NA
Chloroform	ETO15	NA	05/10/10	10	12	49	ND	ND		400861	NA
Vinyl Acetate	ETO15	NA	05/10/10	10	5.7	18	ND	ND		400861	NA
Carbon Tetrachloride	ETO15	NA	05/10/10	10	8.6	32	ND	ND		400861	NA
1,1,1-trichloroethane	ETO15	NA	05/10/10	10	8.5	28	ND	ND		400861	NA
2-Butanone (MEK)	ETO15	NA	05/10/10	10	6.3	15	ND	ND		400861	NA
Ethyl Acetate	ETO15	NA	05/10/10	10	7.4	18	ND	ND		400861	NA
Tetrahydrofuran	ETO15	NA	05/10/10	10	3.0	15	ND	ND		400861	NA
Benzene	ETO15	NA	05/10/10	10	6.9	16	ND	ND		400861	NA
TAME	ETO15	NA	05/10/10	10	3.6	21	ND	ND		400861	NA
1,2-Dichloroethane (EDC)	ETO15	NA	05/10/10	10	9.9	21	ND	ND		400861	NA
Trichloroethylene	ETO15	NA	05/10/10	10	14	54	ND	ND		400861	NA
1,2-Dichloropropane	ETO15	NA	05/10/10	10	13	46	ND	ND		400861	NA
Bromodichloromethane	ETO15	NA	05/10/10	10	8.9	34	ND	ND		400861	NA
1,4-Dioxane	ETO15	NA	05/10/10	10	12	36	ND	ND		400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-11-1	**Lab Sample ID:**	1005051-004A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:52	**Certified Clean WO # :**	
Canister/Tube ID:	885	**Received PSI :**	14.6
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
trans-1,3-Dichloropropene	ETO15	NA	05/10/10	10	8.7	23	ND	ND		400861	NA
Toluene	ETO15	NA	05/10/10	10	9.5	19	ND	ND		400861	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	05/10/10	10	8.5	21	ND	ND		400861	NA
cis-1,3-Dichloropropene	ETO15	NA	05/10/10	10	11	23	ND	ND		400861	NA
Tetrachloroethylene	ETO15	NA	05/10/10	10	16	34	ND	ND		400861	NA
1,1,2-Trichloroethane	ETO15	NA	05/10/10	10	9.3	28	ND	ND		400861	NA
Dibromochloromethane	ETO15	NA	05/10/10	10	17	43	ND	ND		400861	NA
1,2-Dibromoethane (EDB)	ETO15	NA	05/10/10	10	20	77	ND	ND		400861	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	05/10/10	50	49	500	13000	5,200.00	E	400861	NA
2-Hexanone	ETO15	NA	05/10/10	10	11	41	ND	ND		400861	NA
Ethyl Benzene	ETO15	NA	05/10/10	10	9.9	22	ND	ND		400861	NA
Chlorobenzene	ETO15	NA	05/10/10	10	7.1	23	ND	ND		400861	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	05/10/10	10	10	35	ND	ND		400861	NA
m,p-Xylene	ETO15	NA	05/10/10	10	16	43	ND	ND		400861	NA
o-Xylene	ETO15	NA	05/10/10	10	8.1	22	ND	ND		400861	NA
Styrene	ETO15	NA	05/10/10	10	6.9	22	ND	ND		400861	NA
Bromoform	ETO15	NA	05/10/10	10	11	50	ND	ND		400861	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	05/10/10	10	7.0	35	ND	ND		400861	NA
4-Ethyl Toluene	ETO15	NA	05/10/10	10	8.2	25	ND	ND		400861	NA
1,3,5-Trimethylbenzene	ETO15	NA	05/10/10	10	7.6	25	ND	ND		400861	NA
1,2,4-Trimethylbenzene	ETO15	NA	05/10/10	10	6.9	25	ND	ND		400861	NA
1,4-Dichlorobenzene	ETO15	NA	05/10/10	10	6.5	30	ND	ND		400861	NA
1,3-Dichlorobenzene	ETO15	NA	05/10/10	10	8.4	30	ND	ND		400861	NA
Benzyl Chloride	ETO15	NA	05/10/10	10	6.2	26	ND	ND		400861	NA
1,2-Dichlorobenzene	ETO15	NA	05/10/10	10	9.1	30	ND	ND		400861	NA
Hexachlorobutadiene	ETO15	NA	05/10/10	10	24	55	ND	ND		400861	NA
1,2,4-Trichlorobenzene	ETO15	NA	05/10/10	10	34	74	ND	ND		400861	NA
Naphthalene	ETO15	NA	05/10/10	10	15	52	ND	ND		400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	10	65	135	82.5 %			400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	50	65	135	110 %			400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-11-1	**Lab Sample ID:**	1005051-004A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 10:52	**Certified Clean WO # :**	
Canister/Tube ID:	885	**Received PSI :**	14.6
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
TPH-Gasoline	ETO3	NA	05/10/10	50.0	8800	18000	49000	13,920.45	x	400883	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL %	Results %	Results ppmv	Lab Qualifier	Analytical Batch	Prep Batch
Carbon Dioxide	D1946	NA	05/14/10	1.26	0.032	0.032	ND	ND		400885	NA
Oxygen	D1946	NA	05/14/10	1.26	0.0315	0.0315	17.1			400885	NA
Methane	D1946	NA	05/14/10	1.26	0.0006	0.0006	ND	ND		400885	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-11-2	**Lab Sample ID:**	1005051-005A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 11:40	**Certified Clean WO # :**	
Canister/Tube ID:	470	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
Dichlorodifluoromethane	ETO15	NA	05/10/10	10	15	50	ND	ND		400861	NA
1,1-Difluoroethane	ETO15	NA	05/10/10	10	5.0	14	ND	ND		400861	NA
1,2-Dichlorotetrafluoroethane	ETO15	NA	05/10/10	10	49	140	ND	ND		400861	NA
Chloromethane	ETO15	NA	05/10/10	10	3.2	11	ND	ND		400861	NA
Vinyl Chloride	ETO15	NA	05/10/10	10	6.7	26	ND	ND		400861	NA
1,3-Butadiene	ETO15	NA	05/10/10	10	4.5	11	ND	ND		400861	NA
Bromomethane	ETO15	NA	05/10/10	10	7.2	20	ND	ND		400861	NA
Chloroethane	ETO15	NA	05/10/10	10	5.0	13	ND	ND		400861	NA
Trichlorofluoromethane	ETO15	NA	05/10/10	10	18	56	ND	ND		400861	NA
1,1-Dichloroethene	ETO15	NA	05/10/10	10	6.1	20	ND	ND		400861	NA
Freon 113	ETO15	NA	05/10/10	10	8.5	39	ND	ND		400861	NA
Carbon Disulfide	ETO15	NA	05/10/10	10	8.1	31	ND	ND		400861	NA
Methylene Chloride	ETO15	NA	05/10/10	10	5.8	18	ND	ND		400861	NA
Acetone	ETO15	NA	05/10/10	10	8.8	96	ND	ND		400861	NA
trans-1,2-Dichloroethene	ETO15	NA	05/10/10	10	6.4	20	ND	ND		400861	NA
Hexane	ETO15	NA	05/10/10	10	5.3	18	ND	ND		400861	NA
MTBE	ETO15	NA	05/10/10	10	8.7	18	ND	ND		400861	NA
tert-Butanol	ETO15	NA	05/10/10	10	9.1	21	ND	ND		400861	NA
Diisopropyl ether (DIPE)	ETO15	NA	05/10/10	10	8.8	21	ND	ND		400861	NA
1,1-Dichloroethane	ETO15	NA	05/10/10	10	7.5	21	ND	ND		400861	NA
ETBE	ETO15	NA	05/10/10	10	6.8	21	ND	ND		400861	NA
cis-1,2-Dichloroethene	ETO15	NA	05/10/10	10	5.4	20	ND	ND		400861	NA
Chloroform	ETO15	NA	05/10/10	10	12	49	ND	ND		400861	NA
Vinyl Acetate	ETO15	NA	05/10/10	10	5.7	18	ND	ND		400861	NA
Carbon Tetrachloride	ETO15	NA	05/10/10	10	8.6	32	ND	ND		400861	NA
1,1,1-trichloroethane	ETO15	NA	05/10/10	10	8.5	28	ND	ND		400861	NA
2-Butanone (MEK)	ETO15	NA	05/10/10	10	6.3	15	ND	ND		400861	NA
Ethyl Acetate	ETO15	NA	05/10/10	10	7.4	18	ND	ND		400861	NA
Tetrahydrofuran	ETO15	NA	05/10/10	10	3.0	15	ND	ND		400861	NA
Benzene	ETO15	NA	05/10/10	10	6.9	16	ND	ND		400861	NA
TAME	ETO15	NA	05/10/10	10	3.6	21	ND	ND		400861	NA
1,2-Dichloroethane (EDC)	ETO15	NA	05/10/10	10	9.9	21	ND	ND		400861	NA
Trichloroethylene	ETO15	NA	05/10/10	10	14	54	ND	ND		400861	NA
1,2-Dichloropropane	ETO15	NA	05/10/10	10	13	46	ND	ND		400861	NA
Bromodichloromethane	ETO15	NA	05/10/10	10	8.9	34	ND	ND		400861	NA
1,4-Dioxane	ETO15	NA	05/10/10	10	12	36	ND	ND		400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-11-2	**Lab Sample ID:**	1005051-005A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 11:40	**Certified Clean WO # :**	
Canister/Tube ID:	470	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
trans-1,3-Dichloropropene	ETO15	NA	05/10/10	10	8.7	23	ND	ND		400861	NA
Toluene	ETO15	NA	05/10/10	10	9.5	19	ND	ND		400861	NA
4-Methyl-2-Pentanone (MIBK)	ETO15	NA	05/10/10	10	8.5	21	ND	ND		400861	NA
cis-1,3-Dichloropropene	ETO15	NA	05/10/10	10	11	23	ND	ND		400861	NA
Tetrachloroethylene	ETO15	NA	05/10/10	10	16	34	ND	ND		400861	NA
1,1,2-Trichloroethane	ETO15	NA	05/10/10	10	9.3	28	ND	ND		400861	NA
Dibromochloromethane	ETO15	NA	05/10/10	10	17	43	ND	ND		400861	NA
1,2-Dibromoethane (EDB)	ETO15	NA	05/10/10	10	20	77	ND	ND		400861	NA
2-Propanol (Isopropyl Alcohol)	ETO15	NA	05/10/10	50	49	500	12700	5,080.00	E	400861	NA
2-Hexanone	ETO15	NA	05/10/10	10	11	41	ND	ND		400861	NA
Ethyl Benzene	ETO15	NA	05/10/10	10	9.9	22	ND	ND		400861	NA
Chlorobenzene	ETO15	NA	05/10/10	10	7.1	23	ND	ND		400861	NA
1,1,1,2-Tetrachloroethane	ETO15	NA	05/10/10	10	10	35	ND	ND		400861	NA
m,p-Xylene	ETO15	NA	05/10/10	10	16	43	ND	ND		400861	NA
o-Xylene	ETO15	NA	05/10/10	10	8.1	22	ND	ND		400861	NA
Styrene	ETO15	NA	05/10/10	10	6.9	22	ND	ND		400861	NA
Bromoform	ETO15	NA	05/10/10	10	11	50	ND	ND		400861	NA
1,1,2,2-Tetrachloroethane	ETO15	NA	05/10/10	10	7.0	35	ND	ND		400861	NA
4-Ethyl Toluene	ETO15	NA	05/10/10	10	8.2	25	ND	ND		400861	NA
1,3,5-Trimethylbenzene	ETO15	NA	05/10/10	10	7.6	25	ND	ND		400861	NA
1,2,4-Trimethylbenzene	ETO15	NA	05/10/10	10	6.9	25	ND	ND		400861	NA
1,4-Dichlorobenzene	ETO15	NA	05/10/10	10	6.5	30	ND	ND		400861	NA
1,3-Dichlorobenzene	ETO15	NA	05/10/10	10	8.4	30	ND	ND		400861	NA
Benzyl Chloride	ETO15	NA	05/10/10	10	6.2	26	ND	ND		400861	NA
1,2-Dichlorobenzene	ETO15	NA	05/10/10	10	9.1	30	ND	ND		400861	NA
Hexachlorobutadiene	ETO15	NA	05/10/10	10	24	55	ND	ND		400861	NA
1,2,4-Trichlorobenzene	ETO15	NA	05/10/10	10	34	74	ND	ND		400861	NA
Naphthalene	ETO15	NA	05/10/10	10	15	52	ND	ND		400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	10	65	135	111 %			400861	NA
(S) 4-Bromofluorobenzene	ETO15	NA	05/10/10	50	65	135	97.7 %			400861	NA

