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PERJURY STATEMENT

Subject: Fuel Lake Case No. Ro0002981 and Geotracker Clobal ID T1000000416, Red Hanger Cleaners, 6335-6339 College Ave., Oakland, CA 94618

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

Ted Cleveland
Vice President – Eastern Region
EFI Global, Inc.

P&D ENVIRONMENTAL, INC.

55 Santa Clara Ave, Suite 240
Oakland, CA 94610
(510) 658-6916

January 21, 2016
Report 0461.R3

Mr. Gary Bates
EFI Global, Inc.
11000 Richmond Avenue, Suite 250
Houston, TX 77042

SUBJECT: SOIL GAS INVESTIGATION REPORT
(SG1 THROUGH SG10)
Spills Leaks, Investigation and Cleanup Leak Case No RO0002981
Geotracker Global ID T10000000416
Red Hanger Kleaners
6239 College Avenue
Oakland, California

Dear Mr. Bates:

P&D Environmental (P&D) has prepared this report documenting soil gas investigation for the subject site on behalf of the property owner Ronald Elvidge and EFI Global, Inc. (EFI). The soil gas wells were installed on November 9 through 11, 2015 and the soil gas wells were sampled on December 2, 2015. The investigation was performed to evaluate the presence and extent of the dry cleaning chemical tetrachloroethene (PCE) in soil gas at the site. The work scope included installation of eight permanent soil wells to a depth of 7 feet below the ground surface (bgs), six permanent soil gas wells to a depth of 17 feet bgs and one permanent Vapor Pin, and sampling of the soil gas wells. The Vapor Pin was not sampled.

This work was performed in accordance with procedures set forth in P&D's Soil Gas Investigation Work Plan dated October 16, 2015 (document 0461.W1). The work plan was approved in an e-mail from Mr. Keith Nowell of the Alameda County Department of Environmental Health (ACDEH) dated November 10, 2015. A Site Location Map is attached as Figure 1 and a Site Plan showing the soil gas well and Vapor Pin locations is attached as Figure 2. All work was performed under the direct supervision of a professional geologist.

BACKGROUND

It is P&D's understanding that the former Red Hanger Kleaners store (also identified in various reports as Red Hanger Cleaners) occupied the ground floor of the subject site building at 6235–6239 College Avenue in Oakland, California from 1987 until 2015 (approximately 28 years), and that the Red Hanger Kleaners business vacated the premises in 2015. The second building to the north at 6251-6255 College Avenue (located at the corner of College Avenue and 63rd Street, see Figure 2) was reported to have been occupied by dry cleaner stores from 1953 to 1987 (approximately 34 years) with Red Hanger Kleaners identified at this location from either 1970 or 1982 to 1987.

The building at 6251 to 6255 College Avenue is occupied by three tenant spaces along College Avenue. Based on discussions with individuals in the dry cleaning industry who report that they were familiar with the owner of the dry cleaning store at 6251 to 6255 College Avenue, the dry cleaning store originally occupied the southernmost of the three tenant spaces and eventually expanded to include the middle tenant space before moving to 6239 College Avenue.

It is unknown when the dry cleaning operations began utilizing tetrachloroethene (PCE) as the dry cleaning solvent. However, it is P&D's understanding that review of Hazardous Materials Business Plans for 6239 College Avenue from April 1991 through March 2007 identified the presence of PCE at the site as early as April 1991 and as late as March 2007.

Review of Figure 2 shows that the first floor of 6239 College Avenue consists of the former Red Hanger Kleaners store occupying the southern portion of the building, with open parking and storage located immediately to the north of the west end of the former Red Hanger Kleaners store. The second and third floor of the building above the first floor parking and storage areas are occupied by offices, bathrooms, hallways and stairwells. The first floor tenant space (the former Red Hanger Kleaners store) is presently vacant. The former dry cleaning machines were located to the south and west of the elevator (see Figure 2).

The locations of features shown inside the Red Hanger Kleaners store, including the locations of the elevator and boiler room, are based on measurements made with a steel tape. Comparison of the locations of the elevator and the boiler room with the locations shown on site plans for each of the floors for the subject property shows that the site plans for the different floors of the building are approximate but not completely accurate regarding the locations of the elevator and the boiler room. The sanitary sewer trench was also determined to be located several feet further to the east than shown in figures in the work plan based on the location of the sanitary sewer cleanout that is located immediately to the north of Red Hanger Kleaners building parking and storage area, and markings of the sanitary sewer location made by a plumber who identified the sanitary sewer location.

Additionally, measurements using a steel tape of the locations of features shown on Figure 2 (as measured from the sidewalk along 63rd Street to the north side of the Red Hanger Kleaners building parking and storage area) shows that site features shown on Figure 2 are accurate, however measurements using a steel tape of the locations of features shown on Figure 2 (as measured from the southwest corner of the property to the north side of the Red Hanger Kleaners building parking and storage area) shows that the parking and storage area as shown on Figure 2 is approximately 3 feet longer than as measured with the steel tape. Measurements made with a steel tape from the west side of the property to College Avenue and from College Avenue to the west side of the property show that the features shown on Figure 2 are accurately shown. These measurements suggest that the southwest corner of the property shown on Figure 2 should be approximately 3 feet further north than shown, with the length of the Red Hanger Kleaners parking and storage area reduced by approximately 3 feet to the north of the stairs. Reconciliation of these site dimensions and site plans is beyond the current scope of work.

Historical investigations at the subject site have detected PCE in soil, groundwater, soil gas, and indoor air. Trichloroethene (TCE) has only been detected in indoor air at the site. A complete discussion of the historical dry cleaner operations and historical investigations of the property is

provided in the July 27, 2015 Youngdahl Phase II Environmental Site Assessment Soil Gas Investigation Report for the subject site (identified in the report title as located at 6335-6339 College Avenue). A site conceptual model is also provided in the October 21, 2014 Youngdahl Phase II Environmental Site Assessment Soil Gas Investigation Work Plan for the subject site. A summary of historical subsurface investigations at the site and the site geology and hydrogeology are also provided in P&D's October 16, 2015 Soil Gas Investigation Work Plan (document 0461.W1).

Documentation of a sub-slab depressurization feasibility test that was performed on November 16, 2015 in the former dry cleaner store at the subject site is provided in P&D's December 14, 2015 Sub-Slab Depressurization Feasibility Test Report (document 0461.R4).

FIELD ACTIVITIES

Prior to performing field activities, drilling permit W2015-1009 was obtained from the Alameda County Public Works Agency (ACPWA), site access was scheduled with the property owner, drilling locations were marked with white paint, Underground Service Alert was notified for underground utility location, and a health and safety plan was prepared. Notification of the drilling dates and sampling date were also provided to the ACDEH.

Soil Gas Well Installation and Sample Collection

On November 9, 10 and 11, 2015 permanent soil gas wells were installed to a depth of 7.0 feet bgs at locations SG1-7, SG2-7, SG4-7, SG5-7, SG6-7, SG7-7, SG8-7, and SG10-7 (see Figure 2) and to a depth of 17.0 feet bgs at locations SG2-17, SG3-17, SG5-17, SG6-17, SG7-17, and SG9-17 (see Figure 2). All of the soil gas wells were installed by Vironex, Inc. of Concord (Vironex) using track-mounted 6-inch outside diameter hollow stem augers or a 6-inch outside diameter hand auger. Vapor Pin VP1 was installed by P&D personnel November 11, 2015. On December 2, 2015 all of the soil gas wells were sampled.

Vapor Pin VP1 was installed with a flush-mounted secure cover by P&D on November 11, 2015 at the location shown on Figure 2 in accordance with manufacturer recommended methods as follows: A rotohammer was used to drill a 1.5-inch diameter hole to a depth of 1.75 inches into the concrete slab. A 5/8-inch diameter hole was then drilled through the center of the 1.5-inch diameter hole in the slab to a depth of two inches below the bottom of the concrete slab. The total concrete floor slab thickness was measured to be approximately 6.0 inches. Once drilling was completed a steel rod was inserted into the hole and pushed into the sub-slab materials to a depth of approximately 6 inches below the slab several times to puncture any vapor barrier that might be present, and the hole was then cleaned with a vacuum and a bottle brush. A new Vapor Pin with a new silicone sleeve was then installed in the 5/8-inch diameter hole in the concrete slab and covered with a flush-mounted stainless steel cover. Prior to placement of the flush-mounted stainless steel cover, a plastic cap was placed on the top of the Vapor Pin barb fitting.

All of the boreholes were hand augered to a depth of 7.0 feet bgs with a 3.5-inch outside diameter hand auger (with the exception of location SG1-7 where hand auger refusal was encountered at a depth of 2.0 feet bgs and locations SG7-17 and SG9-17 where hand auger refusal was encountered at a depth of 5.5 feet bgs). All of the boreholes were then enlarged to

their total depth with a track-mounted 6-inch hollow stem auger drill rig with the exception of locations SG4-7, SG8-7 and SG10-7 which were hand augered to a depth of 7.0 feet bgs with a 6-inch outside diameter hand auger.

The soil from the hand auger and hollow stem auger drill cuttings for all of the boreholes was logged in the field in accordance with standard geologic field techniques and the Unified Soil Classification System. All soil from the boreholes was evaluated with a PID equipped with a 10.6 eV bulb that was calibrated using a 100 ppm isobutylene standard. No odors, staining, or discoloration were observed in any of the boreholes, and no soil samples were retained for laboratory analysis. PID values and field observations were recorded on boring logs for each borehole that are attached with this report as Appendix A.

All of the soil gas wells were constructed following the completion of drilling or hand augering by adding a #2/16 Lonestar sack sand to the borehole to fill the lowermost one foot of the borehole with sand. A 0.250-inch outside diameter (0.187-inch inside diameter) Teflon tube with a HDPE filter at the bottom of the tube was inserted to the top of the sand (a depth of one foot above the bottom of the borehole), and additional #2/16 Lonestar sack sand was added to the annular space to two feet above the bottom of the borehole so that the lowermost two feet of the borehole was filled with sand with the filter at the end of the tube was in the middle of the sand interval. A tremie pipe was used for placement of all of the sand that was placed in the boreholes. Hydrated bentonite was then placed in the annular space above the sand to a height of one foot above the sand using a tremie pipe. The remaining borehole was filled with neat cement to a depth of one foot bgs using a tremie pipe. The tubing length was 8 feet for the boreholes that are 7 feet deep, and the tubing length was 18 feet for the boreholes that are 17 feet deep. The top of each soil gas well was enclosed in a well box with a lid that was secured with bolts.

A soil gas sampling manifold with a 1-liter Summa canister as the sampling canister for each sampling location (see Figure 5) was assembled in a shroud consisting of a 35-gallon Rubbermaid bin that had been modified by cutting viewing ports into the sides of the shroud and covering the viewing ports with transparent polycarbonate sheets. A hole measuring approximately two inches square in the bottom of the shroud allowed the shroud to cover the soil gas well while still allowing access to the sampling location through the bottom of the shroud. At the time that the sampling manifold was assembled, the vacuum for the sample canister was verified with a vacuum gauge and recorded.

Prior to sampling each soil gas well, a 10 minute shut-in test of the sampling manifold was performed by closing the valve located between the filter and the pressure gauge, opening the purge canister valve, and recording the manifold system vacuum (see Figure 5). No purge testing for purge volume determination was performed based on the large volume of the soil gas well sand packs. Following successful verification of the manifold shut-in test, the tubing volume plus 200 cubic centimeters was extracted prior to sample collection at each sample collection location. The purge time was calculated for each sample collection location using a nominal flow rate provided by the flow controller of 150 cubic centimeters per minute. Copies of the purge volume calculation sheets are attached with this report as Appendix B.

Following completion of the purging prior to sampling, a lid was placed onto the shroud and a tracer gas 1,1-Difluoroethane (DFA) was sprayed into the shroud interior for one second through

a tube connected to a hole in the side of the shroud. Gloves in the lid of the shroud were used to open the sample canister valve. The pressure gage on the inlet side of the flow controller (see Figure 5) was monitored during sample collection to verify that the vacuum applied to the soil gas well did not exceed 100 inches of water. Once the vacuum for the sample canister valve had decreased to 5 inches of mercury, the gloves in the lid of the bin were used to close the sample canister valve. Duplicate soil gas samples were collected into Summa canisters at locations SG4-7 and SG9-17 using a stainless steel sampling tee for the Summa canisters using methods described above. Following the completion of sample collection the soil gas Summa canister samples were stored in a box and promptly shipped to the laboratory for extraction and analysis.

During Summa canister sample collection an air sample was collected from the shroud atmosphere to quantify the shroud tracer gas concentration while the soil gas sample was being collected. The shroud atmosphere sample was collected into a Tedlar bag that was placed into a vacuum chamber with the Tedlar bag inlet connected to a new piece of Teflon or polyethylene tubing that was inserted into the shroud atmosphere through a hole in the side of the shroud. The shroud Tedlar bag samples were stored in a cooler to prevent exposure to light or crushing and promptly shipped to the laboratory for extraction and analysis.

Chain of custody procedures were observed for all sample handling. New Teflon tubing and HDPE filters were used at each sample collection location. Clean, unused vacuum gages and stainless steel sampling manifolds were used at each sample collection location. Measurements of vacuums, purging and equilibration time intervals, and PID readings were recorded on Soil Gas Sampling Data Sheets that are attached with this report as Appendix B.

WEATHER

No precipitation occurred during the day of soil gas sampling (December, 2 2015), or during the five days preceding the day of soil gas sampling. Weather data, including precipitation and barometric pressure for the day of the sampling event and also for the month preceding and rest of December 2015 is provided as Appendix C. The weather station is located at on the north side of Prince Street immediately east of the intersection of Prince Street and College Avenue in Berkeley at an elevation of 253 feet above sea level, approximately 0.4 miles to the north-northeast of the subject site. The subject site is located at an elevation of approximately 210 feet above sea level. An internet link to the weather station information is provided in Appendix C.

GEOLOGY AND HYDROGEOLOGY

Based on a review of the USGS Oakland West, California Quadrangle topographic map, the subject property is located approximately 200 feet above mean sea level, and the local topography slopes to the southwest (see Figure 1). Based on review of regional geologic maps from U. S. Geological Survey Professional Paper 943, "Flatland Deposits - Their Geology and Engineering Properties and Their Importance to Comprehensive Planning," by E. J. Helley and K. R. Lajoie, 1979, the subject site is underlain by Late Pleistocene Alluvium (Qpa), which is described as weakly consolidated slightly weathered poorly sorted irregularly interbedded clay, silt, sand, and gravel.

Review of the boring logs in Appendix A shows that the subsurface materials encountered in the boreholes drilled to a depth of 17 feet bgs during soil gas well installation in November 2015

consisted predominantly of silt, silty clay and clay, with layers of coarse grained materials consisting of gravelly clayey sand, sandy gravel and clayey gravel measuring from 1 to 5 feet in thickness. The subsurface materials encountered in the soil gas well boreholes are consistent with the Qpa description provided above. No groundwater was encountered in any of the soil gas well boreholes.

Review of the results of the sub-slab depressurization feasibility test that was performed on November 16, 2015 in the former dry cleaner store at the subject site and that is documented in P&D's December 14, 2015 Sub-Slab Depressurization Feasibility Test Report shows that vacuum was measured in soil gas wells SG9-17 and SG10-7 when vapor extraction was performed beneath the floor slab, indicating very good vertical communication of soil gas at the site.

Review of boring logs for historical boreholes at the site shows that the subsurface materials beneath the west end of the Red Hanger Kleaners store where the dry cleaning machines were located was described as consisting predominantly of silty clay to a depth of approximately 12 to 14 feet bgs, beneath which the subsurface materials were described as consisting predominantly of clayey silt and silt with layers of gravelly silty sand or sandy gravelly silt of variable thickness to the total depth explored of 35 feet bgs. To the north of the Red Hanger Kleaners building the subsurface materials are described as consisting predominantly of layers of silty clay and silt, with layers of gravelly silty sand or sandy gravelly silt of variable thickness to the total depth explored of 35 feet bgs. At one borehole located immediately downgradient of the former Kay's Cleaners a gravelly silty sand layer measuring approximately 10 feet in thickness was encountered between the depths of approximately 12 and 22 feet bgs.

Groundwater has historically been encountered at the site as follows:

- By AEI Consultants in May 2005 in borehole SB1 during drilling at a depth of 17.5 feet bgs and was subsequently measured after 5 minutes at a depth of 15.8 feet bgs.
- By Ecology Control Associates under the supervision of EFI on June 28, 2005 during drilling in borehole SB-6 at a depth of 20 feet bgs and was subsequently measured in the borehole at a depth of approximately 16 feet bgs.
- By P&D in August 2008 in boreholes B7 and B8 at depths of 21.3 and 22.6 feet bgs, and was subsequently measured at depths of 22.3 and 21.2 feet bgs prior to groundwater sample collection.
- By ERM West, Inc. in October 2009 in boreholes A-1, AD-3 and AUST-6 during drilling at a depth of 35 feet bgs, and was subsequently measured in these boreholes at a depth of approximately 22 feet bgs. Groundwater was not encountered in borehole A-2.

Groundwater has historically been encountered at the site at depths of approximately 22 feet bgs or greater with the exception of borehole SB1 where groundwater was encountered during drilling at a depth of 17.5 feet bgs and was subsequently measured after 5 minutes at a depth of 15.8 feet bgs, and borehole SB-6 where groundwater was encountered during drilling at a depth of approximately 20 feet bgs and was subsequently measured at a depth of approximately 16 feet bgs. Both of these boreholes where groundwater was historically encountered at depths of less than 20 feet bgs are located at the southern boundary of the property in the western half of the property.

The nearest surface water is Lake Temescal, located approximately 1.1 mile east of the subject site. Based on local topography and consistent southwesterly groundwater flow directions identified from groundwater monitoring well water level data at nearby sites, the assumed groundwater flow direction at the subject site is to the southwest.

LABORATORY ANALYSIS

All of the soil gas samples were analyzed at Eurofins Air Toxics, Limited in Folsom, California. The samples collected in Summa canisters were analyzed for Volatile Organic Compounds (VOCs) including PCE and PCE decomposition products (TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride) and DFA (the tracer gas) using EPA Method TO-15. All of the shroud air Tedlar bag samples that were collected during soil gas sample collection were analyzed for the tracer gas DFA using EPA Method TO-15.

The soil gas TO-15 laboratory analytical results are summarized in Table 1A, and the shroud air Tedlar bag sample results are summarized in Table 1B. The percent shroud information reported in Table 1A is the ratio of the detected tracer gas concentration in the soil gas sample to the corresponding shroud air tracer gas concentration, expressed as a percentage. Copies of the laboratory analytical report and chain of custody documentation are attached with this report as Appendix D.

RISK AND HAZARD ANALYSIS

The only complete pathway for contaminant exposure at the subject site is considered to be potential vapor intrusion from soil gas to indoor air. A parking lot is located immediately to the south of the subject site. The structures immediately adjacent to the subject site former dry cleaning area to the north, east, and west are identified as follows (see Figure 3):

- 309 63rd Street – commercial storage on the ground floor and residential apartments above the ground floor.
- 6251 top 6255 College Avenue – commercial stores on the ground floor and residential apartments above the ground floor.
- 6241 top 6247 College Avenue – commercial stores on the ground floor and commercial use above the ground floor.
- 323 63rd Street – residential two story buildings. Based on the number of visible electrical meters each building appears to consist of a 4-plex. A crawl space was observed at each building.

Risk analysis is the evaluation of the predicted increased incidence of cancer resulting from exposure to Chemicals of Potential Concern (COPCs), and is reported for each COPC as the incremental carcinogenic risk. Hazard analysis is the evaluation of the predicted increased non-cancer adverse health effects resulting from exposure to COPCs, and is reported for each COPC as the hazard quotient. In addition, cumulative incremental carcinogenic risk (the total of the risks posed by all of the COPCs in a sample when all of the individual COPC risks are added together) and hazard indices (the total of the hazards posed by all of the COPCs in a sample when all of the individual COPC hazards are added together) were also calculated for all detected compounds for each sample.

The cumulative incremental risk is calculated as the increased number of cases of cancer that might develop in a population of one million people in addition to the background risk of Americans developing cancer. According to the American Cancer Society the background risk for an American eventually developing cancer during their life time is one chance in two (also expressed as 500,000 per million, or expressed as 5E-01). In determining what is an acceptable level of risk, the DTSC has determined that lifetime incremental cumulative cancer risks posed by a site should not exceed 1 per million without further evaluation. The DTSC recommends that activities to reduce exposure to COPCs be evaluated when the cumulative risk exceeds 100 per million. The DTSC also recommends that further action be evaluated when the hazard quotient exceeds 1. These recommendations are based on conservative (erring on the side of caution) assumptions in determining actions associated with calculated risk or hazard.

The Interim Final December 2013 San Francisco Bay RWQCB User's Guide: Derivation and Application of Environmental Screening Levels (the User's Guide) recommends using methods for calculation of risk and hazard associated with potential vapor intrusion identified in various Department of Toxic Substances Control (DTSC) guidance documents. The incremental carcinogenic risk and hazard quotient were calculated for each detected compound for each of the soil gas samples using the DTSC Human and Ecological Risk Office (HERO) California-specific screening-level spreadsheet version of the Johnson & Ettinger soil gas vapor intrusion model. The DTSC most recently updated the vapor intrusion model spreadsheet in December 2014.

The Inhalation Unit Risk factor (IUR) value used for risk calculation and the Reference Concentration (RfC) value used for hazard calculation were obtained from the most recent version of the DTSC HERO Vapor Intrusion Screening Model for Soil Gas VLOOKUP Table (last updated December 2014). These values are consistent with the values provided in the most recent version of the DTSC HERO Human Health Risk Assessment Note Number 3 dated July 14, 2014. DTSC RfC values were converted from mg/m^3 to ug/m^3 for hazard calculation. The 2013 RWQCB User's Guide Table J-2 PCE RfC value of 270 ug/m^3 was superseded for risk calculation by the 2014 DTSC PCE RfC value of 35 ug/m3.

Default exposure parameter values provided in the December 2014 DTSC HERO vapor intrusion screening model for soil gas for a residential exposure scenario were used for evaluation of the soil gas sample results at locations SG1, SG2, SG3, SG4 and SG5 as follows:

- averaging time for carcinogens of 70 years,
- averaging time for non-carcinogens of 26 years,
- exposure duration for 26 years,
- exposure frequency of 350 days per year,
- exposure time of 24 hours per day, and
- air exchange rate of 0.5 per hour.

Default exposure parameter values provided in the December 2014 DTSC HERO Vapor Intrusion Screening Model for Soil Gas for a commercial exposure scenario were used for evaluation of the soil gas sample results at locations SG6, SG7, SG8, SG9 and SG10 as follows:

- averaging time for carcinogens of 70 years,
- averaging time for non-carcinogens of 25 years,

- exposure duration for 25 years,
- exposure frequency of 250 days per year,
- exposure time of 8 hours per day, and
- air exchange rate of 1.0 per hour.

The soil gas sample depth used for risk and hazard calculation was 6.0 feet (182.88 centimeters) for the 7-foot deep soil gas wells and 16.0 feet (487.68 centimeters) for the 17-foot deep soil gas wells based on the depth of the soil gas well filter in the center of the sand filter pack. The soil type used was silt (SI), and the default value of 5 liters per minute was used for the average vapor flow rate into a building with a footprint measuring 10 meter by 10 meter building (100 square meters).

In addition, the cumulative incremental carcinogenic risk (the total of the risks posed by all of the COPCs in a sample when all of the individual COPC risks are added together) and hazard indices (the total of the hazards posed by all of the COPCs in a sample when all of the individual COPC hazards are added together) were calculated for all detected compounds for each sample.

The soil gas incremental risk and hazard quotient calculation results are provided in Table 3A, and the soil gas incremental risk and hazard quotient calculation results are summarized in Table 3B. The vapor intrusion model spreadsheet input sheets which include a results summary for each calculation are attached with this report as Appendix E.

Soil gas model sensitivity analysis of the soil gas model was performed using PCE for a total of ten scenarios, including an evaluation of the DTSC HERO vapor intrusion screening model for soil gas spreadsheet default values for a residential exposure scenario with a soil type of silty (SI) and a soil gas sampling depth of 5.0 feet (152 cm). A summary of soil gas model sensitivity analysis is provided in Table 3, and the sensitivity analysis vapor intrusion model spreadsheet input sheets which include a results summary for each calculation are attached with this report as Appendix F.

DISCUSSION AND RECOMMENDATIONS

Review of the boring logs in Appendix A shows that the subsurface materials encountered in the boreholes drilled to a depth of 17 feet bgs during soil gas well installation in November 2015 consisted predominantly of silt, silty clay and clay, with layers of coarse grained materials consisting of gravelly clayey sand, sandy gravel and clayey gravel measuring from 1 to 5 feet in thickness. No groundwater was encountered in any of the soil gas well boreholes.

Review of the Table 1A Percent Shroud column shows that the tracer gas concentrations detected in the soil gas samples are less than 5 percent of the associated shroud atmosphere tracer gas concentrations (see Table 1B), indicating that atmospheric dilution of the samples during sample collection is not a concern, with the exception of sample SG10-7 where the sample tracer gas concentration was 8.7 percent. Based on the tracer gas concentration detected in sample SG10-7 this sample is not considered to be a valid sample.

Review of Table 1A shows that PCE was detected in all of the soil gas samples at concentrations exceeding the RWQCB December 2013 Table E-2 residential and commercial exposure scenario Environmental Screening Level (ESL) with the exception of samples SG8-7 and SG10-7, where the

PCE concentration exceeded the residential ESL but did not exceed the commercial ESL value. No PCE decomposition products (TCE, cis-1,2-DCE, trans-1,2-DCE, vinyl chloride) were detected in any of the soil gas samples. The only other compound detected at a concentration exceeding an ESL was benzene, which was detected in samples SG3-17, SG5-17, SG6-17, SG9-17 and SG9-17 DUP at concentrations exceeding the RWQCB December 2013 Table E-2 residential exposure scenario ESL but not at concentrations exceeding the commercial ESL.

Benzene is not a decomposition product of PCE. The source of the benzene is presently unknown. Review of Table 1A shows that benzene was only detected in deep soil gas samples with the exception of sample SG8-7, where benzene was detected at a concentration below the RWQCB December 2013 Table E-2 residential exposure scenario ESL. The widespread presence of benzene in deep soil gas at the subject site suggests that the benzene originates from an offsite upgradient source. The former fuel underground storage tank pit of a former fuel release site is located directly upgradient of the subject site at 6201 Claremont Avenue, approximately 80 feet to the east of the subject site.

Review of Figures 3 and 4 shows that the highest concentrations of PCE soil gas were consistently detected in the vicinity of the sanitary sewer pipe immediately to the north of the former Red Hanger Kleaners store, with the highest PCE shallow soil gas concentration detected immediately to the south of the sanitary sewer cleanout and the highest deep soil gas concentrations detected adjacent to and immediately downgradient of the sanitary sewer cleanout.

Review of the soil gas model sensitivity analysis in Table 3 shows that the model is not very sensitive to changes in temperature, is moderately sensitive to changes in soil type, and is sensitive to changes in average vapor flow rate into building (Q_{soil}), sample depth, and COPC concentration.

Review of the risk and hazard summarized in Table 2B shows that the calculated cumulative incremental risk for all of the soil gas samples exceeds one in a million except for samples SG8-7, SG9-17, SG9-17 DUP, and SG10-7 where the risk was calculated to be less than one in a million. The hazard quotient was calculated to be less than one for all of the soil gas samples except SG2-7 which had a calculated hazard quotient of 1.0. Review of Table 2A shows that almost all of the risk and hazard for each of the soil gas samples is related to PCE.

Based on the soil gas sample results, P&D recommends the installation and sampling of soil gas wells using methods described in this report to further evaluate the extent of PCE in soil gas as follows:

- Proposed shallow soil gas wells at locations SG11, SG13, SG14 and SG15 (see Figure 3).
- Proposed deep soil gas wells at locations SG12, SG16, SG17 and SG18 (see Figure 4).

In addition, P&D recommends the following:

- Collection of one crawl space air sample at the residential building that is located at 323 53rd Street (closest to the subject site), with concurrent collection of an ambient air sample, and
- Collection of soil gas samples from all of the soil gas wells approximately six months after the initial December 2, 2015 soil gas sampling event in accordance with DTSC

recommendations for multiple soil gas sampling events for risk and hazard based decision making.

DISTRIBUTION

A copy of this report will be uploaded to the GeoTracker and county websites.

LIMITATIONS

This report was prepared solely for the use of Ron Elvidge and EFI Global, Inc. The content and conclusions provided by P&D in this assessment are based on information collected during our investigation, which may include, but not be limited to, visual site inspections; interviews with the site owner, regulatory agencies and other pertinent individuals; review of available public documents; subsurface exploration and our professional judgment based on said information at the time of preparation of this document. Any subsurface sample results and observations presented herein are considered to be representative of the area of investigation; however, geological conditions may vary between borings and may not necessarily apply to the general site as a whole. If future subsurface or other conditions are revealed which vary from these findings, the newly revealed conditions must be evaluated and may invalidate the findings of this report.

This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information contained herein is brought to the attention of the appropriate regulatory agencies, where required by law. Additionally, it is the sole responsibility of the owner to properly dispose of any hazardous materials or hazardous wastes left onsite, in accordance with existing laws and regulations.

This report has been prepared in accordance with generally accepted practices using standards of care and diligence normally practiced by recognized consulting firms performing services of a similar nature. P&D is not responsible for the accuracy or completeness of information provided by other individuals or entities which is used in this report. This report presents our professional judgment based upon data and findings identified in this report and interpretation of such data based upon our experience and background, and no warranty, either express or implied, is made. The conclusions presented are based upon the current regulatory climate and may require revision if future regulatory changes occur.

Should you have any questions, please do not hesitate to contact us at (510) 658-6916.

Sincerely,

P&D Environmental, Inc.

Paul H. King
Professional Geologist # 5901
Expires: 12/31/17

Attachments:

Table 1A - Summary of Soil Gas Sample Analytical Results
Table 1B - Summary of Soil Gas Shroud Sample Analytical Results - Difluoroethane
Table 2A - Summary of Soil Gas Risk and Hazard Analysis
Table 2B - Soil Gas Risk and Hazard Calculation Results Summary
Table 3 - Summary of Soil Gas Model Sensitivity Analysis

Figure 1 - Site Location Map
Figure 2 - Site Plan Showing Soil Gas Well Locations
Figure 3 - Site Plan Showing PCE Concentrations in Shallow Soil Gas
Figure 4 - Site Plan Showing PCE Concentrations in Deep Soil Gas
Figure 5 - Typical Soil Gas Sampling Manifold

Appendix A – Boring Logs
Appendix B - Purge Volume Calculations and Soil Gas Sampling Data Sheets
Appendix C - Weather Information
Appendix D - Laboratory Analytical Reports and Chain of Custody Documentation
Appendix E - DTSC December 2014 Vapor Intrusion Risk and Hazard Calculation Work Sheets
Appendix F - Soil Gas Model Sensitivity Analysis Risk and Hazard Calculation Work Sheets

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0461.R3

TABLES

Table 1A
Summary of Soil Gas Sample Analytical Results

Sample ID	Sample Date	Sand Pack Interval (Feet bgs)	Probe Depth (Feet bgs)	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs by EPA TO-15	1,1-Difluoroethene	Percent Shroud
SG1-7	12/2/2015	5.0 to 7.0	6.0	10	11	ND<10	ND<10	ND<10	**5,800**	ND<13	ND<9.6	ND<9.6	ND<6.2	ND, except Carbon Disulfide = 54	1,800	0
SG2-7	12/2/2015	5.0 to 7.0	6.0	ND<81	ND<95	ND<110	ND<110	ND<110	**59,000**	ND<140	ND<100	ND<100	ND<65	All ND	3,100	0
SG2-17	12/2/2015	15.0 to 17.0	16.0	ND<480	ND<570	ND<660	ND<660	ND<660	**120,000**	ND<810	ND<600	ND<600	ND<380	All ND	4,200	0
SG3-17	12/2/2015	15.0 to 17.0	16.0	**130**	ND<90	ND<100	ND<100	ND<100	**62,000**	ND<130	ND<95	ND<95	ND<61	ND, except Cyclohexane = 110	520	0
SG4-7	12/2/2015	5.0 to 7.0	6.0	ND<15	ND<18	ND<20	ND<20	ND<20	**3,700**	ND<25	ND<18	ND<18	ND<12	All ND	100,000, a	2.5
SG4-7 DUP	12/2/2015	5.0 to 7.0	6.0	ND<7.4	ND<8.8	ND<10	ND<10	ND<10	**3,700**	ND<12	ND<9.2	ND<9.2	ND<5.9	All ND	6,400, a	0
SG5-7	12/2/2015	5.0 to 7.0	6.0	ND<38	ND<45	ND<52	ND<52	ND<52	**23,000**	ND<64	ND<48	ND<48	ND<31	All ND	600	0
SG5-17	12/2/2015	15.0 to 17.0	16.0	**56**	54	ND<26	ND<26	ND<26	**15,000**	ND<32	ND<24	ND<24	ND<15	ND, except Carbon Disulfide = 140	570	0
SG6-7	12/2/2015	5.0 to 7.0	6.0	ND<220	ND<260	ND<310	ND<310	ND<310	**61,000**	ND<380	ND<280	ND<280	ND<180	All ND	2,000	0
SG6-17	12/2/2015	15.0 to 17.0	16.0	**140**	170	ND<90	ND<90	ND<90	**41,000**	ND<110	ND<82	ND<82	ND<53	ND, except Hexane = 89	540	0
SG7-7	12/2/2015	5.0 to 7.0	6.0	ND<14	ND<16	ND<18	ND<18	ND<18	**7,000**	ND<23	ND<17	ND<17	ND<11	All ND	1,500	0
SG7-17	12/2/2015	15.0 to 17.0	16.0	ND<120	ND<140	ND<160	ND<160	ND<160	**37,000**	ND<200	ND<140	ND<140	ND<94	All ND	ND<400	0
SG8-7	12/2/2015	5.0 to 7.0	6.0	13	ND<4.5	ND<5.2	ND<5.2	ND<5.2	**850**	ND<6.4	ND<4.7	ND<4.7	ND<3.0	All ND	210	0
SG9-17	12/2/2015	15.0 to 17.0	16.0	**42**	30	ND<18	ND<18	ND<18	**4,000**	ND<23	ND<17	ND<17	ND<11	ND, except Chloroform = 46, Carbon Disulfide = 170, Hexane = 29	66,000, a	0
SG9-17 DUP	12/2/2015	15.0 to 17.0	16.0	**44**	34	ND<21	ND<21	ND<21	**4,600**	ND<26	ND<18	ND<18	ND<12	ND, except Chloroform = 54, Carbon Disulfide = 190, Hexane = 39	9,200, a	0
SG10-7	12/2/2015	5.0 to 7.0	6.0	ND<72	ND<85	ND<98	ND<98	ND<98	**1,100**	ND<120	ND<90	ND<90	ND<58	All ND	680,000, a	8.7
ESL [1]				*42*	*160,000*	*490*	*Combined = 52,000*		*210*	*300*	*3,700*	*31,000*	*16*	*Chloroform = 230, Carbon Disulfide = No Value, Cyclohexane = No Value, Hexane = No Value,*	*No Value*	*No Value*
ESL [2]				*420*	*1,300,000*	*4,900*	*Combined = 440,000*		*2,100*	*3,000*	*31,000*	*260,000*	*160*	*Chloroform = 2,300, Carbon Disulfide = No Value, Cyclohexane = No Value, Hexane = No Value,*	*No Value*	*No Value*

Notes:

Feet bgs = Feet Below Ground Surface.

PCE = Tetrachloroethene.

TCE = Trichloroethene.

cis-1,2-TCE = cis-1,2-Dichloroethene.

trans-1,2-TCE = trans-1,2-Dichloroethene.

DFA = 1,1-Difluoroethane. (tracer gas)

ND = Not Detected.

a = Laboratory Note: exceeds instrument calibration range.

Percent Shroud = The ratio of tracer gas concentration detected in the soil gas sample to the tracer gas concentration detected in the shroud air sample, expressed as a percentage.

ESL[1] = Environmental Screening Level, by San Francisco Bay – Regional Water Quality Control Board , updated December 2013 from Table E-2 – Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion for Residential Land Use.

ESL[2] = Environmental Screening Level, by San Francisco Bay – Regional Water Quality Control Board , updated December 2013 from Table E-2 – Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion for Commercial/Industrial Land Use.

Values in bold exceed their respective ESL[1] values.

Underlined values exceed their respective ESL[2] values.

Results in micrograms per cubic meter (µg/m3), unless otherwise indicated

Table 1B

Summary of Soil Gas Shroud Sample Analytical Results - Difluoroethane

Sample ID	Sample Date	DFA, #
SG1-7	12/2/2015	21,000,000
SG2-7	12/2/2015	12,000,000
SG2-17	12/2/2015	9,200,000
SG3-17	12/2/2015	8,800,000
SG4-7	12/2/2015	4,000,000
SG5-7	12/2/2015	10,000,000
SG5-17	12/2/2015	7,400,000
SG6-7	12/2/2015	16,000,000
SG6-17	12/2/2015	10,000,000
SG7-7	12/2/2015	18,000,000
SG7-17	12/2/2015	7,600,000
SG8-7	12/2/2015	7,400,000
SG9-17	12/2/2015	9,400,000
SG10-7	12/2/2015	7,800,000

Notes:

ND = Not Detected.

= 1,1-Difluoroethane (DFA) used as leak detection compound for TO-15 analysis.

Results in micrograms per cubic meter ($\mu g/m^3$), unless otherwise indicated.