Torrent LABORATORY, INC.

SAMPLE RESULTS

Report prepared for: Joyce Bobek
Soma Envirronmental

Date Received: 05/07/10
Date Reported: 05/14/10

Client Sample ID:	SV-11-2	**Lab Sample ID:**	1005051-005A
Project Name/Location:	3609 International Blvd.,Oakland,CA	**Sample Matrix:**	Ambient Air
Project Number:	2332		
Date/Time Sampled:	05/06/10 / 11:40	**Certified Clean WO # :**	
Canister/Tube ID:	470	**Received PSI :**	14.5
Collection Volume (L):		**Corrected PSI :**	
Tag Number:	3609 International Blvd.		

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL ug/m3	Results ug/m3	Results ppbv	Lab Qualifier	Analytical Batch	Prep Batch
TPH-Gasoline	ETO3	NA	05/10/10	50.0	8800	18000	32000	9,090.91	x	400883	NA

Parameters:	Analysis Method	Prep Date	Date Analyzed	DF	MDL ug/m3	PQL %	Results %	Results ppmv	Lab Qualifier	Analytical Batch	Prep Batch
Carbon Dioxide	D1946	NA	05/14/10	1.19	0.030	0.030	ND	ND		400885	NA
Oxygen	D1946	NA	05/14/10	1.19	0.0298	0.0298	17.1			400885	NA
Methane	D1946	NA	05/14/10	1.19	0.0006	0.0006	ND	ND		400885	NA

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	1005051	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	05/10/10	**Analytical Batch:**	400861
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.
Dichlorodifluoromethane	0.30	1.00	0.490
1,1-Difluoroethane	0.18	0.500	ND
1,2-Dichlorotetrafluoroethane	0.70	2.00	ND
Chloromethane	0.15	0.500	ND
Vinyl Chloride	0.26	1.00	ND
1,3-Butadiene	0.20	0.500	ND
Bromomethane	0.18	0.500	ND
Chloroethane	0.19	0.500	ND
Trichlorofluoromethane	0.32	1.00	ND
1,1-Dichloroethene	0.15	0.500	ND
Freon 113	0.11	0.500	ND
Carbon Disulfide	0.26	1.00	ND
2-Propanol (Isopropyl Alcohol)	0.39	4.00	ND
Methylene Chloride	0.17	0.500	ND
Acetone	0.37	4.00	ND
trans-1,2-Dichloroethene	0.16	0.500	ND
Hexane	0.15	0.500	ND
MTBE	0.24	0.500	ND
tert-Butanol	0.22	0.500	ND
Diisopropyl ether (DIPE)	0.21	0.500	ND
1,1-Dichloroethane	0.18	0.500	ND
ETBE	0.16	0.500	ND
cis-1,2-Dichloroethene	0.13	0.500	ND
Chloroform	0.25	1.00	ND
Vinyl Acetate	0.16	0.500	ND
Carbon Tetrachloride	0.14	0.500	ND
1,1,1-Trichloroethane	0.15	0.500	ND
2-Butanone (MEK)	0.21	0.500	ND
Ethyl Acetate	0.21	0.500	ND
Tetrahydrofuran	0.10	0.500	ND
Benzene	0.21	0.500	ND
TAME	0.086	0.500	ND
1,2-Dichloroethane (EDC)	0.24	0.500	ND
Trichloroethylene	0.26	1.00	ND
1,2-Dichloropropane	0.29	1.00	ND
Bromodichloromethane	0.13	0.500	ND
1,4-Dioxane	0.35	1.00	ND

Torrent LABORATORY, INC.

MB Summary Report

Work Order:	1005051	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	05/10/10	**Analytical Batch:**	400861
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.
trans-1,3-Dichloropropene	0.19	0.500	ND
Toluene	0.25	0.500	ND
4-Methyl-2-Pentanone (MIBK)	0.21	0.500	ND
cis-1,3-Dichloropropene	0.25	0.500	ND
Tetrachloroethylene	0.23	0.500	ND
1,1,2-Trichloroethane	0.17	0.500	ND
Dibromochloromethane	0.20	0.500	ND
1,2-Dibromoethane (EDB)	0.27	1.00	ND
2-Hexanone	0.27	1.00	ND
Ethyl Benzene	0.23	0.500	ND
Chlorobenzene	0.15	0.500	ND
1,1,1,2-Tetrachloroethane	0.15	0.500	ND
m,p-Xylene	0.38	1.00	ND
o-Xylene	0.19	0.500	ND
Styrene	0.16	0.500	ND
Bromoform	0.11	0.500	ND
1,1,2,2-Tetrachloroethane	0.10	0.500	ND
4-Ethyl Toluene	0.17	0.500	ND
1,3,5-Trimethylbenzene	0.15	0.500	ND
1,2,4-Trimethylbenzene	0.14	0.500	ND
1,4-Dichlorobenzene	0.11	0.500	ND
1,3-Dichlorobenzene	0.14	0.500	ND
Benzyl Chloride	0.12	0.500	ND
1,2-Dichlorobenzene	0.15	0.500	ND
Hexachlorobutadiene	0.22	0.500	ND
1,2,4-Trichlorobenzene	0.46	1.00	ND
Naphthalene	0.28	1.00	ND
(S) 4-Bromofluorobenzene			111 %

Work Order:	1005051	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO3	**Analyzed Date:**	05/10/10	**Analytical Batch:**	400883
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.
TPH-Gasoline	50	100	ND

MB Summary Report

Work Order:	1005051	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	D1946	**Analyzed Date:**	05/14/10	**Analytical Batch:**	400885
Units:	%						

Parameters	MDL	PQL	Method Blank Conc.
Carbon Dioxide	0.025	0.025	ND
Oxygen	0.025	0.025	ND
Methane	0.0005	0.0005	ND

Torrent LABORATORY, INC.

LCS/LCSD Summary Report

Raw values are used in quality control assessment.

Work Order:	1005051	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO15	**Analyzed Date:**	05/10/10	**Analytical Batch:**	400861
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
1,1-Dichloroethene	0.15	0.500		20		127	0.315	65 - 135	30	
Benzene	0.21	0.500		20		123	2.88	65 - 135	30	
Trichloroethylene	0.26	1.00		20		117	0.0426	65 - 135	30	
Toluene	0.25	0.500		20		115	0.948	65 - 135	30	
Chlorobenzene	0.15	0.500		20		103	1.68	65 - 135	30	
(S) 4-Bromofluorobenzene				20	100	110		65 - 135		

Work Order:	1005051	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	ETO3	**Analyzed Date:**	05/10/10	**Analytical Batch:**	400883
Units:	ppbv						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
TPH-Gasoline	50	100		500	99.0	100.4419	1.4576117 1544911	50 - 150	30	

Work Order:	1005051	**Prep Method:**	NA	**Prep Date:**	NA	**Prep Batch:**	NA
Matrix:	Air	**Analytical Method:**	D1946	**Analyzed Date:**	05/14/10	**Analytical Batch:**	400885
Units:	%						

Parameters	MDL	PQL	Method Blank Conc.	Spike Conc.	LCS % Recovery	LCSD % Recovery	LCS/LCSD % RPD	% Recovery Limits	% RPD Limits	Lab Qualifier
Carbon Dioxide	0.025	0.025		2500	98.768	98.9	0.150	65 - 135	30	
Oxygen	0.025	0.025		2500	84.916	86.2	1.54	65 - 135		
Methane	0.0005	0.0005		2500	97.96	99.2	1.25	65 - 135	30	

Laboratory Qualifiers and Definitions

DEFINITIONS:

Accuracy/Bias (% Recovery) - The closeness of agreement between an observed value and an accepted reference value.
Blank (Method/Preparation Blank) -MB/PB - An analyte-free matrix to which all reagents are added in the same volumes/proportions as used in sample processing. The method blank is used to document contamination resulting from the analytical process.
Duplicate - a field sample and/or laboratory QC sample prepared in duplicate following all of the same processes and procedures used on the original sample (sample duplicate, LCSD, MSD)
Laboratory Control Sample (LCS ad LCSD) - A known matrix spiked with compounds representative of the target analyte(s). This is used to document laboratory performance.
Matrix - the component or substrate that contains the analyte of interest (e.g., - groundwater, sediment, soil, waste water, etc)
Matrix Spike (MS/MSD) - Client sample spiked with identical concentrations of target analyte (s). The spiking occurs prior to the sample preparation and analysis. They are used to document the precision and bias of a method in a given sample matrix.
Method Detection Limit (MDL) - the minimum concentration of a substance that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero
Practical Quantitation Limit (PQL) - a laboratory determined value at 2 to 5 times above the MDL that can be reproduced in a manner that results in a 99% confidence level that the result is both accurate and precise. PQLs reflect all preparation factors and/or dilution factors that have been applied to the sample during the preparation and/or analytical processes.
Precision (%RPD) - The agreement among a set of replicate/duplicate measurements without regard to known value of the replicates
Surrogate (S) or (Surr) - An organic compound which is similar to the target analyte(s) in chemical composition and behavior in the analytical process, but which is not normally found in environmental samples. Surrogates are used in most organic analysis to demonstrate matrix compatibility with the chosen method of analysis
Tentatively Identified Compound (TIC) - A compound not contained within the analytical calibration standards but present in the GCMS library of defined compounds. When the library is searched for an unknown compound, it can frequently give a tentative identification to the compound based on retention time and primary and secondary ion match. TICs are reported as estimates and are candidates for further investigation.
Units: the unit of measure used to express the reported result - **mg/L** and ***mg/Kg*** (equivalent to PPM - parts per million in **liquid** and ***solid***), **ug/L** and ***ug/Kg*** (equivalent to PPB - parts per billion in **liquid** and ***solid***), **ug/m3**, ***mg.m3***, **ppbv** and ***ppmv*** (all units of measure for reporting concentrations in air), **%** (equivalent to 10000 ppm or 1,000,000 ppb), **ug/Wipe** (concentration found on the surface of a single Wipe usually taken over a 100cm2 surface)

LABORATORY QUALIFIERS:

B - Indicates when the anlayte is found in the associated method or preparation blank
D - Surrogate is not recoverable due to the necessary dilution of the sample
E - Indicates the reportable value is outside of the calibration range of the instrument but within the linear range of the instrument (unless otherwise noted) Values reported with an E qualifier should be considered as estimated.
H- Indicates that the recommended holding time for the analyte or compound has been exceeded
J- Indicates a value between the method MDL and PQL and that the reported concentration should be considered as estimated rather the quantitative
NA - Not Analyzed
N/A - Not Applicable
NR - Not recoverable - a matrix spike concentration is not recoverable due to a concentration within the original sample that is greater than four times the spike concentration added
R- The % RPD between a duplicate set of samples is outside of the absolute values established by laboratory control charts
S- Spike recovery is outside of established method and/or laboratory control limits. Further explanation of the use of this qualifier should be included within a case narrative
X -Used to indicate that a value based on pattern identification is within the pattern range but not typical of the pattern found in standards. Further explanation may or may not be provided within the sample footnote and/or the case narrative.

Sample Receipt Checklist

Client Name: Soma Envirronmental

Project Name: 3609 International Blvd.,Oakland,CA

Work Order No.: 1005051

Date and Time Received: 5/7/2010 16:45

Received By: pankaj

Physically Logged By:

Checklist Completed By: lorna

Carrier Name: Gold Bullet Courier

Chain of Custody (COC) Information

Chain of custody present?	Yes
Chain of custody signed when relinquished and received?	Yes
Chain of custody agrees with sample labels?	Yes
Custody seals intact on sample bottles?	Not Present

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Not Present
Shipping Container/Cooler In Good Condition?	Yes
Samples in proper container/bottle?	Yes
Samples containers intact?	Yes
Sufficient sample volume for indicated test?	Yes

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes
Container/Temp Blank temperature in compliance?	Temperature: °C
Water-VOA vials have zero headspace?	No VOA vials submitted
Water-pH acceptable upon receipt?	
pH Checked by:	pH Adjusted by:

Login Summary Report

Client ID: TL5237 Soma Envirronmental

Project Name: 3609 International Blvd.,Oakland,CA

Project # : 2332

Report Due Date: 5/14/2010

QC Level:

TAT Requested: 5+ day:0

Date Received: 5/7/2010

Time Received: 16:45

Comments: 5 day TAT!!! Recv'd 5 samples for TO-3;TO-15 and ASTM-1946 (CO2;O2 and Methane.Pls. email to jbobek@somaenv.com.

Work Order # : ***1005051***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
1005051-001A	SV-8	05/06/10 10:28	Air				EDF A_TO-3GRO A_YD-1946FG A_TO-15Full-A A_TO-15Full-B	
Sample Note:	Include 2-propanol;ASTM-1946; include CO2 ; O2 and Methane for all samples.							
1005051-001A1.30x	SV-8	05/06/10 10:28	Air				A_YD-1946FG	
1005051-002A	SV-9	05/06/10 10:04	Air				A_TO-3GRO A_TO-15Full-A A_TO-15Full-B A_YD-1946FG	
1005051-002A1.25x	SV-9	05/06/10 10:04	Air				A_YD-1946FG	
1005051-003A	SV-10	05/06/10 11:06	Air				A_TO-3GRO A_TO-15Full-B A_TO-15Full-A A_YD-1946FG	
1005051-003A1.22x	SV-10	05/06/10 11:06	Air				A_YD-1946FG	
1005051-004A	SV-11-1	05/06/10 10:52	Air				A_TO-3GRO A_YD-1946FG A_TO-15Full-B A_TO-15Full-A	
1005051-004A1.26x	SV-11-1	05/06/10 10:52	Air				A_YD-1946FG	
1005051-005A	SV-11-2	05/06/10 11:40	Air				A_TO-3GRO	

Login Summary Report

Client ID:	TL5237	Soma Envirronmental	**QC Level:**	
Project Name:	3609 International Blvd.,Oakland,CA		**TAT Requested:**	5+ day:0
Project # :	2332		**Date Received:**	5/7/2010
Report Due Date:	5/14/2010		**Time Received:**	16:45

Comments: 5 day TAT!!! Recv'd 5 samples for TO-3;TO-15 and ASTM-1946 (CO2;O2 and Methane.Pls. email to jbobek@somaenv.com.

Work Order # : ***1005051***

WO Sample ID	Client Sample ID	Collection Date/Time	Matrix	Scheduled Disposal	Sample On Hold	Test On Hold	Requested Tests	Subbed
							A_TO-15Full-B A_TO-15Full-A A_YD-1946FG	
1005051-005A1.1 9x	SV-11-2	05/06/10 11:40	Air				A_YD-1946FG	

Torrent LABORATORY, INC.