Table 2A
Summary of Soil Gas Risk and Hazard Analysis

Chemical		Sample Location	Concentration ($\mu g/m^3$)	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	NOTES		CAS#
SG1-7		SG1-7						
Benzene		RESIDENTIAL	10	9.7E-08	3.0E-03			71432
Toluene		6.0 ft. Depth	11	NA	3.0E-05			108883
PCE			5,800	7.7E-06	1.0E-01			127184
Carbon Disulfide			54	NA	7.7E-05			75150
			TOTALS	**7.8E-06**	**1.0E-01**			
SG2-7		SG2-7						
PCE		RESIDENTIAL	59,000	7.8E-05	1.0E+00			127184
		6.0 ft. Depth						
			TOTALS	**7.8E-05**	**1.0E+00**			
SG2-17		SG2-17						
PCE		RESIDENTIAL	120,000	6.8E-05	8.9E-01			127184
		16.0 ft. Depth						
			TOTALS	**6.8E-05**	**8.9E-01**			
SG3-17		SG3-17						
Benzene		RESIDENTIAL	130	5.9E-07	1.8E-02			71432
PCE		16.0 ft. Depth	62,000	3.5E-05	4.6E-01			127184
Cyclohexane			110	NA	7.1E-06			110827
			TOTALS	**3.6E-05**	**4.8E-01**			
SG4-7		SG4-7						
PCE		RESIDENTIAL	3,700	4.9E-06	6.4E-02			127184
		6.0 ft. Depth						
				4.9E-06	**6.4E-02**			
SG4-7 DUP		SG4-7 DUP						
PCE		RESIDENTIAL	3,700	4.9E-06	6.4E-02			127184
		6.0 ft. Depth						
			TOTALS	**4.9E-06**	**6.4E-02**			
SG5-7		SG5-7						
PCE		RESIDENTIAL	23,000	3.1E-05	4.0E-01			127184
		6.0 ft. Depth						
			TOTALS	**3.1E-05**	**4.0E-01**			
SG5-17		SG5-17						
Benzene		RESIDENTIAL	56	2.5E-07	7.9E-03			71432
Toluene		16.0 ft. Depth	54	NA	6.8E-05			108883
PCE			15,000	8.5E-06	1.1E-01			127184
Carbon Disulfide			140	NA	9.7E-05			75150
			TOTALS	**8.8E-06**	**1.2E-01**			
SG6-7		SG6-7						
PCE		Commercial	61,000	9.3E-06	1.3E-01			127184
		6.0 ft. Depth						
			TOTALS	**9.3E-06**	**1.3E-01**			
SG6-17		SG6-17						
Benzene		Commercial	140	7.3E-08	2.3E-03			71432
Toluene		16.0 ft. Depth	170	NA	2.5E-05			108883
PCE			41,000	2.7E-06	3.6E-02			127184
Hexane			89	NA	5.4E-06			110543
			TOTALS	**2.8E-06**	**3.8E-02**			

Table 2A
Summary of Soil Gas Risk and Hazard Analysis

Chemical	Sample Location	Concentration ($\mu g/m^3$)	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)	NOTES	CAS#
SG7-7	SG7-7					
PCE	Commercial	7,000	1.1E-06	1.4E-02		127184
	6.0 ft. Depth					
		TOTALS	**1.1E-06**	**1.4E-02**		
SG7-17	SG7-17					
PCE	Commercial	37,000	2.4E-06	3.3E-02		127184
	16.0 ft. Depth					
		TOTALS	**2.4E-06**	**3.3E-02**		
SG8-7	SG8-7					
Benzene	Commercial	13	1.4E-08	4.6E-04		71432
PCE	6.0 ft. Depth	850	1.3E-07	1.8E-03		127184
		TOTALS	**1.4E-07**	**2.3E-03**		
SG9-17	SG9-17					
Benzene	Commercial	42	2.2E-08	7.0E-04		71432
Toluene	16.0 ft. Depth	30	NA	4.5E-06		108883
PCE		4,000	2.6E-07	3.5E-03		127184
Chloroform		46	1.7E-08	2.1E-05		67663
Carbon Disulfide		170	NA	1.4E-05		75150
Hexane		29	NA	1.8E-06		110543
		TOTALS	**3.0E-07**	**4.2E-03**		
SG9-17 DUP	SG9-17 DUP					
Benzene	Commercial	44	2.3E-08	7.4E-04		71432
Toluene	16.0 ft. Depth	34	NA	5.1E-06		108883
PCE		4,600	3.0E-07	4.0E-03		127184
Chloroform		54	2.0E-08	2.4E-05		67663
Carbon Disulfide		190	NA	1.6E-05		75150
Hexane		39	NA	2.4E-06		110543
		TOTALS	**3.4E-07**	**4.8E-03**		
SG10-7	SG10-7					
PCE	Commercial	1,100	1.7E-07	2.3E-03		127184
	6.0 ft. Depth					
		TOTALS	**1.7E-07**	**2.3E-03**		

NOTES

PCE = Tetrachloroethene.

At Locations SG1-7, SG2-7, SG4-7, and SG5-7 spreadsheet default values were used for a residential exposure, with a vadose zone soil type SI (silt), and a sample depth of 6.0 feet (182.88 cm). At locations SG6-7, SG7-7, SG8-7, and SG10-7 spreadsheet default values were used for a commercial exposure with a vadose zone soil type of SI, and a sample depth of 6.0 inches (182.88 cm). At Locations SG2-17, SG3-17, and SG5-17 spreadsheet default values were used for a residential exposure, with a vadose zone soil type SI, and a sample depth of 16.0 feet (487.68 cm). At locations SG6-17, SG7-17, and SG9-17 spreadsheet default values were used for a commercial exposure with a vadose zone soil type SI , and a sample depth of 16.0 feet (487.68 cm).

Table 2B
Soil Gas Risk and Hazard Calculation Results Summary

Soil Gas Sample Designation	Sample Collection Date	Exposure Scenario	Calculated Cumulative Incremental Carcinogenic Risk	Calculated Cumulative Incremental Carcinogenic Risk Alternate Description	Calculated Cumulative Incremental Carcinogenic Risk Alternate Description	Calculated Hazard Index	Recommendations Based on DTSC-Recommended Guidance for Action or Response (Minimum of Two Adequately-Spaced (With Respect To Time) Soil Gas Sampling Events Needed)
SG1-7	12/2/2015	Residential	7.80E-06	0.0000078	7.8 in a million	0.1	Evaluate need for action- risk greater than 1 in a million.
SG2-7	12/2/2015	Residential	7.80E-05	0.000078	78 in a million	1.0	Evaluate need for action- risk greater than 1 in a million and hazard greater than 1.
SG2-17	12/2/2015	Residential	6.80E-05	0.000068	68 in a million	0.89	Evaluate need for action- risk greater than 1 in a million.
SG3-17	12/2/2015	Residential	3.60E-05	0.000036	36 in a million	0.48	Evaluate need for action- risk greater than 1 in a million.
SG4-7	12/2/2015	Residential	4.90E-06	0.0000049	4.9 in a million	0.064	Evaluate need for action- risk greater than 1 in a million.
SG4-7 DUP	12/2/2015	Residential	4.90E-06	0.0000049	4.9 in a million	0.064	Evaluate need for action- risk greater than 1 in a million.
SG5-7	12/2/2015	Residential	3.10E-05	0.000031	31 in a million	0.40	Evaluate need for action- risk greater than 1 in a million.
SG5-17	12/2/2015	Residential	8.80E-06	0.0000088	8.8 in a million	0.12	Evaluate need for action- risk greater than 1 in a million.
SG6-7	12/2/2015	Commercial	9.30E-06	0.0000093	9.3 in a million	0.13	Evaluate need for action- risk greater than 1 in a million.
SG6-17	12/2/2015	Commercial	2.80E-06	0.0000028	2.8 in a million	0.038	Evaluate need for action- risk greater than 1 in a million.
SG7-7	12/2/2015	Commercial	1.10E-06	0.0000011	1.1 in a million	0.014	Evaluate need for action- risk greater than 1 in a million.
SG7-17	12/2/2015	Commercial	2.40E-06	0.0000024	2.4 in a million	0.033	Evaluate need for action- risk greater than 1 in a million.
SG8-7	12/2/2015	Commercial	1.40E-07	0.00000014	0.14 in a million	0.0023	No further action.
SG9-17	12/2/2015	Commercial	3.00E-07	0.00000030	0.30 in a million	0.0042	No further action.
SG9-17 DUP	12/2/2015	Commercial	3.40E-07	0.00000034	0.34 in a million	0.0048	No further action.
SG10-7	12/2/2015	Commercial	1.70E-07	0.00000017	0.17 in a million	0.0023	No further action.

Notes:

RISK MANAGEMENT MATRIX FOR VAPOR INTRUSION

Risk	Hazard	Response	Activities
Less than 1 in a million	x ≤ 1.0	No Further Action	None
1 to 100 in a million	x ≥ 1.0	Evaluate Need for Action	Possible Actions o Additional Data Collection o Monitoring o Additional Risk Characterization o Mitigation o Source Remediation
More than 100 in a million		Response Action Needed	o Vapor Intrusion Mitigation o Source Remediation

Table 3

Summary of Soil Gas Model Sensitivity Analysis

DTSC Vapor Intrusion Soil Gas Model (December 2014)					
				Incremental	Hazard
				risk from	quotient
				vapor	from vapor
				intrusion to	intrusion to
				indoor air,	indoor air,
		Concentration	Sample Result	carcinogen	noncarcinogen
Chemical		(ug/m^3)	Location	(unitless)	(unitless)
Scenario 1 = Table 1A Highest Concentration with Residential Model Default Values Except for Soil Type = SI.					
PCE		120,000	SG2-17	1.8E-04	2.4E+00
Scenario 2 = Scenario 1 values except average soil temperature is 15 degrees C.					
PCE		120,000	SG2-17	1.8E-04	2.4E+00
Scenario 3 = Scenario 1 values except soil type is CL.					
PCE		120,000	SG2-17	1.4E-04	1.9E+00
Scenario 4 = Scenario 1 values except soil type is S.					
PCE		120,000	SG2-17	2.6E-04	3.4E+00
Scenario 5 = Scenario 1 values except Q_{soil} 1 Liter per minute.					
PCE		120,000	SG2-17	8.4E-05	1.1E+00
Scenario 6 = Scenario 1 values except Q_{soil} 100 Liters per minute.					
PCE		120,000	SG2-17	2.6E-04	3.4E+00
Scenario 7 = Scenario 1 values except soil gas sampling depth is 182.88 cm (6.0 ft).					
PCE		120,000	SG2-17	1.6E-04	2.1E+00
Scenario 8 = Scenario 1 values except soil gas sampling depth is 487.68 cm (16 ft).					
PCE		120,000	SG2-17	6.8E-05	8.9E-01
Scenario 9 = Scenario 1 values except PCE concentration = 12,000 ug/m3.					
PCE		12,000	None	1.8E-05	2.4E-01
Scenario 10 = Scenario 1 values except PCE concentration = 1,200,000 ug/m3.					
PCE		12,000,000	None	2.6E-03	3.4E+01
Notes					
PCE = Tetrachloroethene.					

FIGURES

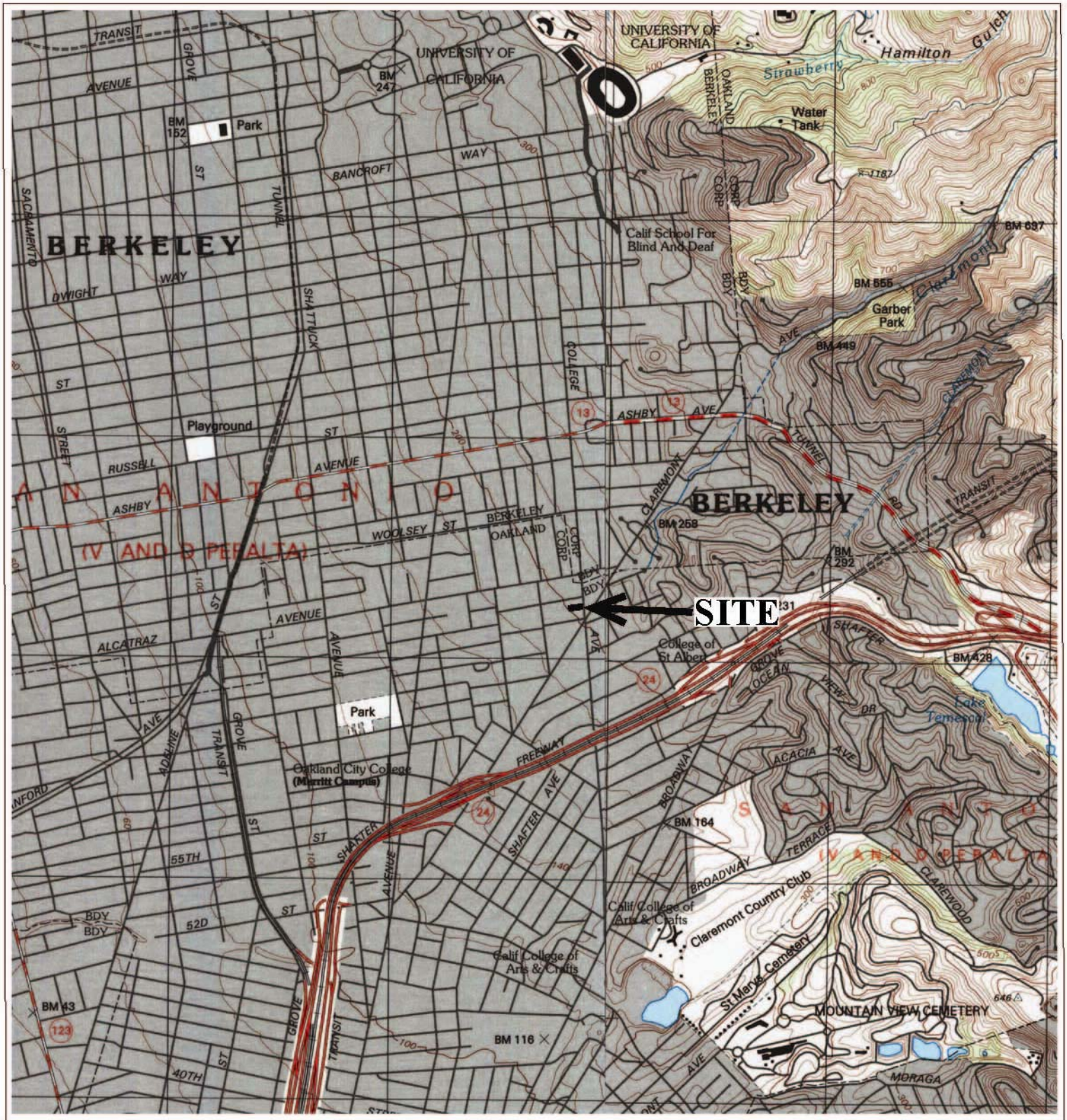

Figure 1
Site Location Map
Red Hanger Kleaners
6239 College Avenue
Oakland, California

Base Map From:
U.S. Geologic Survey 7.5 Minute Quadrangles Oakland East, and Oakland West, both maps edited 1996.

P&D Environmental, Inc.
55 Santa Clara Avenue, Suite 240
Oakland CA 94610

0 1,000 2,000
Approximate Scale in Feet

N

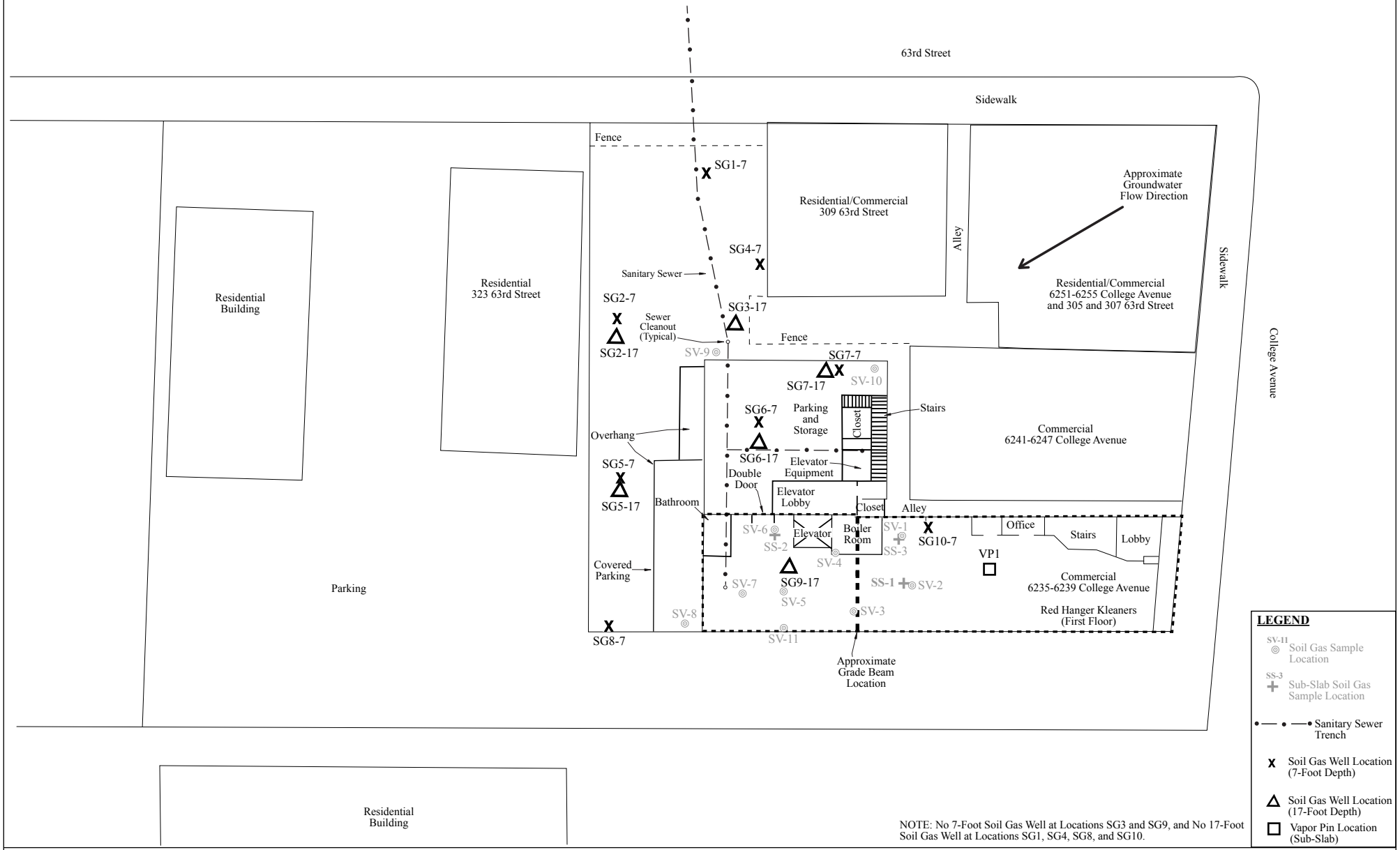

Figure 2
Site Plan Showing Soil Gas Well Locations
Red Hanger Kleaners
6239 College Avenue
Oakland, California

Base Map from:
Gordon Building, July 30, 2007, Alameda
County Assessor's Map, Revised June 15,1989,
and Google Earth, 2015

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

0 15 30
Approximate Scale in Feet

N

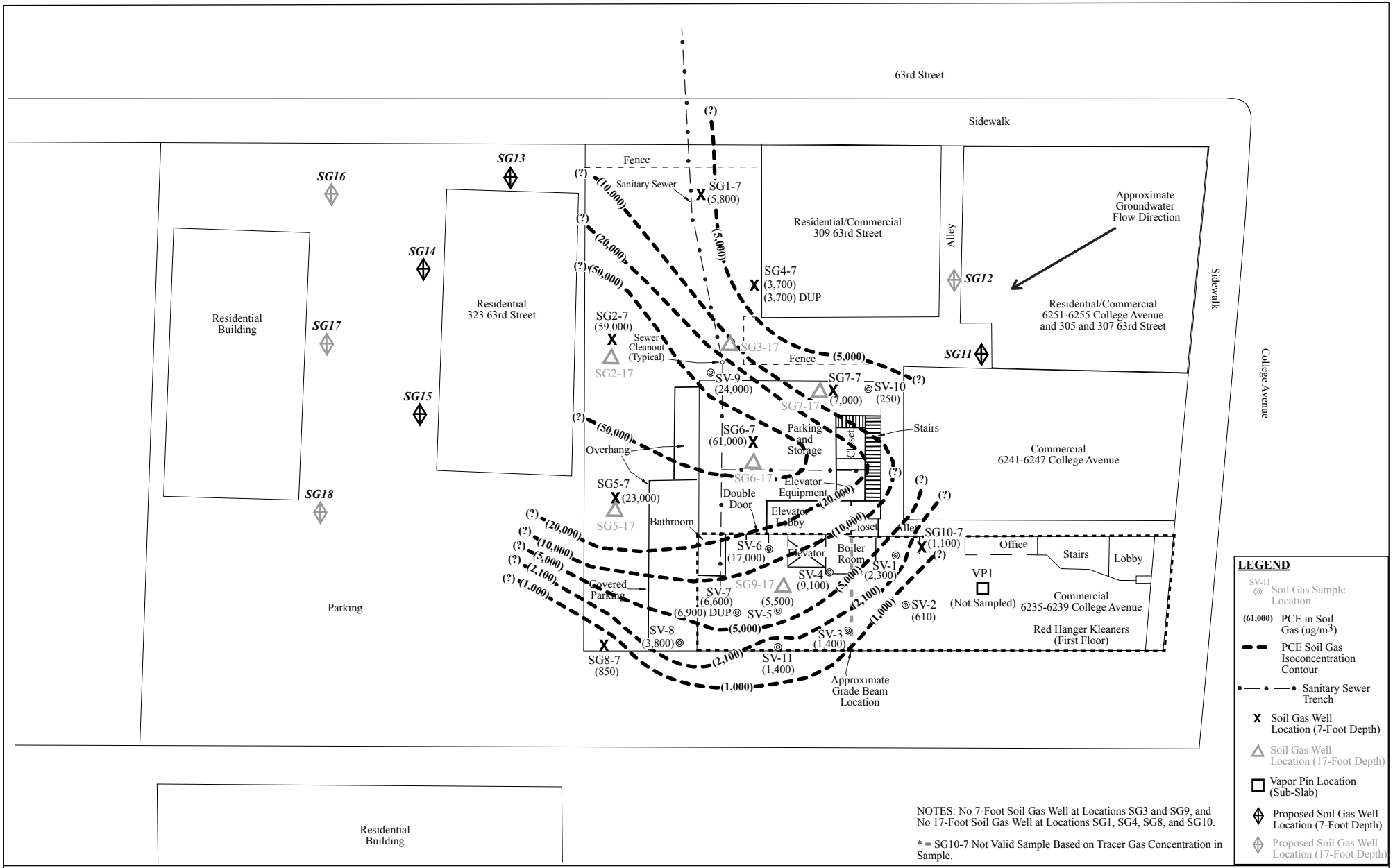

Figure 3
Site Plan Showing PCE Concentrations in Shallow Soil Gas
Red Hanger Kleaners
6239 College Avenue
Oakland, California

Base Map from:
Gordon Building, July 30, 2007, Alameda County Assessor's Map, Revised June 15,1989, and Google Earth, 2015

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

0 15 30
Approximate Scale in Feet

N

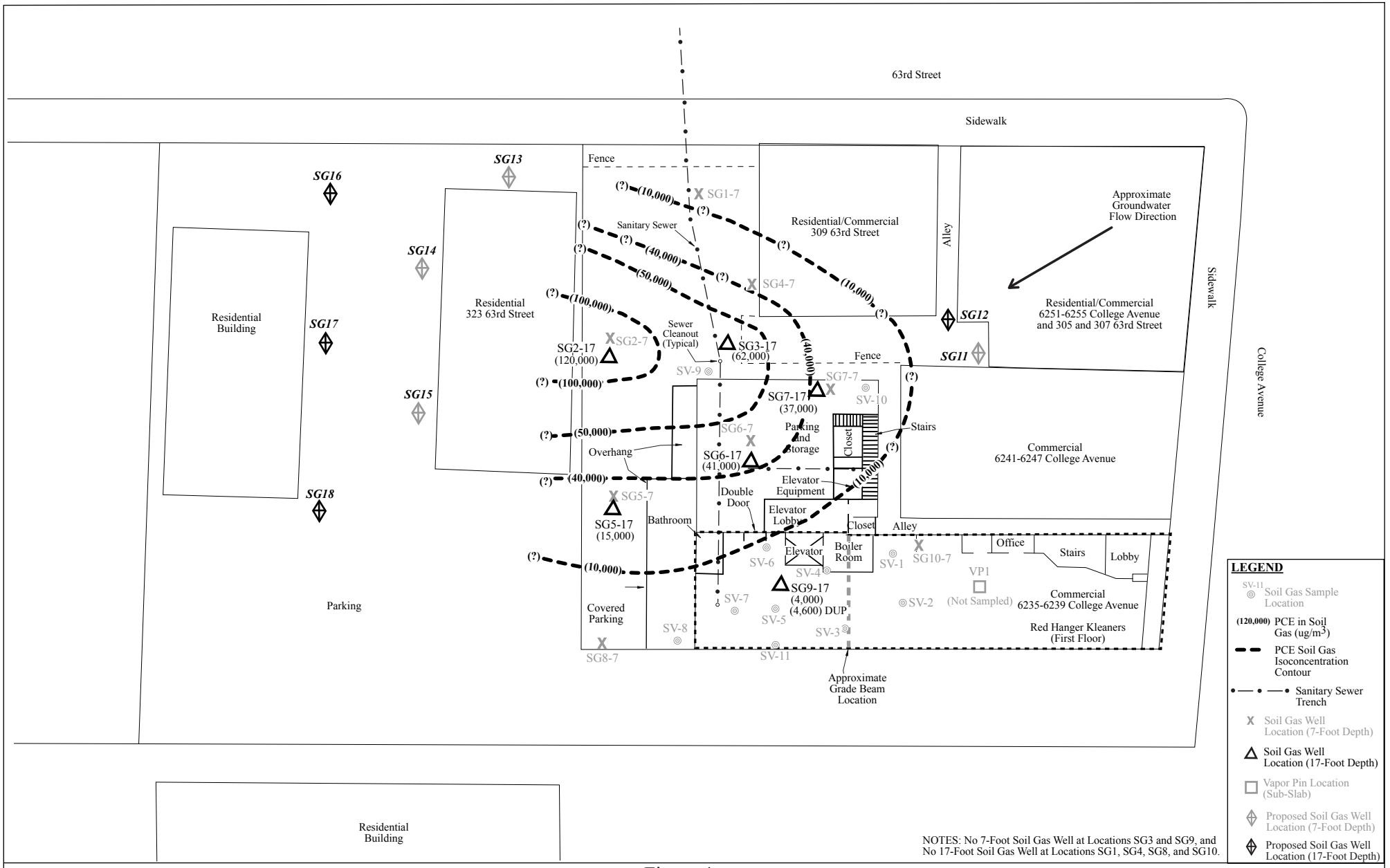

Figure 4
Site Plan Showing PCE Concentrations in Deep Soil Gas
Red Hanger Kleaners
6239 College Avenue
Oakland, California

Base Map from:
Gordon Building, July 30, 2007, Alameda County Assessor's Map, Revised June 15,1989, and Google Earth, 2015

P&D Environmental, Inc.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610

0 15 30
Approximate Scale in Feet

N

Figure 5
Typical Soil Gas Sampling Manifold
Red Hanger Kleaners
6239 College Avenue
Oakland, California

APPENDIX A

Boring Logs

P&D ENVIRONMENTAL, INC.

BORING NO.: SG1-7	PROJECT NO.: 0461	PROJECT NAME: Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 4 ft. south and 14 ft. west of northwest corner of 309 63rd Street		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex, Inc.	DRILLER: Jose	DATE & TIME STARTED: 11/10/15 1430	DATE & TIME FINISHED: 11/11/15 1300
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 7.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY:
FIRST WATER DEPTH: Not Encountered	NO. OF SAMPLES: None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.5 ft. Concrete (6.0-inches)	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0.5 to 2.0 ft. (refusal depth) using 3.5-inch O.D. hand auger.
	0.5 to 5.0 ft. Brown gravelly silt (ML); medium stiff, dry, with abundant coarse and sub-rounded gravel to 2.0-inch diameter. No solvent odor. (35, 0, 65)	ML			0	Borehole continuously cored from 2.0 to 7.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
5	5.0 to 7.0 ft. Dark brown silt (ML); medium stiff, dry. No solvent odor. (0, 0, 100) 6.5 to 7.0 ft. increase in gravel content.				0	Borehole logged from soil cuttings.
10						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
15						
20						
25						
30						

P&D ENVIRONMENTAL, INC.

BORING NO.: SG2-7	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 38 ft. south and 32 ft. west of northwest corner of 309 63rd Street		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Jose	**DATE & TIME STARTED:** 11/10/15 1300	**DATE & TIME FINISHED:** 11/11/15 1315
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 7.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.6 ft. Concrete (4.5-inches), gray sand, and baserock.	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	0.6 to 1.0 ft. Brown gravelly silty clay (CL); medium stiff, moist, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 5, 80)	CL				
	1.0 to 2.5 ft. Dark brown silt (ML); medium stiff, moist. No solvent odor. (0, 0, 100)	ML			0	Borehole continuously cored from 0 to 7.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
5	2.5 to 6.0 ft. Brown silt (ML); medium stiff, moist. No solvent odor. (0, 0, 100)					Borehole loged from soil cuttings.
	6.0 to 7.0 ft. Dark brown silty clay (CL); medium stiff, moist. No solvent odor. (0, 0, 100)	CL			0	
10						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG2-17	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 41 ft. south and 32 ft. west of northwest corner of 309 63rd Street		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Jose	**DATE & TIME STARTED:** 11/10/15 1000	**DATE & TIME FINISHED:** 11/11/15 1330
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 17.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.6 ft. Concrete (4.5-inches), gray sand, and baserock.	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	0.6 to 1.0 ft. Brown gravelly silty clay (CL); medium stiff, moist, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 5, 80)	CL				
	1.0 to 2.5 ft. Dark brown silt (ML); medium stiff, moist. No solvent odor. (0, 0, 100)	ML			0	Borehole continuously cored from 0 to 17.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
5	2.5 to 6.0 ft. Brown silt (ML); medium stiff, moist. No solvent odor. (0, 0, 100)					Borehole was logged by visual inspection of soil cuttings and driller's observations when coarse materials were encountered.
	6.0 to 9.0 ft. Dark brown silty clay (CL); medium stiff, moist. No solvent odor. (0, 0, 100)	CL			0	
10	9.0 to 14.0 ft. Gray clayey gravel (GC); moist, with coarse to sub-rounded gravel to 0.5-inch diameter. No solvent odor. (80, 0, 20)	GC			0	
15	14.0 to 15.5 ft. Brown silty clay (CL); stiff, moist. No solvent odor. (0, 0, 100)	CL			0	
	15.5 to 17.0 ft. Gray clayey gravel (GC); moist, with coarse to sub-rounded gravel to 1.0-inch diameter. No solvent odor. (80, 0, 20)	GC				
20						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG3-17	PROJECT NO.: 0461	PROJECT NAME: Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 40 ft. south and 7 ft. west of northwest corner of 309 63rd Street		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex, Inc.	DRILLER: Jose	DATE & TIME STARTED: 11/10/15 0800	DATE & TIME FINISHED: 11/11/15 1345
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 17.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY:
FIRST WATER DEPTH: Not Encountered	NO. OF SAMPLES: None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.0 ft. Concrete (5.0-inches) and baserock.	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	1.0 to 3.0 ft. Dark brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)	ML				
	3.0 to 4.0 ft. Brown silt (ML); medium stiff, dry. No solvent odor. (0, 0, 100)				0	Borehole continuously cored from 0 to 17.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
5	4.0 to 5.0 ft. Dark brown gravelly silt (ML); medium stiff, moist, with abundant coarse angular gravel to 1.5-inch diameter. No solvent odor. (25, 5, 70)					
	5.0 to 7.0 ft. Dark brown silt (ML); medium stiff, dry. No solvent odor. (0, 0, 100)				0	Borehole was logged by visual inspection of soil cuttings and driller's observations when coarse materials were encountered.
	7.0 to 11.0 ft. Dark brown silty clay (CL); medium stiff, moist. No solvent odor. (0, 0, 100)	CL			0	
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	11.0 to 14.0 ft. Brown gravelly silty clay (CL); stiff, moist, with abundant coarse angular gravel to 0.5-inch diameter. No solvent odor. (35, 5, 60)				0	
	14.0 to 16.5 ft. Brown silty clay (CL); stiff, moist. No solvent odor. (0, 0, 100)				0	
15	16.5 to 17.0 ft. Gray clayey gravel (GC); moist, with coarse to sub-rounded gravel to 1.0-inch diameter. No solvent odor. (70, 0, 30)	GC				
						Drilling Notes:
20						1) Field estimates of percent gravel, sand, and fines are shown in parentheses.
						2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG4-7	PROJECT NO.: 0461	PROJECT NAME: Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 27 ft. south and 2 ft. west of northwest corner of 309 63rd Street		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex, Inc.	DRILLER: Alex	DATE & TIME STARTED: 11/10/15 1340	DATE & TIME FINISHED: 11/11/15 1400
DRILLING EQUIPMENT: 6.0-inch O.D. Hand Auger			
COMPLETION DEPTH: 7.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY:
FIRST WATER DEPTH: Not Encountered	NO. OF SAMPLES: None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.0 ft. Dark brown gravelly silty sand (FILL). No solvent odor.	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	1.0 to 3.5 ft. Brown gravelly silt (ML); medium stiff, dry, with abundant gravel to 1.0-inch diameter. No solvent odor. (20, 0, 80)	ML			0	Borehole hand augered from 0 to 7.0 ft. using a 6.0-inch O.D. hand auger.
5	3.5 to 7.0 ft. Dark brown silt (ML); medium stiff, dry. No solvent odor. (0, 0, 100)				0	Borehole logged from soil cuttings.
10						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG5-7	PROJECT NO.: 0461	PROJECT NAME: Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 33 ft. north and 19 ft. west of southwest corner of 6235-6239 College Ave.		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex, Inc.	DRILLER: Jose	DATE & TIME STARTED: 11/10/15 1150	DATE & TIME FINISHED: 11/11/15 1430
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 7.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY:
FIRST WATER DEPTH: Not Encountered	NO. OF SAMPLES: None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.5 ft. Concrete (5.0-inches), gravel, and baserock.	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	1.5 to 3.5 ft. Dark brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)	ML			0	Borehole continuously cored from 0 to 7.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
5	3.5 to 7.0 ft. Brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)				0	Borehole logged from soil cuttings.
10						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG5-17	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 30 ft. north and 19 ft. west of southwest corner of 6235-6239 College Avenue		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Jose	**DATE & TIME STARTED:** 11/10/15 0730	**DATE & TIME FINISHED:** 11/11/15 1415
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 17.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.5 ft. Concrete (5.0-inches), gravel, and baserock.	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	1.5 to 3.5 ft. Dark brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)	ML			0	Borehole continuously cored from 0 to 17.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
5	3.5 to 7.0 ft. Brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)				0	Borehole was logged by visual inspection of soil cuttings and driller's observations when coarse materials were encountered.
	7.0 to 10.0 ft. Dark brown gravelly silt (ML); medium stiff, moist, with some coarse angular gravel to 0.5-inch diameter. No solvent odor. (25, 0, 75)				0	
10	10.0 to 11.0 ft. Dark brown gravelly silty clay (CL); stiff, moist, with abundant coarse angular gravel to 0.5-inch diameter. No solvent odor. (30, 10, 60)	CL				
	11.0 to 12.0 ft. Clayey gravel (GC); moist, with coarse angular gravel to 0.5-inch diameter. (80, 5, 25)	GC			0	
	12.0 to 15.0 ft. Brown sandy silty clay (CL); stiff, moist, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (10, 15, 75)	CL			0	
15	15.0 to 17.0 ft. Dark brown silty gravel (GM); moist, with abundant coarse angular gravel to 1.0-inch diameter. No solvent odor. (60, 10, 30)	GM				
20						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG6-7	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 21 ft. north and 11 ft. east of northwest corner of 6235-6239 College Ave.		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Jose	**DATE & TIME STARTED:** 11/10/15 1020	**DATE & TIME FINISHED:** 11/11/15 1445
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 7.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.0 ft. Concrete (5.0-inches) and brown gravelly silty sand (FILL).	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	1.0 to 3.0 ft. Dark brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)	ML				Borehole continuously cored from 0 to 7.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
	3.0 to 4.0 ft. Brown gravelly silt (ML); medium stiff, dry, with few coarse angulargravel to 0.5-inch diameter. No solvent odor. (10, 0, 90)				0	
5	4.0 to 7.0 ft. Dark brown gravelly silty clay (CL); stiff, moist, with abundant coarse angular gravel to 0.5-inch diameter. No solvent odor. (30, 10, 60)	CL			0	Borehole logged from soil cuttings.
10						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG6-17	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 19 ft. north and 11 ft. east of northwest corner of 6235-6239 College Avenue		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Jose	**DATE & TIME STARTED:** 11/10/15 1230	**DATE & TIME FINISHED:** 11/11/15 1500
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 17.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.0 ft. Concrete (5.0-inches), and brown gravelly silty sand (FILL).	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger. Borehole continuously cored from 0 to 17.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig. Borehole was logged by visual inspection of soil cuttings and driller's observations when coarse materials were encountered.
	1.0 to 3.0 ft. Dark brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)	ML				
	3.0 to 4.0 ft. Brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. (10, 0, 90)				0	
5	4.0 to 7.0 ft. Dark brown gravelly silty clay (CL); stiff, moist, with abundant coarse angular gravel to 0.5-inch diameter. No solvent odor. (30, 10, 60)	CL			0	
	7.0 to 10.5 ft. Dark brown clayey silt (ML); medium stiff, moist. No solvent odor. (0, 0, 100)	ML			0	
10	10.5 to 15.0 ft. Brown silty silty clay (CL); stiff, moist. No solvent odor. (0, 0, 100)	CL			0	
15	15.0 to 17.0 ft. Dark brown gravelly clayey sand (SC); medium dense, moist, with abundant coarse sub-rounded gravel to 1.0-inch diameter. No solvent odor. (35, 50, 15)	SC			0	Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG7-7	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 2 ft. south and 11 ft. west of northwest corner of 6235-6239 College Ave.		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Jose	**DATE & TIME STARTED:** 11/10/15 0850	**DATE & TIME FINISHED:** 11/11/15 1430
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 7.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.8 ft. Concrete (7.5-inches).	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	0.8 to 1.0 ft. Brown gravelly silty sand (FILL). No solvent odor.					
	1.0 to 4.0 ft. Dark brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)	ML			0	Borehole continuously cored from 0 to 7.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
	4.0 to 4.5 ft. Brown silt (CL); medium stiff, dry. No solvent odor. (0, 0, 100)					Borehole logged from soil cuttings.
5	4.5 to 7.0 ft. Dark brown silty clay (CL); medium stiff, moist. No solvent odor. (0, 0, 100)	CL			0	
10						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG7-17	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 2 ft. south and 15 ft. west of northwest corner of 6235-6239 College Avenue		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Jose	**DATE & TIME STARTED:** 11/9/15 0815	**DATE & TIME FINISHED:** 11/11/15 1445
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 17.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.5 ft. Concrete (7.5-inches), gravel, and baserock.	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 5.5 ft. using 3.5-inch O.D. hand auger. Refusal depth.
	0.5 to 1.0 ft. Brown gravelly silty sand (FILL). No solvent odor.					
	1.0 to 4.0 ft. Dark brown gravelly silt (ML); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (15, 0, 85)	ML			0	Borehole continuously cored from 0 to 17.0 ft. using a track rig-mounted 6.0-inch O.D. hollow stem auger drill rig.
	4.0 to 4.5 ft. Brown silt (CL); medium stiff, dry. No solvent odor. (0, 0, 100)	CL				Borehole was logged by visual inspection of soil cuttings and driller's observations when coarse materials were encountered.
5	4.5 to 7.0 ft. Dark brown silty clay (CL); medium stiff, dry. No solvent odor. (0, 0, 100) 5.0 to 7.0 ft. Increase in gravel content to 2.0-inch diameter. Hand auger refusal depth at 5.5 ft.				0	
	7.0 to 9.0 ft. Dark brown silty clay (CL); stiff, moist. No solvent odor. (0, 0, 100)				0	
	9.0 to 10.0 ft. Gray sandy gravel (GW); dry, with coarse angular gravel to 1.5-inch diameter. No solvent odor. (60, 15, 25)	GW				
10	10.0 to 14.0 ft. Brown sandy clay (CL); stiff, moist. No solvent odor. (10, 15, 75)	CL			0	
15	14.0 to 17.0 ft. Brown silty clay (CL); stiff, moist. No solvent odor. (0, 0, 100)				0	
20						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG8-7	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Approx. 2 ft. north and 19 ft. west of southwest corner of 6235-6239 College Ave.		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Alex	**DATE & TIME STARTED:** 11/10/15 1055	**DATE & TIME FINISHED:** 11/11/15 1500
DRILLING EQUIPMENT: 6-Inch O.D. Hand Auger			
COMPLETION DEPTH: 7.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.5 ft. Concrete (6.0-inches).	Concrete		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	0.5 to 1.5 ft. Brown gravelly sand (FILL). No solvent odor.	FILL				
	1.5 to 2.7 ft. Concrete (14.5-inches).	Concrete				Borehole hand augered from 0 to 7.0 ft. using a 6.0-inch O.D. hand auger.
	2.7 to 5.0 ft. Dark brown gravelly silt (ML); medium stiff, dry, with some coarse angular gravel to 0.5-inch diameter. No solvent odor. (20, 0, 80)				0	Borehole logged from soil cuttings.
5	5.0 to 7.0 ft. Brown silt (CL); medium stiff, dry, with few coarse angular gravel to 0.5-inch diameter. No solvent odor. (10, 0, 90)	ML			0	
10						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG9-17	PROJECT NO.: 0461	PROJECT NAME: Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Inside 6235-6239 College Avenue Approx. 11 ft. south and 19 ft. east of northwest corner		ELEVATION AND DATUM: None	
DRILLING AGENCY: Vironex, Inc.	DRILLER: Jose	DATE & TIME STARTED: 11/9/15 0815	DATE & TIME FINISHED: 11/11/15 1515
DRILLING EQUIPMENT: 6.0-Inch O.D. Hollow Stem Auger Track rig			
COMPLETION DEPTH: 17.0 Feet	BEDROCK DEPTH: Not Encountered	LOGGED BY: MLBD	CHECKED BY:
FIRST WATER DEPTH: Not Encountered	NO. OF SAMPLES: None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 1.0 ft. Concrete (6.0-inches), 1-inch of sand, plastic membrane, and 5-inches of pea gravel.			Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 5.5 ft. using 3.5-inch O.D. hand auger. Refusal depth.
	1.0 to 3.0 ft. Brown gravelly clayey sand (FILL).	FILL			0	Borehole continuously cored from 0 to 17.0 ft. using a track rig-mounted 6-inch O.D. hollow stem auger drill rig.
5	3.0 to 7.0 ft. Gray gravelly silty sand (FILL); dry, dense, with abundant coarse angular gravel to 1.75-inch diameter, nails, and metal debris. No solvent odor.				0	Borehole was logged by visual inspection of soil cuttings and driller's observations when coarse materials were encountered.
	7.0 to 9.0 ft. Dark brown sandy clay (CL); moist, stiff. No solvent odor. (0, 20, 80)	CL			0	
	9.0 to 10.0 ft. Dark brown silt (ML); moist, stiff. No solvent odor. (0, 0, 100)	ML				
10					0	
	10.0 to 17.0 ft. Brown clay (CL); moist, stiff. No solvent odor. (0, 0, 100)	CL				
15					0	
20						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
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P&D ENVIRONMENTAL, INC.