Torrent LABORATORY, INC.
483 Sinclair Frontage Road
Milpitas, CA 95035
Phone: 408.263.5258
FAX: 408.263.8293
www.torrentlab.com

RESET

CHAIN OF CUSTODY

NOTE: SHADED AREAS ARE FOR TORRENT LAB USE ONLY

LAB WORK ORDER NO: 1005051

Company Name: SOMA Environmental Engineering, Inc.	Location of Sampling: 3609 International Blvd, Oakland, CA
Address: 6620 Owens Drive, Suite A	Purpose: Soil Vapor Sampling
City: Pleasanton State: CA Zip Code: 94588	Special Instructions / Comments: Include 2-propanol, Atm1946 to include CO2, O2, and
Telephone: 925-734-6400 FAX: 925-734-6401	Methane
REPORT TO: Joyce Bobek SAMPLER: Lizzie Hightower	P.O. #: 2332 EMAIL: jbobek@somaenv.com

TURNAROUND TIME:
- ☐ 10 Work Days ☐ 3 Work Days ☐ Noon - Nxt Day
- ☐ 7 Work Days ☐ 2 Work Days ☐ 2 - 8 Hours
- ☑ 5 Work Days ☐ 1 Work Day ☐ Other

SAMPLE TYPE:
- ☐ Storm Water ☑ Air
- ☐ Waste Water ☐ Other
- ☐ Ground Water
- ☐ Soil

REPORT FORMAT:
- ☐ QC Level IV
- ☐ EDF
- ☐ Excel / EDD

ANALYSIS REQUESTED

LAB ID	CLIENT'S SAMPLE I.D.	DATE / TIME SAMPLED	MATRIX	# OF CONT	CONT TYPE	TO-15	TO-3	Atm1946						REMARKS
001A	SV-8	5/6/2010 10:28		1	Canister	✓	✓	✓						
002A	SV-9	5/6/2010 10:04		1	Canister	✓	✓	✓						
003A	SV-10	5/6/2010 11:06		1	Canister	✓	✓	✓						
004A	SV-11-1	5/6/2010 10:52		1	Canister	✓	✓	✓						
005A	SV-11-2	5/6/2010 11:40		1	Canister	✓	✓	✓						

Relinquished By:	Print:	Date:	Time:	Received By:	Print:	Date:	Time:
1 E. Hightower	E. Hightower	5/7/10	08:24	Erica Fisker	Erica Fisker	5/7/10	8:24
2 Erica Fisker	Erica Fisker	5/7/10	14:20	[redacted]	SHAH	5/7/10	2:24

Were Samples Received in Good Condition? ☑ Yes ☐ NO Samples on Ice? ☐ Yes ☑ NO Method of Shipment Gold Bullet Sample seals intact? ☐ Yes ☐ NO ☑ N/A

NOTE: Samples are discarded by the laboratory 30 days from date of receipt unless other arrange -ments are made.

Page ____ of ____

Log In By: [redacted] Date: [redacted] Log In Reviewed By: [redacted] Date: [redacted]

SHAH 5/7/10 4:45 PANKAJ 5/7/10 16:45

APPENDIX G

Photographic Documentation

Plate 1. View of the Adjacent Apartment Complex South of the Site

Plate 2. View of the Property Boundary with the Adjacent Apartment Complex South of the Site

Plate 3. View of the Property Boundary with the Adjacent Apartment Complex South of the Site

Plate 4. View of the Property Boundary with the Adjacent Apartment Complex South of the Site

Plate 5. View of the Walkway, SV-10 is Located on the Other Side of the Fence

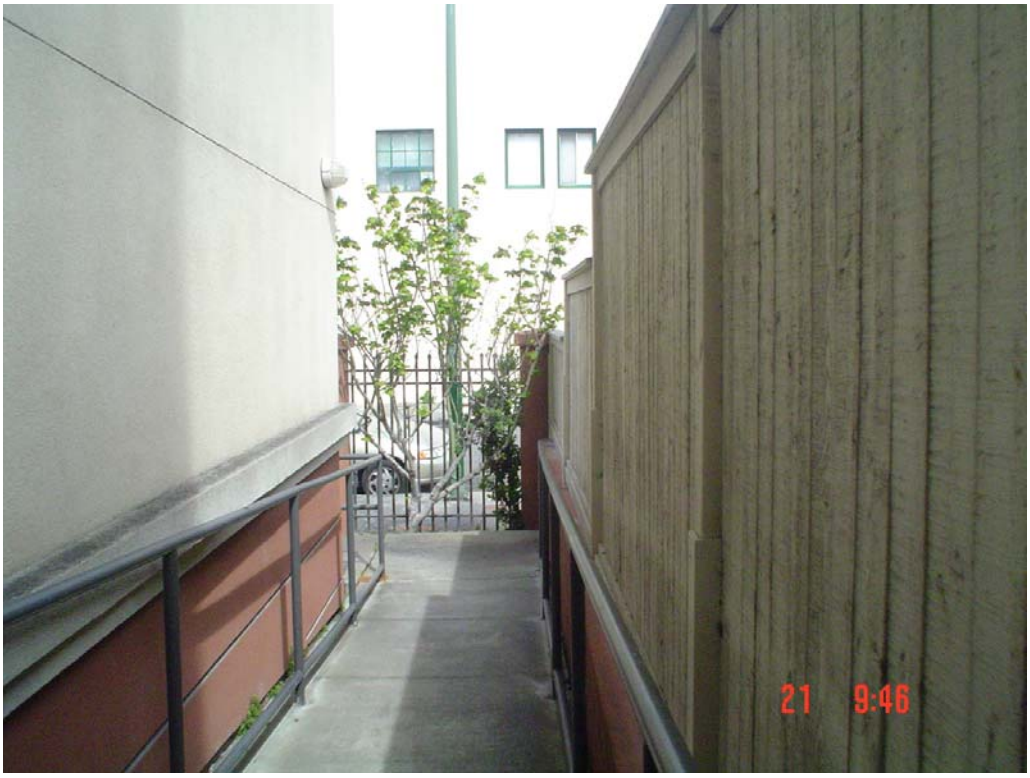


Plate 6. View of the Walkway, SV-10 is Located on the Other Side of the Fence

Plate 7. View of Walkway, SV-10 Located on the Other Site of this Fence (Station if Visible above Fencing

Plate 8. View of Parking Garage on the Eastern Side of the Property

Plate 9. Inside of Parking Garage on the Eastern Side of the Property, Exit onto 37th Avenue

Plate 10. View of Parking Garage on the Eastern Side of the Property

Plate 11. View of Parking Garage on the Eastern Side of the Property

Plate 12. Inside the Apartment Complex, View of the Stair Access Adjacent to the Northern Property Boundary

APPENDIX H

Human Health Risk Evaluation Relevant Documentation

Table

SUMMARY, J&E Model Evaluation of Potential Indoor Air Impacts (5' bgs)
Soil Gas Screening Model
Oakland, CA

Chemical of Concern	Sample Depth (feet/cm)	Maximum Soil Gas Conc.* (ug/m^3)	Maximum Indoor Air Conc. (ug/m^3)	Incremental Cancer Risk from Vapor Intrusion to Indoor Air	Noncancer Hazard Quotient From Vapor (HI) Intrusion to Indoor Air
TPH-g	5/152.4	60,000	**8.0609**	NA	0.0110
Totals-Risk and Hazard				**0.00E+00**	**0.0110**

DATA ENTRY SHEET

SG-SCREEN
?A Version 2.0; 04/

Reset to Defaults

DTSC

Vapor Intrusion Guidance
Interim Final 12/04
(last modified 2/4/09)

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
86290815	6.00E+04			TPH-g

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)
60	152.4	10	SIC		

Depth to bottom of enclosed space floor must be = 15 or 200 cm.

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)
SIC	1.38	0.35	0.25	5

MORE ↓

ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)
70	30	30	350

END

CHEMICAL PROPERTIES SHEET

Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (^oC)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Normal boiling point, T_B (^oK)	Critical temperature, T_C (^oK)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)
1.00E-01	1.00E-05	8.00E-01	25	7,000	369.00	508.00	0.0E+00	7.0E-01	108.00

END

INTERMEDIATE CALCULATIONS SHEET

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)
92.4	0.100	0.582	1.48E-09	0.612	9.07E-10	4,000	6.00E+04	5.08E+04

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)
1.80E+06	5.00E-03	60	8,526	3.73E-01	1.61E+01	1.75E-04	3.82E-04	92.4

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., $C_{building}$ ($\mu g/m^3$)
60	6.00E+04	2.25	8.33E+01	3.82E-04	9.00E+03	2.01E+105	1.34E-04	8.06E+00

Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)
NA	7.0E-01

END

RESULTS SHEET

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	1.1E-02

MESSAGE SUMMARY BELOW:

END

VLOOKUP TABLES

Soil Properties Lookup Table							Bulk Density		
SCS Soil Type	K_s (cm/h)	α_1 (1/cm)	N (unitless)	M (unitless)	n (cm^3/cm^3)	θ_r (cm^3/cm^3)	Mean Grain Diameter (cm)	(g/cm^3)	θ_w (cm^3/cm^3)	SCS Soil Name
C	0.61	0.01496	1.253	0.2019	0.459	0.098	0.0092	1.43	0.215	Clay
CL	0.34	0.01581	1.416	0.2938	0.442	0.079	0.016	1.48	0.168	Clay Loam
L	0.50	0.01112	1.472	0.3207	0.399	0.061	0.020	1.59	0.148	Loam
LS	4.38	0.03475	1.746	0.4273	0.390	0.049	0.040	1.62	0.076	Loamy Sand
S	26.78	0.03524	3.177	0.6852	0.375	0.053	0.044	1.66	0.054	Sand
SC	0.47	0.03342	1.208	0.1722	0.385	0.117	0.025	1.63	0.197	Sandy Clay
SCL	0.55	0.02109	1.330	0.2481	0.384	0.063	0.029	1.63	0.146	Sandy Clay Loam
SI	1.82	0.00658	1.679	0.4044	0.489	0.050	0.0046	1.35	0.167	Silt
SIC	0.40	0.01622	1.321	0.2430	0.481	0.111	0.0039	1.38	0.216	Silty Clay
SICL	0.46	0.00839	1.521	0.3425	0.482	0.090	0.0056	1.37	0.198	Silty Clay Loam
SIL	0.76	0.00506	1.663	0.3987	0.439	0.065	0.011	1.49	0.180	Silt Loam
SL	1.60	0.02667	1.449	0.3099	0.387	0.039	0.030	1.62	0.103	Sandy Loam

Chemical Properties Lookup Table — CalEPA Toxicity Criteria in bold (last updated 2/4/09 DTSC/HERD) — Original EPA Values