BORING NO.: SG10-7	**PROJECT NO.:** 0461	**PROJECT NAME:** Red Hanger Kleaners, 6239 College Ave., Oakland	
BORING LOCATION: Inside 6235-6239 College Avenue Approx. 2 ft. south and 51 ft. east of northwest corner		**ELEVATION AND DATUM:** None	
DRILLING AGENCY: Vironex, Inc.	**DRILLER:** Alex	**DATE & TIME STARTED:** 11/11/15 0905	**DATE & TIME FINISHED:** 11/11/15 1530
DRILLING EQUIPMENT: 6-Inch O.D. Hand Auger			
COMPLETION DEPTH: 7.0 Feet	**BEDROCK DEPTH:** Not Encountered	**LOGGED BY:** MLBD	**CHECKED BY:**
FIRST WATER DEPTH: Not Encountered	**NO. OF SAMPLES:** None		

DEPTH (FT.)	DESCRIPTION	GRAPHIC COLUMN	BLOW COUNT PER 6"	WELL CONSTRUCTION LOG	PID	REMARKS
	0.0 to 0.5 ft. Concrete (6.0-inches).					
	0.5 to 2.0 ft. Sand and gravel (FILL).	FILL		Soil Gas Well Constructed In Borehole	0	Borehole hand augered from 0 to 7.0 ft. using 3.5-inch O.D. hand auger.
	2.0 to 4.5 ft. Dark brown clay (CL); moist, medium stiff. No solvent odor. (0, 0, 100)	CL			0	Borehole hand augered from 0 to 7.0 ft. using a 6.0-inch O.D. hand auger.
5	4.5 to 5.5 ft. Dark brown clayey gravelly sand (SW); moist, medium dense, with abundant coarse to sub-rounded gravel to 1.0-inch diameter. No solvent odor. (35, 45, 20)	SW				Borehole logged from soil cuttings.
	5.5 to 7.0 ft. Dark brown gravelly clay (CL); moist, medium stiff, with some coarse angular gravel to 0.5-inch diameter. No solvent odor. (20, 0, 80)	CL			0	
10						Drilling Notes: 1) Field estimates of percent gravel, sand, and fines are shown in parentheses. 2) Density determinations are qualitative and are not based on quantitative evaluation.
15						
20						
25						
30						

APPENDIX B

Purge Volume Calculations and Soil Gas Sampling Data Sheets

Report 0461.R3
Appendix A
8.0 feet tubing, 24 inch sand interval, 6 inch hydrated bentonite interval above sand

Soil Gas Purge Volume Calculations

One Purge Volume is calculated as the volume of the tubing interior plus 200 cubic centimeters.

The tubing interior volume is calculated as follows:

V tubing = pi x (r x r) x h, where pi = 3.14, r = 0.187 in/2, and h = 8 ft.

V tubing = 3.14 x (0.0935 x 0.0935) x (8 ft. x 12 in./ft) = 2.64 cubic inches.

The sand interval volume is calculated as follows:

V sand interval = pi x (r x r) x h x porosity, where pi = 3.14, r = 0 in./2, h = 24 in., and porosity = 0.35

V sand interval = 3.14 x (0 x 0) x 24 x 0.35 = 0.00 cubic inches.

The total volume for one purge volume is V tubing + V sand interval, where

V total = 2.64 cubic inches + 0.00 cubic inches = 2.64 cubic inches.

To convert to cubic centimeters:

V total = 2.64 cubic inches x 16.39 cubic centimeters/cubic inches = 43.2 cubic centimeters.

The total tubing volume to be purged is 1 purge volumes.

V purge total = 43.2 cubic centimeters x 1 = 43 cubic centimeters.

V TOTAL = 43 + default 200 cubic centimeters 200 = 243

The flow controller has a nominal flow rate of 150 cubic centimeters per minute.

The purge time is calculated as follows:

T purge = 243 cubic centimeters/ 150 cubic centimeters per minute = 1.62 minutes.

Converting the purge time to seconds, 1.62 minutes x 60seconds/ minute = 97 seconds.

Notes:

Yellow hi-lite indicates data entry required.
Blue hi-lite indicates values are calculated or automatically updated.

Sand interval is 2 ft from 5 to 7 ft bgs, filter is at center of sand pack, 2 ft tubing stickup above grade, 6 ft + 2 ft = 8 ft tubing, is hydrated, cement seal above bentonite.

Report 0461.R3
Appendix A
18.0 feet tubing, 24 inch sand interval, 6 inch hydrated bentonite interval above sand

Soil Gas Purge Volume Calculations

One Purge Volume is calculated as the volume of the tubing interior plus 200 cubic centimeters.

The tubing interior volume is calculated as follows:

V tubing = pi x (r x r) x h, where pi = 3.14, r = 0.187 in/2, and h = 18 ft.

V tubing = 3.14 x (0.0935 x 0.0935) x (18 ft. x 12 in./ft) = 5.93 cubic inches.

The sand interval volume is calculated as follows:

V sand interval = pi x (r x r) x h x porosity, where pi = 3.14, r = 0 in./2, h = 24 in., and porosity = 0.35

V sand interval = 3.14 x (0 x 0) x 24 x 0.35 0.00 cubic inches.

The total volume for one purge volume is V tubing + V sand interval, where

V total = 5.93 cubic inches + 0.00 cubic inches = 5.93 cubic inches.

To convert to cubic centimeters:

V total = 5.93 cubic inches x 16.39 cubic centimeters/cubic inches = 97.2 cubic centimeters.

The total tubing volume to be purged is 1 purge volumes.

V purge total = 97.2 cubic centimeters x 1 97 cubic centimeters.

V TOTAL = 97 + default 200 cubic centimeters 200 = 297

The flow controller has a nominal flow rate of 150 cubic centimeters per minute.

The purge time is calculated as follows:

T purge = 297 cubic centimeters/ 150 cubic centimeters per minute = 1.98 minutes.

Converting the purge time to seconds, 1.98 minutes x 60seconds/ minute = 119 seconds.

Notes:

Yellow hi-lite indicates data entry required.
Blue hi-lite indicates values are calculated or automatically updated.

Sand interval is 2 ft from 15 to 17 ft bgs, filter is at center of sand pack, 2 ft tubing stickup above grade, 16 ft + 2 ft = 18 ft tubing, 0.5 ft of bentonite above sand is hydrated, cement seal above bentonite.

SOIL GAS SAMPLING DATA SHEET
Address 6839 COLLEGE AVE, OAKLAND CA
Job # 0461
Date 12-2-15
Sampler Name MLBD / JHM
Drilling Company VIRONEX

Probe Method (check one)
o PRT
o Temp Well
X Permanent Well
o Vapor Pin

Soil Gas Location Designation	Probe Depth (Ft.)	Time Probe Installation Completed	Canister #	Sample Canister Initial Vacuum Check (In. Hg) and time	Start leak check vacuum (In. Hg) and time	End leak check vacuum (In. Hg) and time	ADDITIONAL leak check vacuum (In. Hg) and time	Start PURGE time	End PURGE time	Start of tracer gas injection time	Begin sample collection vacuum (In. Hg) and time	End sample collection vacuum (In. Hg) and time	PID value in Teflon tube after sample collection	NOTES
SG 1-7	6	0800	37715	vac -30 time 0800	vac -25 time 0835	vac -25 time 0845	vac time	091100 time	091237 time	time	vac -30 time 092720	vac -5 time 093150	ppm 0 time 0938	DFA 0925
SG 2-7	6		~~IL1922~~ 35627	vac -30 time 0810	vac -25 time 1045	vac -25 time 1055	vac time	110500 time	110637 time	time	vac -30 time 111400	vac -5 time 113520	ppm 7 time 1127	DFA 1115
SG 2-17	6		34171	vac -30 time 0813	vac -25 time 1100	vac -25 time 1110	vac time	111800 time	111958 time	time	vac -30 time 112300	vac -5 time 112950	ppm 24 time 1132	DFA 1124
SG 3-17	6		34088	vac -30 time 0808	vac -25 time 1007	vac -25 time 1017	vac time	101300 time	101458 time	time	vac -30 time 101940	vac -5 time 102605	ppm 9 time 1029	DFA 1020
SG 4-7	6		IL1557	vac -30 time 0803	vac -25 time 0850	vac -25 time 0900	vac time	091300 time	091437 time	time	vac -30 time 093010	vac -5 time 094315	ppm 0 time 0945	DFA 0929
SG 4-7 DUP	6		1028	vac -30 time 0805	vac -25 time 0850	vac -25 time 0900	vac time	091300 time	091437 time	time	vac -30 time 093010	vac -5 time 094315	ppm 0 time 0945	
SG 5-7	6		37311	vac -30 time 0815	vac -24 time 1230	vac -24 time 1240	vac time	135900 time	140137 time	time	vac -30 time 130430	vac -5 time 131120	ppm 2 time 1314	DFA 1304
SG 5-17	6		34634	vac -30 time 818	vac -24 time 1245	vac -24 time 1255	vac time	130800 time	130958 time	time	vac -30 time 132030	vac -5 time 132415	ppm 1.3 time 1325	DFA 1320
SG 6-7	6		37300	vac -28 time 0823	vac -23 time 1425	vac -23 time 1435	vac time	143700 time	143837 time	time	vac -30 time 144100	vac -5 time 144956	ppm 12 time 1451	DFA 1442
SG 6-17	6		3039	vac -30 time 0825	vac -23 time 1440	vac -23 time 1450	vac time	144600 time	144758 time	time	vac -30 time 145000	vac -5 time 145545	ppm 14 time 1457	DFA 1451
SG 7-7	6		33410	vac -30 time 1330	vac -23 time 1335	vac -23 time 1345	vac time	134800 time	134937 time	time	vac -30 time 135700	vac -5 time 140310	ppm 0 time 1405	DFA 1358
SG 7-17	6		IL2730	vac -30 time 0820	vac -23 time 1340	vac -23 time 1350	vac time	135800 time	135958 time	time	vac -30 time 141000	vac -5 time 141910	ppm 6 time 1420	DFA 1411
SG 8-7	6		34129	vac -30 time 0808	vac -25 time 0930	vac -25 time 0940	vac time	103400 time	103537 time	time	vac -30 time 103900	vac -5 time 104535	ppm 0 time 1047	DFA 1038

P2of2

SOIL GAS SAMPLING DATA SHEET
Address 6239
Job # 5461
Date 12-2-15
Sampler Name MLBD
Drilling Company VIRONEX

Probe Method (check one)
o PRT
o Temp Well
☒ Permanent Well
o Vapor Pin

Soil Gas Location Designation	Probe Depth (Ft.)	Time Probe Installation Completed	Canister #	Sample Canister Initial Vacuum Check (In. Hg) and time	Start leak check vacuum (In. Hg) and time	End leak check vacuum (In. Hg) and time	ADDITIONAL leak check vacuum (In. Hg) and time	Start PURGE time	End PURGE time	Start of tracer gas injection time	Begin sample collection vacuum (In. Hg) and time	End sample collection vacuum (In. Hg) and time	PID value in Teflon tube after sample collection	NOTES
SG9-17	16		1L(515	vac -29 time 0828	vac -22 time 1510	vac -22 time 1520	vac time	152500 time	152658 time	time	vac -29 time 153000	vac -5 time 154655	ppm 14 time 1548	DFA 1531
SG9-17 DUP			36397	vac -29 time 0830	vac -22 time 1510	vac -22 time 1520	vac time	152500 time	152658 time	time	vac -29 time 153000	vac -5 time 154655	ppm 14 time 1548	
SG10-7	6		9477	vac -30 time 1510	vac -21 time 1525	vac -21 time 1535	vac time	153700 time	153837 time	time	vac -30 time 154800	vac -5 time 155510	ppm 14 time 1558	DFA 1549
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	
SG				vac time	vac time	vac time	vac time	time	time	time	vac time	vac time	ppm time	

APPENDIX C

Weather Information

Report 0461.R3

http://www.wunderground.com/personal-weather-station/dashboard?ID=KCABERKE41#history/tdata/s20151101/e20151231/mcustom

About This Weather Station

Weather Station ID: KCABERKE41

Station Name: Elmwood
Latitude / Longitude: N 37 ° 51 ' 18 ", W 122 ° 15 ' 5 "
Elevation: 253
City: Berkeley
State: CA
Hardware: AcuRite Pro Weather Center
Software: Acu-link.com

Weather History Table
November 1, 2015 - December 31, 2015

2015	Temperature			Dew Point			Humidity			Speed			Pressure			Precip. Accum.
Nov	High	Avg	Low	High	Avg	Low	High	Avg	Low	High	Avg	Gust	High	Avg	Low	Sum
1	83.3 °F	63.6 °F	54 °F	61.6 °F	58.1 °F	52.3 °F	96 %	84 %	47 %	5 mph	1 mph	0 mph	29.92 in	29.81 in	29.7 in	0.37 in
2	73.9 °F	56.3 °F	47.1 °F	57.1 °F	51.3 °F	44.4 °F	97 %	85 %	49 %	5 mph	1 mph	0 mph	29.69 in	29.6 in	29.51 in	0.49 in
3	77.5 °F	55.2 °F	46 °F	47.4 °F	44.2 °F	39.9 °F	90 %	70 %	30 %	5 mph	1 mph	0 mph	29.72 in	29.65 in	29.58 in	0 in
4	64 °F	48 °F	42.4 °F	42.9 °F	35.4 °F	32.4 °F	84 %	62 %	32 %	3 mph	0 mph	0 mph	29.9 in	29.81 in	29.71 in	0 in
5	76.5 °F	54.4 °F	41.7 °F	51 °F	41.4 °F	33 °F	81 %	64 %	30 %	5 mph	0 mph	0 mph	30.03 in	29.97 in	29.9 in	0 in
6	80.1 °F	57.8 °F	45.3 °F	45.3 °F	42.1 °F	39.7 °F	88 %	60 %	27 %	3 mph	0 mph	0 mph	30.03 in	29.99 in	29.95 in	0 in
7	80.8 °F	58.8 °F	43.2 °F	50 °F	45.5 °F	41.6 °F	95 %	67 %	30 %	3 mph	1 mph	0 mph	29.95 in	29.87 in	29.79 in	0 in
8	67.6 °F	57.9 °F	46.8 °F	55.3 °F	51 °F	44.4 °F	94 %	78 %	60 %	5 mph	1 mph	0 mph	29.79 in	29.75 in	29.71 in	0 in
9	63.3 °F	50.9 °F	45.5 °F	52.9 °F	45.8 °F	42.8 °F	96 %	84 %	57 %	3 mph	1 mph	0 mph	29.81 in	29.74 in	29.67 in	0.14 in
10	72.1 °F	49.6 °F	39.2 °F	46 °F	42.3 °F	37.6 °F	97 %	78 %	37 %	3 mph	0 mph	0 mph	30.11 in	29.96 in	29.81 in	0 in
11	73.8 °F	54.1 °F	40.6 °F	49.9 °F	42.7 °F	38.3 °F	97 %	68 %	37 %	4 mph	1 mph	0 mph	30.18 in	30.12 in	30.06 in	0 in
12	78.8 °F	52.2 °F	39.7 °F	47.9 °F	42 °F	37.3 °F	95 %	72 %	31 %	4 mph	0 mph	0 mph	30.06 in	29.97 in	29.88 in	0 in
13	81 °F	53.9 °F	40.8 °F	48.8 °F	41.9 °F	37.1 °F	97 %	69 %	28 %	2 mph	0 mph	0 mph	29.88 in	29.82 in	29.76 in	0 in
14	76.3 °F	52.1 °F	41 °F	50.7 °F	44.1 °F	36.4 °F	94 %	77 %	38 %	3 mph	0 mph	0 mph	29.77 in	29.69 in	29.6 in	0 in
15	66.6 °F	54.3 °F	47.3 °F	51 °F	44.2 °F	33.7 °F	97 %	70 %	46 %	10 mph	2 mph	0 mph	29.86 in	29.69 in	29.51 in	0.4 in
16	68.5 °F	51.7 °F	41.5 °F	35.6 °F	32.5 °F	25.1 °F	76 %	51 %	22 %	6 mph	1 mph	0 mph	30.09 in	29.98 in	29.86 in	0 in
17	76.8 °F	55.1 °F	46.8 °F	51.6 °F	44.2 °F	35 °F	94 %	69 %	39 %	3 mph	1 mph	0 mph	30.12 in	30.07 in	30.02 in	0 in
18	79.5 °F	56.3 °F	44.6 °F	55.7 °F	49.4 °F	43 °F	96 %	80 %	44 %	4 mph	0 mph	0 mph	30.04 in	29.96 in	29.88 in	0 in
19	80.4 °F	56.7 °F	43.7 °F	52.4 °F	47.9 °F	42.6 °F	98 %	76 %	37 %	4 mph	0 mph	0 mph	29.95 in	29.9 in	29.85 in	0 in
20	81.9 °F	57.4 °F	48.2 °F	55.9 °F	50.5 °F	46.5 °F	97 %	81 %	39 %	4 mph	0 mph	0 mph	29.89 in	29.84 in	29.79 in	0 in
21	78.1 °F	58.4 °F	46.6 °F	53 °F	46 °F	42 °F	98 %	67 %	40 %	4 mph	1 mph	0 mph	29.86 in	29.81 in	29.75 in	0 in
22	80.6 °F	57.3 °F	46 °F	51.9 °F	47.9 °F	44 °F	94 %	74 %	36 %	2 mph	0 mph	0 mph	29.78 in	29.72 in	29.66 in	0 in
23	57 °F	51.4 °F	45.7 °F	51 °F	48.2 °F	44.1 °F	98 %	89 %	77 %	2 mph	0 mph	0 mph	29.72 in	29.68 in	29.64 in	0 in
24	63 °F	51.6 °F	42.4 °F	52.2 °F	44.4 °F	38.2 °F	95 %	78 %	42 %	8 mph	1 mph	0 mph	29.7 in	29.67 in	29.64 in	0.16 in
25	63.1 °F	44.8 °F	36.3 °F	42.2 °F	36.5 °F	32.3 °F	97 %	75 %	38 %	5 mph	0 mph	0 mph	29.79 in	29.72 in	29.64 in	0.05 in
26	64.2 °F	44.8 °F	36 °F	33.3 °F	28.1 °F	22.9 °F	86 %	55 %	25 %	4 mph	1 mph	0 mph	29.89 in	29.84 in	29.79 in	0 in
27	68.2 °F	45.4 °F	33.6 °F	27.8 °F	24.2 °F	22.2 °F	73 %	46 %	20 %	4 mph	0 mph	0 mph	29.92 in	29.88 in	29.84 in	0 in
28	65.1 °F	48.2 °F	36.9 °F	24.9 °F	21.2 °F	18.3 °F	60 %	35 %	21 %	8 mph	2 mph	0 mph	29.93 in	29.89 in	29.85 in	0 in
29	72.7 °F	48.9 °F	37.4 °F	29.3 °F	23.1 °F	16 °F	68 %	37 %	20 %	7 mph	1 mph	0 mph	29.98 in	29.94 in	29.9 in	0 in
30	53.2 °F	44.6 °F	34.7 °F	38.7 °F	31.7 °F	27.7 °F	81 %	61 %	47 %	7 mph	0 mph	0 mph	29.99 in	29.96 in	29.93 in	0 in