CAS No.	Chemical	Organic carbon partition coefficient, K_{oc} (cm^3/g)	Diffusivity in air, D_a (cm^2/s)	Diffusivity in water, D_w (cm^2/s)	Pure component water solubility, S (mg/L)	Henry's law constant H' (unitless)	Henry's law constant at reference temperature, H (atm-m^3/mol)	Henry's law constant reference temperature, T_R (°C)	Normal boiling point, T_B (°K)	Critical temperature, T_C (°K)	Enthalpy of vaporization at the normal boiling point, $\Delta H_{v,b}$ (cal/mol)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	Molecular weight, MW (g/mol)	URF extrapolated (X)	RfC extrapolated (X)	Unit risk factor, URF ($\mu g/m^3)^{-1}$	Reference conc., RfC (mg/m^3)	URF extrapolated (X)	RfC extrapolated (X)
56235	Carbon tetrachloride	1.74E+02	7.80E-02	8.80E-06	7.93E+02	1.24E+00	3.03E-02	25	349.90	556.60	7,127	**4.2E-05**	**4.0E-02**	1.54E+02			1.5E-05	0.0E+00		
57749	Chlordane	1.20E+05	1.18E-02	4.37E-06	5.60E-02	1.99E-03	4.85E-05	25	624.24	885.73	14,000	**3.4E-04**	7.0E-04	4.10E+02			1.0E-04	7.0E-04		
58899	gamma-HCH (Lindane)	1.07E+03	1.42E-02	7.34E-06	7.30E+00	5.73E-04	1.40E-05	25	596.55	839.36	15,000	**3.1E-04**	1.1E-03	2.91E+02	?	X	3.7E-04	1.1E-03	X	X
60297	Ethyl ether	5.73E+00	7.82E-02	8.61E-06	5.68E+04	1.35E+00	3.29E-02	25	307.50	466.74	6,338	0.0E+00	7.0E-01	7.41E+01		X	0.0E+00	7.0E-01		X
60571	Dieldrin	2.14E+04	1.25E-02	4.74E-06	1.95E-01	6.18E-04	1.51E-05	25	613.32	842.25	17,000	**4.6E-03**	1.8E-04	3.81E+02		X	4.6E-03	1.8E-04		X
67641	Acetone	5.75E-01	1.24E-01	1.14E-05	1.00E+06	1.59E-03	3.87E-05	25	329.20	508.10	6,955	0.0E+00	**3.1E+01**	5.81E+01		X	0.0E+00	3.5E-01		X
67663	Chloroform	3.98E+01	1.04E-01	1.00E-05	7.92E+03	1.50E-01	3.66E-03	25	334.32	536.40	6,988	**5.3E-06**	**3.0E-01**	1.19E+02			2.3E-05	0.0E+00		
67721	Hexachloroethane	1.78E+03	2.50E-03	6.80E-06	5.00E+01	1.59E-01	3.88E-03	25	458.00	695.00	9,510	**1.1E-05**	3.5E-03	2.37E+02		X	4.0E-06	3.5E-03		X
71432	Benzene	5.89E+01	8.80E-02	9.80E-06	1.79E+03	2.27E-01	5.54E-03	25	353.24	562.16	7,342	**2.9E-05**	3.0E-02	7.81E+01			7.8E-06	0.0E+00		
71556	1,1,1-Trichloroethane	1.10E+02	7.80E-02	8.80E-06	1.33E+03	7.03E-01	1.72E-02	25	347.24	545.00	7,136	0.0E+00	**5.0E+00**	1.33E+02			0.0E+00	2.2E+00		
72435	Methoxychlor	9.77E+04	1.56E-02	4.46E-06	1.00E-01	6.46E-04	1.58E-05	25	651.02	848.49	16,000	0.0E+00	1.8E-02	3.46E+02		X	0.0E+00	1.8E-02		X
72559	DDE	4.47E+06	1.44E-02	5.87E-06	1.20E-01	8.59E-04	2.09E-05	25	636.44	860.38	15,000	**9.7E-05**	0.0E+00	3.18E+02	?		9.7E-05	0.0E+00	X	
74839	Methyl bromide	1.05E+01	7.28E-02	1.21E-05	1.52E+04	2.55E-01	6.22E-03	25	276.71	467.00	5,714	0.0E+00	**5.0E-03**	9.49E+01			0.0E+00	5.0E-03		
74873	Methyl chloride (chloromethane)	2.12E+00	1.26E-01	6.50E-06	5.33E+03	3.61E-01	8.80E-03	25	249.00	416.25	5,115	**1.8E-06**	9.0E-02	5.05E+01			1.0E-06	9.0E-02		
74908	Hydrogen cyanide	3.80E+00	1.93E-01	2.10E-05	1.00E+06	5.44E-03	1.33E-04	25	299.00	456.70	6,676	0.0E+00	3.0E-03	2.70E+01			0.0E+00	3.0E-03		
74953	Methylene bromide	1.26E+01	4.30E-02	8.44E-06	1.19E+04	3.52E-02	8.59E-04	25	370.00	583.00	7,868	0.0E+00	3.5E-02	1.74E+02		X	0.0E+00	3.5E-02		X
75003	Chloroethane (ethyl chloride)	4.40E+00	2.71E-01	1.15E-05	5.68E+03	3.61E-01	8.80E-03	25	285.30	460.40	5,879	8.3E-07	1.0E+01	6.45E+01	?		8.3E-07	1.0E+01	X	
75014	Vinyl chloride (chloroethene)	1.86E+01	1.06E-01	1.23E-05	8.80E+03	1.10E+00	2.69E-02	25	259.25	432.00	5,250	**7.8E-05**	1.0E-01	6.25E+01			8.8E-06	1.0E-01		
75058	Acetonitrile	4.20E+00	1.28E-01	1.66E-05	1.00E+06	1.42E-03	3.45E-05	25	354.60	545.50	7,110	0.0E+00	6.0E-02	4.11E+01			0.0E+00	6.0E-02		
75070	Acetaldehyde	1.06E+00	1.24E-01	1.41E-05	1.00E+06	3.23E-03	7.87E-05	25	293.10	466.00	6,157	**2.7E-06**	**9.0E-03**	4.41E+01			2.2E-06	9.0E-03		
75092	Methylene chloride	1.17E+01	1.01E-01	1.17E-05	1.30E+04	8.96E-02	2.18E-03	25	313.00	510.00	6,706	**1.0E-06**	**4.0E-01**	8.49E+01			4.7E-07	3.0E+00		
75150	Carbon disulfide	4.57E+01	1.04E-01	1.00E-05	1.19E+03	1.24E+00	3.02E-02	25	319.00	552.00	6,391	0.0E+00	7.0E-01	7.61E+01			0.0E+00	7.0E-01		
75218	Ethylene oxide	1.33E+00	1.04E-01	1.45E-05	3.04E+05	2.27E-02	5.54E-04	25	283.60	469.00	6,104	**8.8E-05**	**3.0E-02**	4.41E+01		?	1.0E-04	0.0E+00		
75252	Bromoform	8.71E+01	1.49E-02	1.03E-05	3.10E+03	2.41E-02	5.88E-04	25	422.35	696.00	9,479	1.1E-06	7.0E-02	2.53E+02		X	1.1E-06	7.0E-02		X
75274	Bromodichloromethane	5.50E+01	2.98E-02	1.06E-05	6.74E+03	6.54E-02	1.60E-03	25	363.15	585.85	7,800	**3.7E-05**	7.0E-02	1.64E+02	?	X	1.8E-05	7.0E-02	X	X
75296	2-Chloropropane	9.14E+00	8.88E-02	1.01E-05	3.73E+03	5.93E-01	1.45E-02	25	308.70	485.00	6,286	0.0E+00	1.0E-01	7.85E+01		?	0.0E+00	1.0E-01		
75343	1,1-Dichloroethane	3.16E+01	7.42E-02	1.05E-05	5.06E+03	2.30E-01	5.61E-03	25	330.55	523.00	6,895	**1.6E-06**	**7.0E-01**	9.90E+01		X	0.0E+00	5.0E-01		
75354	1,1-Dichloroethylene	5.89E+01	9.00E-02	1.04E-05	2.25E+03	1.07E+00	2.60E-02	25	304.75	576.05	6,247	0.0E+00	**7.0E-02**	9.69E+01			0.0E+00	2.0E-01		
75456	Chlorodifluoromethane	4.79E+01	1.01E-01	1.28E-05	2.00E+00	1.10E+00	2.70E-02	25	232.40	369.30	4,836	0.0E+00	5.0E+01	8.65E+01			0.0E+00	5.0E+01		
75694	Trichlorofluoromethane	4.97E+02	8.70E-02	9.70E-06	1.10E+03	3.97E+00	9.68E-02	25	296.70	471.00	5,999	0.0E+00	7.0E-01	1.37E+02			0.0E+00	7.0E-01		
75718	Dichlorodifluoromethane	4.57E+02	6.65E-02	9.92E-06	2.80E+02	1.40E+01	3.42E-01	25	243.20	384.95	9,421	0.0E+00	2.0E-01	1.21E+02			0.0E+00	2.0E-01		
76131	1,1,2-Trichloro-1,2,2-trifluoroethar	1.11E+04	7.80E-02	8.20E-06	1.70E+02	1.97E+01	4.80E-01	25	320.70	487.30	6,463	0.0E+00	3.0E+01	1.87E+02			0.0E+00	3.0E+01		
76448	Heptachlor	1.41E+06	1.12E-02	5.69E-06	1.80E-01	6.05E+01	1.48E+00	25	603.69	846.31	13,000	**1.2E-03**	1.8E-03	3.73E+02		X	1.3E-03	1.8E-03		X
77474	Hexachlorocyclopentadiene	2.00E+05	1.61E-02	7.21E-06	1.80E+00	1.10E+00	2.69E-02	25	512.15	746.00	10,931	0.0E+00	2.0E-04	2.73E+02			0.0E+00	2.0E-04		
78831	Isobutanol	2.59E+00	8.60E-02	9.30E-06	8.50E+04	4.83E-04	1.18E-05	25	381.04	547.78	10,936	0.0E+00	1.1E+00	7.41E+01		X	0.0E+00	1.1E+00		X
78875	1,2-Dichloropropane	4.37E+01	7.82E-02	8.73E-06	2.80E+03	1.15E-01	2.79E-03	25	369.52	572.00	7,590	**1.0E-05**	4.0E-03	1.13E+02	?		1.9E-05	4.0E-03	X	
78933	Methylethylketone (2-butanone)	2.30E+00	8.08E-02	9.80E-06	2.23E+05	2.29E-03	5.58E-05	25	352.50	536.78	7,481	0.0E+00	5.0E+00	7.21E+01			0.0E+00	1.0E+00		
79005	1,1,2-Trichloroethane	5.01E+01	7.80E-02	8.80E-06	4.42E+03	3.73E-02	9.11E-04	25	386.15	602.00	8,322	**1.6E-05**	1.4E-02	1.33E+02		X	1.6E-05	1.4E-02		X
79016	Trichloroethylene	1.66E+02	7.90E-02	9.10E-06	1.47E+03	4.21E-01	1.03E-02	25	360.36	544.20	7,505	**2.0E-06**	**6.0E-01**	1.31E+02	?		1.1E-04	4.0E-02	X	
79209	Methyl acetate	3.26E+00	1.04E-01	1.00E-05	2.00E+03	4.84E-03	1.18E-04	25	329.80	506.70	7,260	0.0E+00	3.5E+00	7.41E+01		X	0.0E+00	3.5E+00		X
79345	1,1,2,2-Tetrachloroethane	9.33E+01	7.10E-02	7.90E-06	2.96E+03	1.41E-02	3.44E-04	25	419.60	661.15	8,996	**5.8E-05**	**1.4E-02**	1.68E+02		X	5.8E-05	2.1E-01		X
79469	2-Nitropropane	1.17E+01	9.23E-02	1.01E-05	1.70E+04	5.03E-03	1.23E-04	25	393.20	594.00	8,383	2.7E-03	2.0E-02	8.91E+01			2.7E-03	2.0E-02		
80626	Methylmethacrylate	6.98E+00	7.70E-02	8.60E-06	1.50E+04	1.38E-02	3.36E-04	25	373.50	567.00	8,975	0.0E+00	7.0E-01	1.00E+02			0.0E+00	7.0E-01		
83329	Acenaphthene	7.08E+03	4.21E-02	7.69E-06	3.57E+00	6.34E-03	1.55E-04	25	550.54	803.15	12,155	0.0E+00	2.1E-01	1.54E+02		X	0.0E+00	2.1E-01		X
86737	Fluorene	1.38E+04	3.63E-02	7.88E-06	1.98E+00	2.60E-03	6.34E-05	25	570.44	870.00	12,666	0.0E+00	1.4E-01	1.66E+02		X	0.0E+00	1.4E-01		X
87683	Hexachloro-1,3-butadiene	5.37E+04	5.61E-02	6.16E-06	3.20E+00	3.33E-01	8.13E-03	25	486.15	738.00	10,206	2.2E-05	**3.5E-03**	2.61E+02		X	2.2E-05	7.0E-04		X
88722	o-Nitrotoluene	3.24E+02	5.87E-02	8.67E-06	6.50E+02	5.11E-04	1.25E-05	25	495.00	720.00	12,239	0.0E+00	**3.2E-03**	1.37E+02		X	0.0E+00	3.5E-02		X
91203	Naphthalene	2.00E+03	5.90E-02	7.50E-06	3.10E+01	1.98E-02	4.82E-04	25	491.14	748.40	10,373	**3.4E-05**	3.0E-03	1.28E+02			0.0E+00	3.0E-03		
91576	2-Methylnaphthalene	2.81E+03	5.22E-02	7.75E-06	2.46E+01	2.12E-02	5.17E-04	25	514.26	761.00	12,600	0.0E+00	**1.4E-02**	1.42E+02		X	0.0E+00	7.0E-02		X
92524	Biphenyl	4.38E+03	4.04E-02	8.15E-06	7.45E+00	1.23E-02	2.99E-04	25	529.10	789.00	10,890	0.0E+00	1.8E-01	1.54E+02		X	0.0E+00	1.8E-01		X
95476	o-Xylene	3.63E+02	8.70E-02	1.00E-05	1.78E+02	2.12E-01	5.18E-03	25	417.60	630.30	8,661	0.0E+00	1.0E-01	1.06E+02			0.0E+00	1.0E-01		
95501	1,2-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	1.56E+02	7.77E-02	1.90E-03	25	453.57	705.00	9,700	0.0E+00	2.0E-01	1.47E+02			0.0E+00	2.0E-01		
95578	2-Chlorophenol	3.88E+02	5.01E-02	9.46E-06	2.20E+04	1.60E-02	3.90E-04	25	447.53	675.00	9,572	0.0E+00	1.8E-02	1.29E+02		X	0.0E+00	1.8E-02		X
95636	1,2,4-Trimethylbenzene	1.35E+03	6.06E-02	7.92E-06	5.70E+01	2.52E-01	6.14E-03	25	442.30	649.17	9,369	0.0E+00	**7.0E-03**	1.20E+02			0.0E+00	6.0E-03		
96184	1,2,3-Trichloropropane	2.20E+01	7.10E-02	7.90E-06	1.75E+03	1.67E-02	4.08E-04	25	430.00	652.00	9,171	**2.0E-03**	**2.1E-02**	1.47E+02	X	X	5.7E-04	4.9E-03	X	
96333	Methyl acrylate	4.53E+00	9.76E-02	1.02E-05	6.00E+04	7.68E-03	1.87E-04	25	353.70	536.00	7,749	0.0E+00	1.1E-01	8.61E+01		X	0.0E+00	1.1E-01		X
97632	Ethylmethacrylate	2.95E+01	6.53E-02	8.37E-06	3.67E+03	3.44E-02	8.40E-04	25	390.00	571.00	10,957	0.0E+00	3.2E-01	1.14E+02		X	0.0E+00	3.2E-01		X
98066	tert-Butylbenzene	7.71E+02	5.65E-02	8.02E-06	2.95E+01	4.87E-01	1.19E-02	25	442.10	1220.00	8,980	0.0E+00	1.4E-01	1.34E+02		X	0.0E+00	1.4E-01		X
98828	Cumene	4.89E+02	6.50E-02	7.10E-06	6.13E+01	4.74E+01	1.16E+00	25	425.56	631.10	10,335	0.0E+00	4.0E-01	1.20E+02			0.0E+00	4.0E-01		
98862	Acetophenone	5.77E+01	6.00E-02	8.73E-06	6.13E+03	4.38E-04	1.07E-05	25	475.00	709.50	11,732	0.0E+00	3.5E-01	1.20E+02		X	0.0E+00	3.5E-01		X
98953	Nitrobenzene	6.46E+01	7.60E-02	8.60E-06	2.09E+03	9.82E-04	2.39E-05	25	483.95	719.00	10,566	0.0E+00	2.0E-03	1.23E+02			0.0E+00	2.0E-03		
100414	Ethylbenzene	3.63E+02	7.50E-02	7.80E-06	1.69E+02	3.22E-01	7.86E-03	25	409.34	617.20	8,501	**2.5E-06**	1.0E+00	1.06E+02			0.0E+00	1.0E+00		
100425	Styrene	7.76E+02	7.10E-02	8.00E-06	3.10E+02	1.12E-01	2.74E-03	25	418.31	636.00	8,737	0.0E+00	**9.0E-01**	1.04E+02			0.0E+00	1.0E+00		
100447	Benzylchloride	6.14E+01	7.50E-02	7.80E-06	5.25E+02	1.70E-02	4.14E-04	25	452.00	685.00	8,773	**4.9E-05**	**1.0E-03**	1.27E+02	?		4.9E-05	0.0E+00	X	
100527	Benzaldehyde	4.59E+01	7.21E-02	9.07E-06	3.30E+03	9.73E-04	2.37E-05	25	452.00	695.00	11,658	0.0E+00	3.5E-01	1.06E+02		X	0.0E+00	3.5E-01		X
103651	n-Propylbenzene	5.62E+02	6.01E-02	7.83E-06	6.00E+01	4.37E-01	1.07E-02	25	432.20	630.00	9,123	0.0E+00	1.4E-01	1.20E+02		X	0.0E+00	1.4E-01		X
104518	n-Butylbenzene	1.11E+03	5.70E-02	8.12E-06	2.00E+00	5.38E-01	1.31E-02	25	456.46	660.50	9,290	0.0E+00	1.4E-01	1.34E+02		X	0.0E+00	1.4E-01		X
106423	p-Xylene	3.89E+02	7.69E-02	8.44E-06	1.85E+02	3.13E-01	7.64E-03	25	411.52	616.20	8,525	0.0E+00	1.0E-01	1.06E+02		?	0.0E+00	1.0E-01		
106467	1,4-Dichlorobenzene	6.17E+02	6.90E-02	7.90E-06	7.90E+01	9.82E-02	2.39E-03	25	447.21	684.75	9,271	**1.1E-05**	**8.0E-01**	1.47E+02			0.0E+00	8.0E-01		