2015	Temperature			Dew Point			Humidity			Speed			Pressure			Precip. Accum.
Dec	High	Avg	Low	High	Avg	Low	High	Avg	Low	High	Avg	Gust	High	Avg	Low	Sum
1	71.2 °F	50.9 °F	41.5 °F	40.3 °F	33.8 °F	27 °F	73 %	53 %	28 %	3 mph	1 mph	0 mph	30.02 in	29.97 in	29.92 in	0 in
2	66.2 °F	52.4 °F	42.1 °F	42.7 °F	38.3 °F	34.8 °F	77 %	61 %	35 %	3 mph	0 mph	0 mph	30 in	29.93 in	29.86 in	0 in
6	61.9 °F	58.9 °F	57.6 °F	58.6 °F	56.6 °F	55.5 °F	96 %	92 %	86 %	1 mph	0 mph	0 mph	30.06 in	30.03 in	30.01 in	0.06 in
7	69.4 °F	57.1 °F	49.8 °F	57.8 °F	54.4 °F	48.4 °F	98 %	91 %	64 %	2 mph	0 mph	0 mph	30.08 in	30.03 in	29.99 in	0.01 in
8	67.3 °F	56.5 °F	50 °F	57.4 °F	53.7 °F	49.2 °F	98 %	91 %	70 %	3 mph	0 mph	0 mph	30.03 in	29.98 in	29.93 in	0 in
9	66.2 °F	58.7 °F	52 °F	57.8 °F	55.5 °F	50.9 °F	98 %	89 %	74 %	4 mph	0 mph	0 mph	29.95 in	29.85 in	29.74 in	0 in
10	68 °F	56.3 °F	48 °F	58 °F	51.6 °F	45.5 °F	98 %	85 %	55 %	6 mph	1 mph	0 mph	29.73 in	29.67 in	29.61 in	0.38 in
11	65.3 °F	49.4 °F	41.7 °F	48.7 °F	43.8 °F	40.6 °F	99 %	83 %	45 %	7 mph	1 mph	0 mph	29.81 in	29.68 in	29.56 in	0.3 in
12	64.9 °F	52 °F	40.3 °F	48.3 °F	43.6 °F	38 °F	94 %	75 %	46 %	3 mph	0 mph	0 mph	29.94 in	29.87 in	29.8 in	0 in
13	60.8 °F	49.8 °F	42.6 °F	50.1 °F	43.9 °F	36.5 °F	97 %	81 %	57 %	9 mph	2 mph	0 mph	29.93 in	29.78 in	29.62 in	0.86 in
14	61.3 °F	47.5 °F	41.4 °F	37.3 °F	35.5 °F	31 °F	81 %	65 %	35 %	5 mph	1 mph	0 mph	29.93 in	29.88 in	29.83 in	0 in
15	66 °F	46.1 °F	36.5 °F	37.5 °F	30.7 °F	25.5 °F	93 %	59 %	24 %	7 mph	1 mph	0 mph	29.97 in	29.92 in	29.88 in	0 in
16	66.7 °F	45.2 °F	33.8 °F	40.2 °F	32.8 °F	28.7 °F	85 %	64 %	32 %	4 mph	1 mph	0 mph	30.03 in	30 in	29.97 in	0 in
17	64.6 °F	48 °F	36.9 °F	49 °F	41 °F	33.1 °F	94 %	78 %	49 %	2 mph	0 mph	0 mph	30.06 in	29.99 in	29.92 in	0 in
18	59.7 °F	51.4 °F	42.3 °F	50.2 °F	46.8 °F	40.7 °F	97 %	85 %	64 %	5 mph	1 mph	0 mph	29.92 in	29.81 in	29.7 in	0.5 in
19	65.7 °F	49.5 °F	37.9 °F	50.3 °F	44.2 °F	36.1 °F	97 %	84 %	44 %	9 mph	1 mph	0 mph	29.91 in	29.81 in	29.7 in	0.25 in
20	53.1 °F	45.9 °F	36.5 °F	49.6 °F	43.2 °F	35.2 °F	97 %	91 %	73 %	5 mph	1 mph	0 mph	30 in	29.94 in	29.89 in	0.71 in
21	57 °F	53.9 °F	50.2 °F	56.4 °F	53.3 °F	49.4 °F	99 %	98 %	96 %	6 mph	2 mph	0 mph	29.91 in	29.76 in	29.61 in	1.65 in
22	63.1 °F	55.5 °F	48.4 °F	56.5 °F	53 °F	42.5 °F	99 %	91 %	76 %	8 mph	2 mph	0 mph	29.67 in	29.59 in	29.51 in	0.19 in
23	61.7 °F	47.7 °F	39.7 °F	41.8 °F	38.8 °F	34.8 °F	94 %	74 %	40 %	7 mph	1 mph	0 mph	29.8 in	29.74 in	29.68 in	0 in
24	58.6 °F	45.1 °F	35.8 °F	46.1 °F	40.4 °F	34 °F	97 %	85 %	53 %	5 mph	1 mph	0 mph	29.84 in	29.76 in	29.69 in	0.19 in
25	61.9 °F	42.9 °F	33.6 °F	41.8 °F	35.3 °F	32.1 °F	98 %	77 %	42 %	6 mph	1 mph	0 mph	30.08 in	29.96 in	29.84 in	0 in
26	62.2 °F	46.8 °F	35.1 °F	28.5 °F	26 °F	22.8 °F	75 %	47 %	25 %	5 mph	1 mph	0 mph	30.23 in	30.16 in	30.09 in	0 in
27	56.7 °F	40.6 °F	29.7 °F	36.4 °F	32.1 °F	26.1 °F	89 %	73 %	45 %	3 mph	0 mph	0 mph	30.09 in	29.98 in	29.86 in	0 in
28	55.8 °F	42.9 °F	35.8 °F	42.1 °F	36.8 °F	33 °F	92 %	80 %	58 %	6 mph	0 mph	0 mph	29.87 in	29.81 in	29.75 in	0.06 in
29	66.2 °F	42.7 °F	32 °F	39.5 °F	34.6 °F	30.5 °F	97 %	77 %	35 %	3 mph	0 mph	0 mph	29.96 in	29.87 in	29.78 in	0 in
30	50.2 °F	41.8 °F	33.8 °F	45.5 °F	37.9 °F	32.3 °F	98 %	86 %	75 %	10 mph	2 mph	0 mph	30.05 in	30 in	29.95 in	0.02 in
31	60.8 °F	43.3 °F	33.1 °F	34.8 °F	29.8 °F	24.5 °F	93 %	62 %	33 %	8 mph	1 mph	0 mph	30.03 in	29.98 in	29.92 in	0 in

APPENDIX D

Laboratory Analytical Reports and Chain of Custody Documentation

- **Air Toxics Work Order # 1512124 - Soil Gas Sample Results**
- **Air Toxics Work Order # 1512047 - Shroud Air Sample Results**

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12/18/2015
Mr. Paul King
P & D Environmental
55 Santa Clara
Suite 240
Oakland CA 94610

Project Name: RED HANGER KLEANERS 6239 COLLEGE AVE.
Project #: 0461
Workorder #: 1512124

Dear Mr. Paul King

The following report includes the data for the above referenced project for sample(s) received on 12/3/2015 at Air Toxics Ltd.

The data and associated QC analyzed by TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free to the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kyle Vagadori

Project Manager

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WORK ORDER #: 1512124

Work Order Summary

CLIENT:	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610	**BILL TO:**	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610
PHONE:	510-658-6916	**P.O. #**	
FAX:	510-834-0772	**PROJECT #**	0461 RED HANGER KLEANERS 6239 COLLEGE AVE.
DATE RECEIVED:	12/03/2015	**CONTACT:**	Kyle Vagadori
DATE COMPLETED:	12/18/2015		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SG1-7	TO-15	5.3 "Hg	14.6 psi
02A	SG2-7	TO-15	6.3 "Hg	14.7 psi
03A	SG2-17	TO-15	4.9 "Hg	14.7 psi
04A	SG3-17	TO-15	4.9 "Hg	14.7 psi
05A	SG4-7	TO-15	4.3 "Hg	14.7 psi
06A	SG4-7 DUP	TO-15	4.1 "Hg	14.8 psi
07A	SG5-7	TO-15	5.1 "Hg	14.6 psi
08A	SG5-17	TO-15	4.9 "Hg	14.8 psi
09A	SG6-7	TO-15	4.7 "Hg	15 psi
10A	SG6-17	TO-15	5.7 "Hg	14.9 psi
11A	SG7-7	TO-15	1.8 "Hg	14.8 psi
12A	SG7-17	TO-15	2.4 "Hg	15 psi
13A	SG8-7	TO-15	4.9 "Hg	14.6 psi
14A	SG9-17	TO-15	1.4 "Hg	15 psi
15A	SG9-17 DUP	TO-15	4.7 "Hg	15.3 psi
16A	SG10-7	TO-15	3.1 "Hg	15.1 psi
17A	Lab Blank	TO-15	NA	NA
17B	Lab Blank	TO-15	NA	NA
18A	CCV	TO-15	NA	NA
18B	CCV	TO-15	NA	NA
19A	LCS	TO-15	NA	NA
19AA	LCSD	TO-15	NA	NA
19B	LCS	TO-15	NA	NA

Continued on next page

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WORK ORDER #: 1512124

Work Order Summary

CLIENT:	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610	**BILL TO:**	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610
PHONE:	510-658-6916	**P.O. #**	
FAX:	510-834-0772	**PROJECT #**	0461 RED HANGER KLEANERS 6239 COLLEGE AVE.
DATE RECEIVED:	12/03/2015	**CONTACT:**	Kyle Vagadori
DATE COMPLETED:	12/18/2015		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
19BB	LCSD	TO-15	NA	NA

CERTIFIED BY: Heidi Rayos DATE: 12/18/15

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 956
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
P & D Environmental
Workorder# 1512124

Sixteen 1 Liter Summa Canister samples were received on December 03, 2015. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

The reported CCV for each daily batch may be derived from more than one analytical file due to the client's request for non-standard compounds. Non-standard compounds may have different acceptance criteria than the standard TO-14A/TO-15 compound list as per contract or verbal agreement.

Due to the linear calibration range of the instrument, the reporting limit for 1,3-Butadiene and Bromomethane was raised from 5.0ppbv to 20ppbv for samples SG2-17, SG6-7 and SG7-17.

Dilution was performed on samples SG1-7, SG2-7, SG2-17, SG3-17, SG4-7, SG4-7 DUP, SG5-7, SG5-17, SG6-7, SG6-17, SG7-7, SG7-17, SG9-17, SG9-17 DUP and SG10-7 due to the presence of high level target species.

All Quality Control Limit exceedances and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SG1-7

Lab ID#: 1512124-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	9.7	17	30	54
Benzene	2.4	3.2	7.7	10
Toluene	2.4	2.9	9.1	11
Tetrachloroethene	2.4	860	16	5800
1,1-Difluoroethane	9.7	660	26	1800

Client Sample ID: SG2-7

Lab ID#: 1512124-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	25	8700	170	59000
1,1-Difluoroethane	100	1100	270	3100

Client Sample ID: SG2-17

Lab ID#: 1512124-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	150	18000	1000	120000
1,1-Difluoroethane	600	1600	1600	4200

Client Sample ID: SG3-17

Lab ID#: 1512124-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Cyclohexane	24	31	82	110
Benzene	24	42	76	130
Tetrachloroethene	24	9200	160	62000
1,1-Difluoroethane	96	190	260	520

Client Sample ID: SG4-7

Lab ID#: 1512124-05A

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SG4-7

Lab ID#: 1512124-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	4.7	550	32	3700
1,1-Difluoroethane	19	37000 E	50	100000 E

Client Sample ID: SG4-7 DUP

Lab ID#: 1512124-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	2.3	540	16	3700
1,1-Difluoroethane	9.3	2400 E	25	6400 E

Client Sample ID: SG5-7

Lab ID#: 1512124-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	12	3400	81	23000
1,1-Difluoroethane	48	220	130	600

Client Sample ID: SG5-17

Lab ID#: 1512124-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	24	47	75	140
Benzene	6.0	17	19	56
Toluene	6.0	14	23	54
Tetrachloroethene	6.0	2300	41	15000
1,1-Difluoroethane	24	210	65	570

Client Sample ID: SG6-7

Lab ID#: 1512124-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	70	9000	480	61000

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS

Client Sample ID: SG6-7

Lab ID#: 1512124-09A

1,1-Difluoroethane	280	720	760	2000

Client Sample ID: SG6-17

Lab ID#: 1512124-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	21	25	73	89
Benzene	21	42	66	140
Toluene	21	45	78	170
Tetrachloroethene	21	6000	140	41000
1,1-Difluoroethane	83	200	220	540

Client Sample ID: SG7-7

Lab ID#: 1512124-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	4.3	1000	29	7000
1,1-Difluoroethane	17	550	46	1500

Client Sample ID: SG7-17

Lab ID#: 1512124-12A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	37	5500	250	37000

Client Sample ID: SG8-7

Lab ID#: 1512124-13A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Benzene	1.2	4.2	3.8	13
Tetrachloroethene	1.2	120	8.1	850
1,1-Difluoroethane	4.8	79	13	210

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: SG9-17

Lab ID#: 1512124-14A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	17	55	53	170
Hexane	4.2	8.4	15	29
Chloroform	4.2	9.5	21	46
Benzene	4.2	13	14	42
Toluene	4.2	7.9	16	30
Tetrachloroethene	4.2	580	29	4000
1,1-Difluoroethane	17	24000 E	46	66000 E

Client Sample ID: SG9-17 DUP

Lab ID#: 1512124-15A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Carbon Disulfide	19	61	60	190
Hexane	4.8	11	17	39
Chloroform	4.8	11	24	54
Benzene	4.8	14	15	44
Toluene	4.8	9.0	18	34
Tetrachloroethene	4.8	670	33	4600
1,1-Difluoroethane	19	3400 E	52	9200 E

Client Sample ID: SG10-7

Lab ID#: 1512124-16A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	23	160	150	1100
1,1-Difluoroethane	90	250000 E	240	680000 E

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Client Sample ID: SG1-7

Lab ID#: 1512124-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121515**	**Date of Collection:**	**12/2/15 9:31:00 AM**
Dil. Factor:	**4.84**	**Date of Analysis:**	**12/15/15 06:18 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.4	Not Detected	12	Not Detected
Freon 114	2.4	Not Detected	17	Not Detected
Chloromethane	24	Not Detected	50	Not Detected
Vinyl Chloride	2.4	Not Detected	6.2	Not Detected
1,3-Butadiene	2.4	Not Detected	5.4	Not Detected
Bromomethane	24	Not Detected	94	Not Detected
Chloroethane	9.7	Not Detected	26	Not Detected
Freon 11	2.4	Not Detected	14	Not Detected
Ethanol	9.7	Not Detected	18	Not Detected
Freon 113	2.4	Not Detected	18	Not Detected
1,1-Dichloroethene	2.4	Not Detected	9.6	Not Detected
Acetone	24	Not Detected	57	Not Detected
2-Propanol	9.7	Not Detected	24	Not Detected
Carbon Disulfide	9.7	17	30	54
3-Chloropropene	9.7	Not Detected	30	Not Detected
Methylene Chloride	24	Not Detected	84	Not Detected
Methyl tert-butyl ether	2.4	Not Detected	8.7	Not Detected
trans-1,2-Dichloroethene	2.4	Not Detected	9.6	Not Detected
Hexane	2.4	Not Detected	8.5	Not Detected
1,1-Dichloroethane	2.4	Not Detected	9.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	9.7	Not Detected	28	Not Detected
cis-1,2-Dichloroethene	2.4	Not Detected	9.6	Not Detected
Tetrahydrofuran	2.4	Not Detected	7.1	Not Detected
Chloroform	2.4	Not Detected	12	Not Detected
1,1,1-Trichloroethane	2.4	Not Detected	13	Not Detected
Cyclohexane	2.4	Not Detected	8.3	Not Detected
Carbon Tetrachloride	2.4	Not Detected	15	Not Detected
2,2,4-Trimethylpentane	2.4	Not Detected	11	Not Detected
Benzene	2.4	3.2	7.7	10
1,2-Dichloroethane	2.4	Not Detected	9.8	Not Detected
Heptane	2.4	Not Detected	9.9	Not Detected
Trichloroethene	2.4	Not Detected	13	Not Detected
1,2-Dichloropropane	2.4	Not Detected	11	Not Detected
1,4-Dioxane	9.7	Not Detected	35	Not Detected
Bromodichloromethane	2.4	Not Detected	16	Not Detected
cis-1,3-Dichloropropene	2.4	Not Detected	11	Not Detected
4-Methyl-2-pentanone	2.4	Not Detected	9.9	Not Detected
Toluene	2.4	2.9	9.1	11
trans-1,3-Dichloropropene	2.4	Not Detected	11	Not Detected
1,1,2-Trichloroethane	2.4	Not Detected	13	Not Detected
Tetrachloroethene	2.4	860	16	5800
2-Hexanone	9.7	Not Detected	40	Not Detected

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Client Sample ID: SG1-7

Lab ID#: 1512124-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121515**	**Date of Collection: 12/2/15 9:31:00 AM**	
Dil. Factor:	**4.84**	**Date of Analysis: 12/15/15 06:18 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2.4	Not Detected	21	Not Detected
1,2-Dibromoethane (EDB)	2.4	Not Detected	18	Not Detected
Chlorobenzene	2.4	Not Detected	11	Not Detected
Ethyl Benzene	2.4	Not Detected	10	Not Detected
m,p-Xylene	2.4	Not Detected	10	Not Detected
o-Xylene	2.4	Not Detected	10	Not Detected
Styrene	2.4	Not Detected	10	Not Detected
Bromoform	2.4	Not Detected	25	Not Detected
Cumene	2.4	Not Detected	12	Not Detected
1,1,2,2-Tetrachloroethane	2.4	Not Detected	17	Not Detected
Propylbenzene	2.4	Not Detected	12	Not Detected
4-Ethyltoluene	2.4	Not Detected	12	Not Detected
1,3,5-Trimethylbenzene	2.4	Not Detected	12	Not Detected
1,2,4-Trimethylbenzene	2.4	Not Detected	12	Not Detected
1,3-Dichlorobenzene	2.4	Not Detected	14	Not Detected
1,4-Dichlorobenzene	2.4	Not Detected	14	Not Detected
alpha-Chlorotoluene	2.4	Not Detected	12	Not Detected
1,2-Dichlorobenzene	2.4	Not Detected	14	Not Detected
1,2,4-Trichlorobenzene	9.7	Not Detected	72	Not Detected
Hexachlorobutadiene	9.7	Not Detected	100	Not Detected
1,1-Difluoroethane	9.7	660	26	1800

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	104	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: SG2-7

Lab ID#: 1512124-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121529**	**Date of Collection: 12/2/15 11:25:00 AM**	
Dil. Factor:	**50.6**	**Date of Analysis: 12/16/15 03:32 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	25	Not Detected	120	Not Detected
Freon 114	25	Not Detected	180	Not Detected
Chloromethane	250	Not Detected	520	Not Detected
Vinyl Chloride	25	Not Detected	65	Not Detected
1,3-Butadiene	25	Not Detected	56	Not Detected
Bromomethane	250	Not Detected	980	Not Detected
Chloroethane	100	Not Detected	270	Not Detected
Freon 11	25	Not Detected	140	Not Detected
Ethanol	100	Not Detected	190	Not Detected
Freon 113	25	Not Detected	190	Not Detected
1,1-Dichloroethene	25	Not Detected	100	Not Detected
Acetone	250	Not Detected	600	Not Detected
2-Propanol	100	Not Detected	250	Not Detected
Carbon Disulfide	100	Not Detected	320	Not Detected
3-Chloropropene	100	Not Detected	320	Not Detected
Methylene Chloride	250	Not Detected	880	Not Detected
Methyl tert-butyl ether	25	Not Detected	91	Not Detected
trans-1,2-Dichloroethene	25	Not Detected	100	Not Detected
Hexane	25	Not Detected	89	Not Detected
1,1-Dichloroethane	25	Not Detected	100	Not Detected
2-Butanone (Methyl Ethyl Ketone)	100	Not Detected	300	Not Detected
cis-1,2-Dichloroethene	25	Not Detected	100	Not Detected
Tetrahydrofuran	25	Not Detected	75	Not Detected
Chloroform	25	Not Detected	120	Not Detected
1,1,1-Trichloroethane	25	Not Detected	140	Not Detected
Cyclohexane	25	Not Detected	87	Not Detected
Carbon Tetrachloride	25	Not Detected	160	Not Detected
2,2,4-Trimethylpentane	25	Not Detected	120	Not Detected
Benzene	25	Not Detected	81	Not Detected
1,2-Dichloroethane	25	Not Detected	100	Not Detected
Heptane	25	Not Detected	100	Not Detected
Trichloroethene	25	Not Detected	140	Not Detected
1,2-Dichloropropane	25	Not Detected	120	Not Detected
1,4-Dioxane	100	Not Detected	360	Not Detected
Bromodichloromethane	25	Not Detected	170	Not Detected
cis-1,3-Dichloropropene	25	Not Detected	110	Not Detected
4-Methyl-2-pentanone	25	Not Detected	100	Not Detected
Toluene	25	Not Detected	95	Not Detected
trans-1,3-Dichloropropene	25	Not Detected	110	Not Detected
1,1,2-Trichloroethane	25	Not Detected	140	Not Detected
Tetrachloroethene	25	8700	170	59000
2-Hexanone	100	Not Detected	410	Not Detected

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Client Sample ID: SG2-7

Lab ID#: 1512124-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121529**	**Date of Collection: 12/2/15 11:25:00 AM**	
Dil. Factor:	**50.6**	**Date of Analysis: 12/16/15 03:32 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	25	Not Detected	220	Not Detected
1,2-Dibromoethane (EDB)	25	Not Detected	190	Not Detected
Chlorobenzene	25	Not Detected	120	Not Detected
Ethyl Benzene	25	Not Detected	110	Not Detected
m,p-Xylene	25	Not Detected	110	Not Detected
o-Xylene	25	Not Detected	110	Not Detected
Styrene	25	Not Detected	110	Not Detected
Bromoform	25	Not Detected	260	Not Detected
Cumene	25	Not Detected	120	Not Detected
1,1,2,2-Tetrachloroethane	25	Not Detected	170	Not Detected
Propylbenzene	25	Not Detected	120	Not Detected
4-Ethyltoluene	25	Not Detected	120	Not Detected
1,3,5-Trimethylbenzene	25	Not Detected	120	Not Detected
1,2,4-Trimethylbenzene	25	Not Detected	120	Not Detected
1,3-Dichlorobenzene	25	Not Detected	150	Not Detected
1,4-Dichlorobenzene	25	Not Detected	150	Not Detected
alpha-Chlorotoluene	25	Not Detected	130	Not Detected
1,2-Dichlorobenzene	25	Not Detected	150	Not Detected
1,2,4-Trichlorobenzene	100	Not Detected	750	Not Detected
Hexachlorobutadiene	100	Not Detected	1100	Not Detected
1,1-Difluoroethane	100	1100	270	3100

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	105	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: SG2-17

Lab ID#: 1512124-03A

EPA METHOD TO-15 GC/MS

File Name:	**14121811**	**Date of Collection:**	**12/2/15 11:29:00 AM**
Dil. Factor:	**30.2**	**Date of Analysis:**	**12/18/15 01:17 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	150	Not Detected	750	Not Detected
Freon 114	150	Not Detected	1000	Not Detected
Chloromethane	600	Not Detected	1200	Not Detected
Vinyl Chloride	150	Not Detected	380	Not Detected
1,3-Butadiene	600	Not Detected	1300	Not Detected
Bromomethane	600	Not Detected	2300	Not Detected
Chloroethane	600	Not Detected	1600	Not Detected
Freon 11	150	Not Detected	850	Not Detected
Ethanol	600	Not Detected	1100	Not Detected
Freon 113	150	Not Detected	1200	Not Detected
1,1-Dichloroethene	150	Not Detected	600	Not Detected
Acetone	600	Not Detected	1400	Not Detected
2-Propanol	600	Not Detected	1500	Not Detected
Carbon Disulfide	150	Not Detected	470	Not Detected
3-Chloropropene	600	Not Detected	1900	Not Detected
Methylene Chloride	150	Not Detected	520	Not Detected
Methyl tert-butyl ether	150	Not Detected	540	Not Detected
trans-1,2-Dichloroethene	150	Not Detected	600	Not Detected
Hexane	150	Not Detected	530	Not Detected
1,1-Dichloroethane	150	Not Detected	610	Not Detected
2-Butanone (Methyl Ethyl Ketone)	600	Not Detected	1800	Not Detected
cis-1,2-Dichloroethene	150	Not Detected	600	Not Detected
Tetrahydrofuran	150	Not Detected	440	Not Detected
Chloroform	150	Not Detected	740	Not Detected
1,1,1-Trichloroethane	150	Not Detected	820	Not Detected
Cyclohexane	150	Not Detected	520	Not Detected
Carbon Tetrachloride	150	Not Detected	950	Not Detected
2,2,4-Trimethylpentane	150	Not Detected	700	Not Detected
Benzene	150	Not Detected	480	Not Detected
1,2-Dichloroethane	150	Not Detected	610	Not Detected
Heptane	150	Not Detected	620	Not Detected
Trichloroethene	150	Not Detected	810	Not Detected
1,2-Dichloropropane	150	Not Detected	700	Not Detected
1,4-Dioxane	600	Not Detected	2200	Not Detected
Bromodichloromethane	150	Not Detected	1000	Not Detected
cis-1,3-Dichloropropene	150	Not Detected	680	Not Detected
4-Methyl-2-pentanone	150	Not Detected	620	Not Detected
Toluene	150	Not Detected	570	Not Detected
trans-1,3-Dichloropropene	150	Not Detected	680	Not Detected
1,1,2-Trichloroethane	150	Not Detected	820	Not Detected
Tetrachloroethene	150	18000	1000	120000
2-Hexanone	600	Not Detected	2500	Not Detected

eurofins | Air Toxics

Client Sample ID: SG2-17

Lab ID#: 1512124-03A

EPA METHOD TO-15 GC/MS

File Name:	**14121811**	**Date of Collection:**	**12/2/15 11:29:00 AM**
Dil. Factor:	**30.2**	**Date of Analysis:**	**12/18/15 01:17 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	150	Not Detected	1300	Not Detected
1,2-Dibromoethane (EDB)	150	Not Detected	1200	Not Detected
Chlorobenzene	150	Not Detected	700	Not Detected
Ethyl Benzene	150	Not Detected	660	Not Detected
m,p-Xylene	150	Not Detected	660	Not Detected
o-Xylene	150	Not Detected	660	Not Detected
Styrene	150	Not Detected	640	Not Detected
Bromoform	150	Not Detected	1600	Not Detected
Cumene	150	Not Detected	740	Not Detected
1,1,2,2-Tetrachloroethane	150	Not Detected	1000	Not Detected
Propylbenzene	150	Not Detected	740	Not Detected
4-Ethyltoluene	150	Not Detected	740	Not Detected
1,3,5-Trimethylbenzene	150	Not Detected	740	Not Detected
1,2,4-Trimethylbenzene	150	Not Detected	740	Not Detected
1,3-Dichlorobenzene	150	Not Detected	910	Not Detected
1,4-Dichlorobenzene	150	Not Detected	910	Not Detected
alpha-Chlorotoluene	150	Not Detected	780	Not Detected
1,2-Dichlorobenzene	150	Not Detected	910	Not Detected
1,2,4-Trichlorobenzene	600	Not Detected	4500	Not Detected
Hexachlorobutadiene	600	Not Detected	6400	Not Detected
1,1-Difluoroethane	600	1600	1600	4200

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

eurofins | Air Toxics

Client Sample ID: SG3-17

Lab ID#: 1512124-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121530**	**Date of Collection: 12/2/15 10:26:00 AM**	
Dil. Factor:	**47.8**	**Date of Analysis: 12/16/15 04:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	24	Not Detected	120	Not Detected
Freon 114	24	Not Detected	170	Not Detected
Chloromethane	240	Not Detected	490	Not Detected
Vinyl Chloride	24	Not Detected	61	Not Detected
1,3-Butadiene	24	Not Detected	53	Not Detected
Bromomethane	240	Not Detected	930	Not Detected
Chloroethane	96	Not Detected	250	Not Detected
Freon 11	24	Not Detected	130	Not Detected
Ethanol	96	Not Detected	180	Not Detected
Freon 113	24	Not Detected	180	Not Detected
1,1-Dichloroethene	24	Not Detected	95	Not Detected
Acetone	240	Not Detected	570	Not Detected
2-Propanol	96	Not Detected	230	Not Detected
Carbon Disulfide	96	Not Detected	300	Not Detected
3-Chloropropene	96	Not Detected	300	Not Detected
Methylene Chloride	240	Not Detected	830	Not Detected
Methyl tert-butyl ether	24	Not Detected	86	Not Detected
trans-1,2-Dichloroethene	24	Not Detected	95	Not Detected
Hexane	24	Not Detected	84	Not Detected
1,1-Dichloroethane	24	Not Detected	97	Not Detected
2-Butanone (Methyl Ethyl Ketone)	96	Not Detected	280	Not Detected
cis-1,2-Dichloroethene	24	Not Detected	95	Not Detected
Tetrahydrofuran	24	Not Detected	70	Not Detected
Chloroform	24	Not Detected	120	Not Detected
1,1,1-Trichloroethane	24	Not Detected	130	Not Detected
Cyclohexane	24	31	82	110
Carbon Tetrachloride	24	Not Detected	150	Not Detected
2,2,4-Trimethylpentane	24	Not Detected	110	Not Detected
Benzene	24	42	76	130
1,2-Dichloroethane	24	Not Detected	97	Not Detected
Heptane	24	Not Detected	98	Not Detected
Trichloroethene	24	Not Detected	130	Not Detected
1,2-Dichloropropane	24	Not Detected	110	Not Detected
1,4-Dioxane	96	Not Detected	340	Not Detected
Bromodichloromethane	24	Not Detected	160	Not Detected
cis-1,3-Dichloropropene	24	Not Detected	110	Not Detected
4-Methyl-2-pentanone	24	Not Detected	98	Not Detected
Toluene	24	Not Detected	90	Not Detected
trans-1,3-Dichloropropene	24	Not Detected	110	Not Detected
1,1,2-Trichloroethane	24	Not Detected	130	Not Detected
Tetrachloroethene	24	9200	160	62000
2-Hexanone	96	Not Detected	390	Not Detected

eurofins | Air Toxics

Client Sample ID: SG3-17

Lab ID#: 1512124-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121530**	**Date of Collection: 12/2/15 10:26:00 AM**	
Dil. Factor:	**47.8**	**Date of Analysis: 12/16/15 04:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	24	Not Detected	200	Not Detected
1,2-Dibromoethane (EDB)	24	Not Detected	180	Not Detected
Chlorobenzene	24	Not Detected	110	Not Detected
Ethyl Benzene	24	Not Detected	100	Not Detected
m,p-Xylene	24	Not Detected	100	Not Detected
o-Xylene	24	Not Detected	100	Not Detected
Styrene	24	Not Detected	100	Not Detected
Bromoform	24	Not Detected	250	Not Detected
Cumene	24	Not Detected	120	Not Detected
1,1,2,2-Tetrachloroethane	24	Not Detected	160	Not Detected
Propylbenzene	24	Not Detected	120	Not Detected
4-Ethyltoluene	24	Not Detected	120	Not Detected
1,3,5-Trimethylbenzene	24	Not Detected	120	Not Detected
1,2,4-Trimethylbenzene	24	Not Detected	120	Not Detected
1,3-Dichlorobenzene	24	Not Detected	140	Not Detected
1,4-Dichlorobenzene	24	Not Detected	140	Not Detected
alpha-Chlorotoluene	24	Not Detected	120	Not Detected
1,2-Dichlorobenzene	24	Not Detected	140	Not Detected
1,2,4-Trichlorobenzene	96	Not Detected	710	Not Detected
Hexachlorobutadiene	96	Not Detected	1000	Not Detected
1,1-Difluoroethane	96	190	260	520

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	101	70-130
4-Bromofluorobenzene	96	70-130

eurofins | Air Toxics

Client Sample ID: SG4-7

Lab ID#: 1512124-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121516**	**Date of Collection:**	**12/2/15 9:43:00 AM**
Dil. Factor:	**9.34**	**Date of Analysis:**	**12/15/15 06:42 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	4.7	Not Detected	23	Not Detected
Freon 114	4.7	Not Detected	33	Not Detected
Chloromethane	47	Not Detected	96	Not Detected
Vinyl Chloride	4.7	Not Detected	12	Not Detected
1,3-Butadiene	4.7	Not Detected	10	Not Detected
Bromomethane	47	Not Detected	180	Not Detected
Chloroethane	19	Not Detected	49	Not Detected
Freon 11	4.7	Not Detected	26	Not Detected
Ethanol	19	Not Detected	35	Not Detected
Freon 113	4.7	Not Detected	36	Not Detected
1,1-Dichloroethene	4.7	Not Detected	18	Not Detected
Acetone	47	Not Detected	110	Not Detected
2-Propanol	19	Not Detected	46	Not Detected
Carbon Disulfide	19	Not Detected	58	Not Detected
3-Chloropropene	19	Not Detected	58	Not Detected
Methylene Chloride	47	Not Detected	160	Not Detected
Methyl tert-butyl ether	4.7	Not Detected	17	Not Detected
trans-1,2-Dichloroethene	4.7	Not Detected	18	Not Detected
Hexane	4.7	Not Detected	16	Not Detected
1,1-Dichloroethane	4.7	Not Detected	19	Not Detected
2-Butanone (Methyl Ethyl Ketone)	19	Not Detected	55	Not Detected
cis-1,2-Dichloroethene	4.7	Not Detected	18	Not Detected
Tetrahydrofuran	4.7	Not Detected	14	Not Detected
Chloroform	4.7	Not Detected	23	Not Detected
1,1,1-Trichloroethane	4.7	Not Detected	25	Not Detected
Cyclohexane	4.7	Not Detected	16	Not Detected
Carbon Tetrachloride	4.7	Not Detected	29	Not Detected
2,2,4-Trimethylpentane	4.7	Not Detected	22	Not Detected
Benzene	4.7	Not Detected	15	Not Detected
1,2-Dichloroethane	4.7	Not Detected	19	Not Detected
Heptane	4.7	Not Detected	19	Not Detected
Trichloroethene	4.7	Not Detected	25	Not Detected
1,2-Dichloropropane	4.7	Not Detected	22	Not Detected
1,4-Dioxane	19	Not Detected	67	Not Detected
Bromodichloromethane	4.7	Not Detected	31	Not Detected
cis-1,3-Dichloropropene	4.7	Not Detected	21	Not Detected
4-Methyl-2-pentanone	4.7	Not Detected	19	Not Detected
Toluene	4.7	Not Detected	18	Not Detected
trans-1,3-Dichloropropene	4.7	Not Detected	21	Not Detected
1,1,2-Trichloroethane	4.7	Not Detected	25	Not Detected
Tetrachloroethene	4.7	550	32	3700
2-Hexanone	19	Not Detected	76	Not Detected

eurofins | Air Toxics

Client Sample ID: SG4-7

Lab ID#: 1512124-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121516**	**Date of Collection: 12/2/15 9:43:00 AM**	
Dil. Factor:	**9.34**	**Date of Analysis: 12/15/15 06:42 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	4.7	Not Detected	40	Not Detected
1,2-Dibromoethane (EDB)	4.7	Not Detected	36	Not Detected
Chlorobenzene	4.7	Not Detected	21	Not Detected
Ethyl Benzene	4.7	Not Detected	20	Not Detected
m,p-Xylene	4.7	Not Detected	20	Not Detected
o-Xylene	4.7	Not Detected	20	Not Detected
Styrene	4.7	Not Detected	20	Not Detected
Bromoform	4.7	Not Detected	48	Not Detected
Cumene	4.7	Not Detected	23	Not Detected
1,1,2,2-Tetrachloroethane	4.7	Not Detected	32	Not Detected
Propylbenzene	4.7	Not Detected	23	Not Detected
4-Ethyltoluene	4.7	Not Detected	23	Not Detected
1,3,5-Trimethylbenzene	4.7	Not Detected	23	Not Detected
1,2,4-Trimethylbenzene	4.7	Not Detected	23	Not Detected
1,3-Dichlorobenzene	4.7	Not Detected	28	Not Detected
1,4-Dichlorobenzene	4.7	Not Detected	28	Not Detected
alpha-Chlorotoluene	4.7	Not Detected	24	Not Detected
1,2-Dichlorobenzene	4.7	Not Detected	28	Not Detected
1,2,4-Trichlorobenzene	19	Not Detected	140	Not Detected
Hexachlorobutadiene	19	Not Detected	200	Not Detected
1,1-Difluoroethane	19	37000 E	50	100000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	92	70-130