VLOOKUP TABLES

106934	1,2-Dibromoethane (ethylene dibr	2.50E+01	2.17E-02	1.19E-05	4.18E+03	3.04E-02	7.41E-04	25	404.60	583.00	8,310	**7.1E-05**	**8.0E-04**	1.88E+02			6.0E-04	9.0E-03		
106990	1,3-Butadiene	1.91E+01	2.49E-01	1.08E-05	7.35E+02	3.01E+00	7.34E-02	25	268.60	425.00	5,370	**1.7E-04**	2.0E-03	5.41E+01			3.0E-05	0.0E+00		
107028	Acrolein	2.76E+00	1.05E-01	1.22E-05	2.13E+05	4.99E-03	1.22E-04	25	325.60	506.00	6,731	0.0E+00	2.0E-05	5.61E+01			0.0E+00	2.0E-05		
107062	1,2-Dichloroethane	1.74E+01	1.04E-01	9.90E-06	8.52E+03	4.00E-02	9.77E-04	25	356.65	561.00	7,643	**2.1E-05**	**4.0E-01**	9.90E+01			2.6E-05	0.0E+00		
107131	Acrylonitrile	5.90E+00	1.22E-01	1.34E-05	7.40E+04	4.21E-03	1.03E-04	25	350.30	519.00	7,786	**2.9E-04**	2.0E-03	5.31E+01			6.8E-05	2.0E-03		
108054	Vinyl acetate	5.25E+00	8.50E-02	9.20E-06	2.00E+04	2.09E-02	5.10E-04	25	345.65	519.13	7,800	0.0E+00	**2.0E-01**	8.61E+01			0.0E+00	2.0E-01		
108101	Methylisobutylketone (4-methyl-2-	9.06E+00	7.50E-02	7.80E-06	1.90E+04	5.64E-03	1.38E-04	25	389.50	571.00	8,243	0.0E+00	**3.0E+00**	1.00E+02			0.0E+00	8.0E-02		
108383	m-Xylene	4.07E+02	7.00E-02	7.80E-06	1.61E+02	3.00E-01	7.32E-03	25	412.27	617.05	8,523	0.0E+00	1.0E-01	1.06E+02		?	0.0E+00	1.0E-01		
108678	1,3,5-Trimethylbenzene	1.35E+03	6.02E-02	8.67E-06	2.00E+00	2.41E-01	5.87E-03	25	437.89	637.25	9,321	0.0E+00	6.0E-03	1.20E+02			0.0E+00	6.0E-03		
108872	Methylcyclohexane	7.85E+01	7.35E-02	8.52E-06	1.40E+01	4.22E+00	1.03E-01	25	373.90	572.20	7,474	0.0E+00	3.0E+00	9.82E+01		?	0.0E+00	3.0E+00		
108883	Toluene	1.82E+02	8.70E-02	8.60E-06	5.26E+02	2.72E-01	6.62E-03	25	383.78	591.79	7,930	0.0E+00	**3.0E-01**	9.21E+01			0.0E+00	4.0E-01		
108907	Chlorobenzene	2.19E+02	7.30E-02	8.70E-06	4.72E+02	1.51E-01	3.69E-03	25	404.87	632.40	8,410	0.0E+00	**1.0E+00**	1.13E+02			0.0E+00	6.0E-02		
109693	1-Chlorobutane	1.72E+01	8.26E-02	1.00E-05	1.10E+03	6.93E-01	1.69E-02	25	351.60	542.00	7,263	0.0E+00	**1.4E-01**	9.26E+01		X	0.0E+00	1.4E+00		X
110009	Furan	1.86E+01	1.04E-01	1.22E-05	1.00E+04	2.21E-01	5.39E-03	25	304.60	490.20	6,477	0.0E+00	3.5E-03	6.81E+01		X	0.0E+00	3.5E-03		X
110543	Hexane	4.34E+01	2.00E-01	7.77E-06	1.24E+01	6.82E+01	1.66E+00	25	341.70	508.00	6,895	0.0E+00	**7.0E-01**	8.62E+01			0.0E+00	2.0E-01		
111444	Bis(2-chloroethyl)ether	1.55E+01	6.92E-02	7.53E-06	1.72E+04	7.36E-04	1.80E-05	25	451.15	659.79	10,803	**7.1E-04**	0.0E+00	1.43E+02			3.3E-04	0.0E+00		
115297	Endosulfan	2.14E+03	1.15E-02	4.55E-06	5.10E-01	4.58E-04	1.12E-05	25	674.43	942.94	14,000	0.0E+00	2.1E-02	4.07E+02		X	0.0E+00	2.1E-02		X
118741	Hexachlorobenzene	5.50E+04	5.42E-02	5.91E-06	5.00E-03	5.40E-02	1.32E-03	25	582.55	825.00	14,447	**5.1E-04**	2.8E-03	2.85E+02		X	4.6E-04	2.8E-03		X
120821	1,2,4-Trichlorobenzene	1.78E+03	3.00E-02	8.23E-06	4.88E+01	5.81E-02	1.42E-03	25	486.15	725.00	10,471	**0.0E+00**	**4.0E-03**	1.81E+02			0.0E+00	2.0E-01		
123739	Crotonaldehyde (2-butenal)	4.82E+00	9.56E-02	1.07E-05	3.69E+04	7.99E-04	1.95E-05	25	375.20	568.00	9	5.4E-04	0.0E+00	7.01E+01	X		5.4E-04	0.0E+00	X	
124481	Chlorodibromomethane	6.31E+01	1.96E-02	1.05E-05	2.60E+03	3.20E-02	7.81E-04	25	416.14	678.20	5,900	**2.7E-05**	7.0E-02	2.08E+02	?	X	2.4E-05	7.0E-02	X	X
126987	Methacrylonitrile	3.58E+01	1.12E-01	1.32E-05	2.54E+04	1.01E-02	2.46E-04	25	363.30	554.00	7,600	0.0E+00	7.0E-04	6.71E+01			0.0E+00	7.0E-04		
126998	2-Chloro-1,3-butadiene (chloropre	6.73E+01	8.58E-02	1.03E-05	2.12E+03	4.91E-01	1.20E-02	25	332.40	525.00	8,075	0.0E+00	7.0E-03	8.85E+01			0.0E+00	7.0E-03		
127184	Tetrachloroethylene	1.55E+02	7.20E-02	8.20E-06	2.00E+02	7.53E-01	1.84E-02	25	394.40	620.20	8,288	**5.9E-06**	**3.5E-02**	1.66E+02			3.0E-06	0.0E+00		
129000	Pyrene	1.05E+05	2.72E-02	7.24E-06	1.35E+00	4.50E-04	1.10E-05	25	667.95	936	14370	0.0E+00	1.1E-01	2.02E+02		X	0.0E+00	1.1E-01		X
132649	Dibenzofuran	5.15E+03	2.38E-02	6.00E-06	3.10E+00	5.15E-04	1.26E-05	25	560	824	66400	0.0E+00	1.4E-02	1.68E+02		X	0.0E+00	1.4E-02		X
135988	sec-Butylbenzene	9.66E+02	5.70E-02	8.12E-06	3.94E+00	5.68E-01	1.39E-02	25	446.5	679	88730	0.0E+00	1.4E-01	1.34E+02		X	0.0E+00	1.4E-01		X
141786	Ethylacetate	6.44E+00	7.32E-02	9.70E-06	8.03E+04	5.64E-03	1.38E-04	25	350.26	523.3	7633.66	0.0E+00	3.2E+00	8.81E+01		X	0.0E+00	3.2E+00		X
156592	cis-1,2-Dichloroethylene	3.55E+01	7.36E-02	1.13E-05	3.50E+03	1.67E-01	4.07E-03	25	333.65	544	7192	0.0E+00	3.5E-02	9.69E+01		X	0.0E+00	3.5E-02		X
156605	trans-1,2-Dichloroethylene	5.25E+01	7.07E-02	1.19E-05	6.30E+03	3.84E-01	9.36E-03	25	320.85	516.5	6717	0.0E+00	**6.0E-02**	9.69E+01		X	0.0E+00	7.0E-02		X
205992	Benzo(b)fluoranthene	1.23E+06	2.26E-02	5.56E-06	1.50E-03	4.54E-03	1.11E-04	25	715.9	969.27	17000	**1.1E-04**	0.0E+00	2.52E+02	?		2.1E-04	0.0E+00	X	
218019	Chrysene	3.98E+05	2.48E-02	6.21E-06	6.30E-03	3.87E-03	9.44E-05	25	714.15	979	16455	**1.1E-05**	0.0E+00	2.28E+02	?		2.1E-06	0.0E+00	X	
309002	Aldrin	2.45E+06	1.32E-02	4.86E-06	1.70E-02	6.95E-03	1.70E-04	25	603.01	839.37	15000	**4.9E-03**	1.1E-04	3.65E+02		X	4.9E-03	1.1E-04		X
319846	alpha-HCH (alpha-BHC)	1.23E+03	1.42E-02	7.34E-06	2.00E+00	4.34E-04	1.06E-05	25	596.55	839.36	15000	**7.7E-04**	0.0E+00	2.91E+02			1.8E-03	0.0E+00		
541731	1,3-Dichlorobenzene	1.98E+03	6.92E-02	7.86E-06	1.34E+02	1.27E-01	3.09E-03	25	446	684	9230.18	0.0E+00	1.1E-01	1.47E+02		X	0.0E+00	1.1E-01		X
542756	1,3-Dichloropropene	4.57E+01	6.26E-02	1.00E-05	2.80E+03	7.24E-01	1.77E-02	25	381.15	587.38	7900	**1.6E-05**	2.0E-02	1.11E+02			4.0E-06	2.0E-02		
630206	1,1,1,2-Tetrachloroethane	1.16E+02	7.10E-02	7.90E-06	1.10E+03	9.90E-02	2.41E-03	25	403.5	624	9768.282525	7.4E-06	1.1E-01	1.68E+02		X	7.4E-06	1.1E-01		X
1634044	MTBE	7.26E+00	1.02E-01	1.05E-05	5.10E+04	2.56E-02	6.23E-04	25	328.3	497.1	6677.66	**2.6E-07**	3.0E+00	8.82E+01			0.0E+00	3.0E+00		
7439976	Mercury (elemental)	5.20E+01	3.07E-02	6.30E-06	2.00E+01	4.40E-01	1.07E-02	25	629.88	1750	14127	0.0E+00	**3.0E-05**	2.01E+02			0.0E+00	3.0E-04		
86290815	TPH-g	3.98E+03	1.00E-01	1.00E-05	5.40E+00	5.00E+01	8.00E-01	25	369	508	7000		7.0E-01	1.08E+02						

The following section describes the approach generally used to assess potential carcinogenic risk and noncarcinogenic health hazard for the populations of concern, represented by chemical contaminants in soil gas and groundwater at the Site through vapor intrusion.

In order to estimate the potential effects from exposure to multiple COPCs, the hazard index (HI) approach is used. The HI is defined as the summation of the hazard quotients for each COPC, and is represented by the following equation:

$$HI = \frac{\text{Predicted Dose}_a}{RfD_a} + \frac{\text{Predicted Dose}_b}{RfD_b} + \ldots + \frac{\text{Predicted Dose}_i}{RfD_i}$$

$$Hazard_a = (Ca/RfDi) \times 0.639$$

RfDi = Inhalation reference dose, mg/kg-day
C_a = concentration in air, mg/m^3

A total HI less than or equal to unity is indicative of acceptable levels of exposure for chemicals assumed to exhibit additive health effects. To be truly additive in effect, chemicals must affect the same target organ system or result in the same critical toxic endpoint. A HI less than or equal to 1.0 suggests that adverse health effects would not be expected following a lifetime of exposure, even in sensitive members of the population.

Quantitative estimates of incremental cancer risk due to site-related contamination are evaluated for each COPC according to the following equation:

$$Risk_{ai} = 0.149 \times C_a \times SF_i$$

Where,

$Risk_{ai}$ = Estimated incremental risk of cancer
C_a = concentration in air, mg/m^3
SF_i = Cancer slope factor for the i^{th} chemical, $(mg/kg\text{-}day)^{-1}$

Carcinogenic risk is assumed to be additive and was estimated by summing the upper-limit incremental cancer risk for all carcinogenic COPCs.

TABLE 1 - List of Chemicals to be Considered for the Vapor Intrusion Pathway

CAS Number	Chemical
630206	1,1,1,2-Tetrachloroethane
71556	1,1,1-Trichloroethane
79345	1,1,2,2-Tetrachloroethane
76131	1,1,2-Trichloro-1,2,2-trifluoroethane
79005	1,1,2-Trichloroethane
75343	1,1-Dichloroethane
75354	1,1-Dichloroethylene
96184	1,2,3-Trichloropropane
120821	1,2,4-Trichlorobenzene
95636	1,2,4-Trimethylbenzene
106934	1,2-Dibromoethane (ethylene dibromide)
95501	1,2-Dichlorobenzene
107062	1,2-Dichloroethane
78875	1,2-Dichloropropane
108678	1,3,5-Trimethylbenzene
106990	1,3-Butadiene
541731	1,3-Dichlorobenzene
542756	1,3-Dichloropropene
106467	1,4-Dichlorobenzene
123911	1,4-Dioxane
109693	1-Chlorobutane
126998	2-Chloro-1,3-butadiene (chloroprene)
95578	2-Chlorophenol
75296	2-Chloropropane
91576	2-Methylnaphthalene
79469	2-Nitropropane
83329	Acenaphthene
75070	Acetaldehyde
67641	Acetone
75058	Acetonitrile
98862	Acetophenone
107028	Acrolein (Propenal)
107131	Acrylonitrile
309002	Aldrin
319846	alpha-HCH (alpha-BHC)
100527	Benzaldehyde
71432	Benzene
205992	Benzo(b)fluoranthene
100447	Benzylchloride
92524	Biphenyl
111444	Bis(2-chloroethyl)ether
75274	Bromodichloromethane
75252	Bromoform
75150	Carbon disulfide
56235	Carbon tetrachloride
57749	Chlordane
108907	Chlorobenzene
124481	Chlorodibromomethane
75456	Chlorodifluoromethane
75003	Chloroethane (ethyl chloride)

67663	Chloroform
218019	Chrysene
156592	cis-1,2-Dichloroethylene
123739	Crotonaldehyde (2-butenal)
98828	Cumene (Isopropylbenzene)
72559	DDE
132649	Dibenzofuran
-	Dichlorobiphenyl (PCB)
75718	Dichlorodifluoromethane
60571	Dieldrin
108203	Diisopropyl Ether (DIPE)
115297	Endosulfan
60297	Ethyl ether
637923	Ethyl tert-Butyl Ether (ETBE)
141786	Ethylacetate
100414	Ethylbenzene
75218	Ethylene oxide
97632	Ethylmethacrylate
86737	Fluorene
110009	Furan
58899	gamma-HCH (Lindane)
76448	Heptachlor
87683	Hexachloro-1,3-butadiene
118741	Hexachlorobenzene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
110543	Hexane
74908	Hydrogen cyanide
78831	Isobutanol
7439976	Mercury (elemental)
126987	Methacrylonitrile
72435	Methoxychlor
79209	Methyl acetate
96333	Methyl acrylate
74839	Methyl bromide
74873	Methyl chloride (chloromethane)
1634044	Methyl tert-Butyl Ether (MTBE)
108872	Methylcyclohexane
74953	Methylene bromide
75092	Methylene chloride
78933	Methylethylketone (2-butanone)
108101	Methylisobutylketone (4-methyl-2-pentanone)
80626	Methylmethacrylate
-	Monochlorobiphenyl (PCB)
108383	m-Xylene
91203	Naphthalene
104518	n-Butylbenzene
98953	Nitrobenzene
103651	n-Propylbenzene
88722	o-Nitrotoluene
95476	o-Xylene
106423	p-Xylene
129000	Pyrene

135988	sec-Butylbenzene
100425	Styrene
994058	Tert-Amyl Methyl Ether (TAME)
75650	Tert-Butyl Alcohol (TBA)
98066	tert-Butylbenzene
127184	Tetrachloroethylene
108883	Toluene
156605	trans-1,2-Dichloroethylene
79016	Trichloroethylene
75694	Trichlorofluoromethane
108054	Vinyl acetate
75014	Vinyl chloride (chloroethene)

CAS = Chemical Abstracts Service

Table 1 was generated from the chemicals listed in the USEPA Vapor Intrusion Guidance Document (USEPA, 2002a), with the addition of fuel oxygenates and two polychlorinated biphenyl congeners due to the volatility and toxicity of monochlorobiphenyl and dichlorobiphenyl (Davis et al., 2002; Davis and Wade, 2003).