eurofins | Air Toxics

Client Sample ID: SG4-7 DUP

Lab ID#: 1512124-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121517**	**Date of Collection:**	**12/2/15 9:43:00 AM**
Dil. Factor:	**4.65**	**Date of Analysis:**	**12/15/15 07:21 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	2.3	Not Detected	11	Not Detected
Freon 114	2.3	Not Detected	16	Not Detected
Chloromethane	23	Not Detected	48	Not Detected
Vinyl Chloride	2.3	Not Detected	5.9	Not Detected
1,3-Butadiene	2.3	Not Detected	5.1	Not Detected
Bromomethane	23	Not Detected	90	Not Detected
Chloroethane	9.3	Not Detected	24	Not Detected
Freon 11	2.3	Not Detected	13	Not Detected
Ethanol	9.3	Not Detected	18	Not Detected
Freon 113	2.3	Not Detected	18	Not Detected
1,1-Dichloroethene	2.3	Not Detected	9.2	Not Detected
Acetone	23	Not Detected	55	Not Detected
2-Propanol	9.3	Not Detected	23	Not Detected
Carbon Disulfide	9.3	Not Detected	29	Not Detected
3-Chloropropene	9.3	Not Detected	29	Not Detected
Methylene Chloride	23	Not Detected	81	Not Detected
Methyl tert-butyl ether	2.3	Not Detected	8.4	Not Detected
trans-1,2-Dichloroethene	2.3	Not Detected	9.2	Not Detected
Hexane	2.3	Not Detected	8.2	Not Detected
1,1-Dichloroethane	2.3	Not Detected	9.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	9.3	Not Detected	27	Not Detected
cis-1,2-Dichloroethene	2.3	Not Detected	9.2	Not Detected
Tetrahydrofuran	2.3	Not Detected	6.8	Not Detected
Chloroform	2.3	Not Detected	11	Not Detected
1,1,1-Trichloroethane	2.3	Not Detected	13	Not Detected
Cyclohexane	2.3	Not Detected	8.0	Not Detected
Carbon Tetrachloride	2.3	Not Detected	15	Not Detected
2,2,4-Trimethylpentane	2.3	Not Detected	11	Not Detected
Benzene	2.3	Not Detected	7.4	Not Detected
1,2-Dichloroethane	2.3	Not Detected	9.4	Not Detected
Heptane	2.3	Not Detected	9.5	Not Detected
Trichloroethene	2.3	Not Detected	12	Not Detected
1,2-Dichloropropane	2.3	Not Detected	11	Not Detected
1,4-Dioxane	9.3	Not Detected	34	Not Detected
Bromodichloromethane	2.3	Not Detected	16	Not Detected
cis-1,3-Dichloropropene	2.3	Not Detected	10	Not Detected
4-Methyl-2-pentanone	2.3	Not Detected	9.5	Not Detected
Toluene	2.3	Not Detected	8.8	Not Detected
trans-1,3-Dichloropropene	2.3	Not Detected	10	Not Detected
1,1,2-Trichloroethane	2.3	Not Detected	13	Not Detected
Tetrachloroethene	2.3	540	16	3700
2-Hexanone	9.3	Not Detected	38	Not Detected

eurofins | Air Toxics

Client Sample ID: SG4-7 DUP

Lab ID#: 1512124-06A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121517**	**Date of Collection: 12/2/15 9:43:00 AM**	
Dil. Factor:	**4.65**	**Date of Analysis: 12/15/15 07:21 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	2.3	Not Detected	20	Not Detected
1,2-Dibromoethane (EDB)	2.3	Not Detected	18	Not Detected
Chlorobenzene	2.3	Not Detected	11	Not Detected
Ethyl Benzene	2.3	Not Detected	10	Not Detected
m,p-Xylene	2.3	Not Detected	10	Not Detected
o-Xylene	2.3	Not Detected	10	Not Detected
Styrene	2.3	Not Detected	9.9	Not Detected
Bromoform	2.3	Not Detected	24	Not Detected
Cumene	2.3	Not Detected	11	Not Detected
1,1,2,2-Tetrachloroethane	2.3	Not Detected	16	Not Detected
Propylbenzene	2.3	Not Detected	11	Not Detected
4-Ethyltoluene	2.3	Not Detected	11	Not Detected
1,3,5-Trimethylbenzene	2.3	Not Detected	11	Not Detected
1,2,4-Trimethylbenzene	2.3	Not Detected	11	Not Detected
1,3-Dichlorobenzene	2.3	Not Detected	14	Not Detected
1,4-Dichlorobenzene	2.3	Not Detected	14	Not Detected
alpha-Chlorotoluene	2.3	Not Detected	12	Not Detected
1,2-Dichlorobenzene	2.3	Not Detected	14	Not Detected
1,2,4-Trichlorobenzene	9.3	Not Detected	69	Not Detected
Hexachlorobutadiene	9.3	Not Detected	99	Not Detected
1,1-Difluoroethane	9.3	2400 E	25	6400 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: SG5-7

Lab ID#: 1512124-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121518**	**Date of Collection: 12/2/15 1:11:00 PM**	
Dil. Factor:	**24.0**	**Date of Analysis: 12/15/15 07:45 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	12	Not Detected	59	Not Detected
Freon 114	12	Not Detected	84	Not Detected
Chloromethane	120	Not Detected	250	Not Detected
Vinyl Chloride	12	Not Detected	31	Not Detected
1,3-Butadiene	12	Not Detected	26	Not Detected
Bromomethane	120	Not Detected	470	Not Detected
Chloroethane	48	Not Detected	130	Not Detected
Freon 11	12	Not Detected	67	Not Detected
Ethanol	48	Not Detected	90	Not Detected
Freon 113	12	Not Detected	92	Not Detected
1,1-Dichloroethene	12	Not Detected	48	Not Detected
Acetone	120	Not Detected	280	Not Detected
2-Propanol	48	Not Detected	120	Not Detected
Carbon Disulfide	48	Not Detected	150	Not Detected
3-Chloropropene	48	Not Detected	150	Not Detected
Methylene Chloride	120	Not Detected	420	Not Detected
Methyl tert-butyl ether	12	Not Detected	43	Not Detected
trans-1,2-Dichloroethene	12	Not Detected	48	Not Detected
Hexane	12	Not Detected	42	Not Detected
1,1-Dichloroethane	12	Not Detected	48	Not Detected
2-Butanone (Methyl Ethyl Ketone)	48	Not Detected	140	Not Detected
cis-1,2-Dichloroethene	12	Not Detected	48	Not Detected
Tetrahydrofuran	12	Not Detected	35	Not Detected
Chloroform	12	Not Detected	58	Not Detected
1,1,1-Trichloroethane	12	Not Detected	65	Not Detected
Cyclohexane	12	Not Detected	41	Not Detected
Carbon Tetrachloride	12	Not Detected	76	Not Detected
2,2,4-Trimethylpentane	12	Not Detected	56	Not Detected
Benzene	12	Not Detected	38	Not Detected
1,2-Dichloroethane	12	Not Detected	48	Not Detected
Heptane	12	Not Detected	49	Not Detected
Trichloroethene	12	Not Detected	64	Not Detected
1,2-Dichloropropane	12	Not Detected	55	Not Detected
1,4-Dioxane	48	Not Detected	170	Not Detected
Bromodichloromethane	12	Not Detected	80	Not Detected
cis-1,3-Dichloropropene	12	Not Detected	54	Not Detected
4-Methyl-2-pentanone	12	Not Detected	49	Not Detected
Toluene	12	Not Detected	45	Not Detected
trans-1,3-Dichloropropene	12	Not Detected	54	Not Detected
1,1,2-Trichloroethane	12	Not Detected	65	Not Detected
Tetrachloroethene	12	3400	81	23000
2-Hexanone	48	Not Detected	200	Not Detected

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Client Sample ID: SG5-7

Lab ID#: 1512124-07A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121518**	**Date of Collection: 12/2/15 1:11:00 PM**	
Dil. Factor:	**24.0**	**Date of Analysis: 12/15/15 07:45 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	12	Not Detected	100	Not Detected
1,2-Dibromoethane (EDB)	12	Not Detected	92	Not Detected
Chlorobenzene	12	Not Detected	55	Not Detected
Ethyl Benzene	12	Not Detected	52	Not Detected
m,p-Xylene	12	Not Detected	52	Not Detected
o-Xylene	12	Not Detected	52	Not Detected
Styrene	12	Not Detected	51	Not Detected
Bromoform	12	Not Detected	120	Not Detected
Cumene	12	Not Detected	59	Not Detected
1,1,2,2-Tetrachloroethane	12	Not Detected	82	Not Detected
Propylbenzene	12	Not Detected	59	Not Detected
4-Ethyltoluene	12	Not Detected	59	Not Detected
1,3,5-Trimethylbenzene	12	Not Detected	59	Not Detected
1,2,4-Trimethylbenzene	12	Not Detected	59	Not Detected
1,3-Dichlorobenzene	12	Not Detected	72	Not Detected
1,4-Dichlorobenzene	12	Not Detected	72	Not Detected
alpha-Chlorotoluene	12	Not Detected	62	Not Detected
1,2-Dichlorobenzene	12	Not Detected	72	Not Detected
1,2,4-Trichlorobenzene	48	Not Detected	360	Not Detected
Hexachlorobutadiene	48	Not Detected	510	Not Detected
1,1-Difluoroethane	48	220	130	600

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: SG5-17

Lab ID#: 1512124-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121519**	**Date of Collection: 12/2/15 1:24:00 PM**	
Dil. Factor:	**12.0**	**Date of Analysis: 12/15/15 08:23 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	6.0	Not Detected	30	Not Detected
Freon 114	6.0	Not Detected	42	Not Detected
Chloromethane	60	Not Detected	120	Not Detected
Vinyl Chloride	6.0	Not Detected	15	Not Detected
1,3-Butadiene	6.0	Not Detected	13	Not Detected
Bromomethane	60	Not Detected	230	Not Detected
Chloroethane	24	Not Detected	63	Not Detected
Freon 11	6.0	Not Detected	34	Not Detected
Ethanol	24	Not Detected	45	Not Detected
Freon 113	6.0	Not Detected	46	Not Detected
1,1-Dichloroethene	6.0	Not Detected	24	Not Detected
Acetone	60	Not Detected	140	Not Detected
2-Propanol	24	Not Detected	59	Not Detected
Carbon Disulfide	24	47	75	140
3-Chloropropene	24	Not Detected	75	Not Detected
Methylene Chloride	60	Not Detected	210	Not Detected
Methyl tert-butyl ether	6.0	Not Detected	22	Not Detected
trans-1,2-Dichloroethene	6.0	Not Detected	24	Not Detected
Hexane	6.0	Not Detected	21	Not Detected
1,1-Dichloroethane	6.0	Not Detected	24	Not Detected
2-Butanone (Methyl Ethyl Ketone)	24	Not Detected	71	Not Detected
cis-1,2-Dichloroethene	6.0	Not Detected	24	Not Detected
Tetrahydrofuran	6.0	Not Detected	18	Not Detected
Chloroform	6.0	Not Detected	29	Not Detected
1,1,1-Trichloroethane	6.0	Not Detected	33	Not Detected
Cyclohexane	6.0	Not Detected	21	Not Detected
Carbon Tetrachloride	6.0	Not Detected	38	Not Detected
2,2,4-Trimethylpentane	6.0	Not Detected	28	Not Detected
Benzene	6.0	17	19	56
1,2-Dichloroethane	6.0	Not Detected	24	Not Detected
Heptane	6.0	Not Detected	24	Not Detected
Trichloroethene	6.0	Not Detected	32	Not Detected
1,2-Dichloropropane	6.0	Not Detected	28	Not Detected
1,4-Dioxane	24	Not Detected	86	Not Detected
Bromodichloromethane	6.0	Not Detected	40	Not Detected
cis-1,3-Dichloropropene	6.0	Not Detected	27	Not Detected
4-Methyl-2-pentanone	6.0	Not Detected	24	Not Detected
Toluene	6.0	14	23	54
trans-1,3-Dichloropropene	6.0	Not Detected	27	Not Detected
1,1,2-Trichloroethane	6.0	Not Detected	33	Not Detected
Tetrachloroethene	6.0	2300	41	15000
2-Hexanone	24	Not Detected	98	Not Detected

eurofins | Air Toxics

Client Sample ID: SG5-17

Lab ID#: 1512124-08A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121519**	**Date of Collection: 12/2/15 1:24:00 PM**	
Dil. Factor:	**12.0**	**Date of Analysis: 12/15/15 08:23 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	6.0	Not Detected	51	Not Detected
1,2-Dibromoethane (EDB)	6.0	Not Detected	46	Not Detected
Chlorobenzene	6.0	Not Detected	28	Not Detected
Ethyl Benzene	6.0	Not Detected	26	Not Detected
m,p-Xylene	6.0	Not Detected	26	Not Detected
o-Xylene	6.0	Not Detected	26	Not Detected
Styrene	6.0	Not Detected	26	Not Detected
Bromoform	6.0	Not Detected	62	Not Detected
Cumene	6.0	Not Detected	29	Not Detected
1,1,2,2-Tetrachloroethane	6.0	Not Detected	41	Not Detected
Propylbenzene	6.0	Not Detected	29	Not Detected
4-Ethyltoluene	6.0	Not Detected	29	Not Detected
1,3,5-Trimethylbenzene	6.0	Not Detected	29	Not Detected
1,2,4-Trimethylbenzene	6.0	Not Detected	29	Not Detected
1,3-Dichlorobenzene	6.0	Not Detected	36	Not Detected
1,4-Dichlorobenzene	6.0	Not Detected	36	Not Detected
alpha-Chlorotoluene	6.0	Not Detected	31	Not Detected
1,2-Dichlorobenzene	6.0	Not Detected	36	Not Detected
1,2,4-Trichlorobenzene	24	Not Detected	180	Not Detected
Hexachlorobutadiene	24	Not Detected	260	Not Detected
1,1-Difluoroethane	24	210	65	570

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	90	70-130

eurofins | Air Toxics

Client Sample ID: SG6-7

Lab ID#: 1512124-09A

EPA METHOD TO-15 GC/MS

File Name:	**14121812**	**Date of Collection: 12/2/15 2:49:00 PM**	
Dil. Factor:	**14.1**	**Date of Analysis: 12/18/15 02:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	70	Not Detected	350	Not Detected
Freon 114	70	Not Detected	490	Not Detected
Chloromethane	280	Not Detected	580	Not Detected
Vinyl Chloride	70	Not Detected	180	Not Detected
1,3-Butadiene	280	Not Detected	620	Not Detected
Bromomethane	280	Not Detected	1100	Not Detected
Chloroethane	280	Not Detected	740	Not Detected
Freon 11	70	Not Detected	400	Not Detected
Ethanol	280	Not Detected	530	Not Detected
Freon 113	70	Not Detected	540	Not Detected
1,1-Dichloroethene	70	Not Detected	280	Not Detected
Acetone	280	Not Detected	670	Not Detected
2-Propanol	280	Not Detected	690	Not Detected
Carbon Disulfide	70	Not Detected	220	Not Detected
3-Chloropropene	280	Not Detected	880	Not Detected
Methylene Chloride	70	Not Detected	240	Not Detected
Methyl tert-butyl ether	70	Not Detected	250	Not Detected
trans-1,2-Dichloroethene	70	Not Detected	280	Not Detected
Hexane	70	Not Detected	250	Not Detected
1,1-Dichloroethane	70	Not Detected	280	Not Detected
2-Butanone (Methyl Ethyl Ketone)	280	Not Detected	830	Not Detected
cis-1,2-Dichloroethene	70	Not Detected	280	Not Detected
Tetrahydrofuran	70	Not Detected	210	Not Detected
Chloroform	70	Not Detected	340	Not Detected
1,1,1-Trichloroethane	70	Not Detected	380	Not Detected
Cyclohexane	70	Not Detected	240	Not Detected
Carbon Tetrachloride	70	Not Detected	440	Not Detected
2,2,4-Trimethylpentane	70	Not Detected	330	Not Detected
Benzene	70	Not Detected	220	Not Detected
1,2-Dichloroethane	70	Not Detected	280	Not Detected
Heptane	70	Not Detected	290	Not Detected
Trichloroethene	70	Not Detected	380	Not Detected
1,2-Dichloropropane	70	Not Detected	320	Not Detected
1,4-Dioxane	280	Not Detected	1000	Not Detected
Bromodichloromethane	70	Not Detected	470	Not Detected
cis-1,3-Dichloropropene	70	Not Detected	320	Not Detected
4-Methyl-2-pentanone	70	Not Detected	290	Not Detected
Toluene	70	Not Detected	260	Not Detected
trans-1,3-Dichloropropene	70	Not Detected	320	Not Detected
1,1,2-Trichloroethane	70	Not Detected	380	Not Detected
Tetrachloroethene	70	9000	480	61000
2-Hexanone	280	Not Detected	1200	Not Detected

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Client Sample ID: SG6-7

Lab ID#: 1512124-09A

EPA METHOD TO-15 GC/MS

File Name:	**14121812**	**Date of Collection: 12/2/15 2:49:00 PM**	
Dil. Factor:	**14.1**	**Date of Analysis: 12/18/15 02:11 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	70	Not Detected	600	Not Detected
1,2-Dibromoethane (EDB)	70	Not Detected	540	Not Detected
Chlorobenzene	70	Not Detected	320	Not Detected
Ethyl Benzene	70	Not Detected	310	Not Detected
m,p-Xylene	70	Not Detected	310	Not Detected
o-Xylene	70	Not Detected	310	Not Detected
Styrene	70	Not Detected	300	Not Detected
Bromoform	70	Not Detected	730	Not Detected
Cumene	70	Not Detected	350	Not Detected
1,1,2,2-Tetrachloroethane	70	Not Detected	480	Not Detected
Propylbenzene	70	Not Detected	350	Not Detected
4-Ethyltoluene	70	Not Detected	350	Not Detected
1,3,5-Trimethylbenzene	70	Not Detected	350	Not Detected
1,2,4-Trimethylbenzene	70	Not Detected	350	Not Detected
1,3-Dichlorobenzene	70	Not Detected	420	Not Detected
1,4-Dichlorobenzene	70	Not Detected	420	Not Detected
alpha-Chlorotoluene	70	Not Detected	360	Not Detected
1,2-Dichlorobenzene	70	Not Detected	420	Not Detected
1,2,4-Trichlorobenzene	280	Not Detected	2100	Not Detected
Hexachlorobutadiene	280	Not Detected	3000	Not Detected
1,1-Difluoroethane	280	720	760	2000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	105	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: SG6-17

Lab ID#: 1512124-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121528**	**Date of Collection: 12/2/15 2:55:00 PM**	
Dil. Factor:	**41.4**	**Date of Analysis: 12/16/15 03:08 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	21	Not Detected	100	Not Detected
Freon 114	21	Not Detected	140	Not Detected
Chloromethane	210	Not Detected	430	Not Detected
Vinyl Chloride	21	Not Detected	53	Not Detected
1,3-Butadiene	21	Not Detected	46	Not Detected
Bromomethane	210	Not Detected	800	Not Detected
Chloroethane	83	Not Detected	220	Not Detected
Freon 11	21	Not Detected	120	Not Detected
Ethanol	83	Not Detected	160	Not Detected
Freon 113	21	Not Detected	160	Not Detected
1,1-Dichloroethene	21	Not Detected	82	Not Detected
Acetone	210	Not Detected	490	Not Detected
2-Propanol	83	Not Detected	200	Not Detected
Carbon Disulfide	83	Not Detected	260	Not Detected
3-Chloropropene	83	Not Detected	260	Not Detected
Methylene Chloride	210	Not Detected	720	Not Detected
Methyl tert-butyl ether	21	Not Detected	75	Not Detected
trans-1,2-Dichloroethene	21	Not Detected	82	Not Detected
Hexane	21	25	73	89
1,1-Dichloroethane	21	Not Detected	84	Not Detected
2-Butanone (Methyl Ethyl Ketone)	83	Not Detected	240	Not Detected
cis-1,2-Dichloroethene	21	Not Detected	82	Not Detected
Tetrahydrofuran	21	Not Detected	61	Not Detected
Chloroform	21	Not Detected	100	Not Detected
1,1,1-Trichloroethane	21	Not Detected	110	Not Detected
Cyclohexane	21	Not Detected	71	Not Detected
Carbon Tetrachloride	21	Not Detected	130	Not Detected
2,2,4-Trimethylpentane	21	Not Detected	97	Not Detected
Benzene	21	42	66	140
1,2-Dichloroethane	21	Not Detected	84	Not Detected
Heptane	21	Not Detected	85	Not Detected
Trichloroethene	21	Not Detected	110	Not Detected
1,2-Dichloropropane	21	Not Detected	96	Not Detected
1,4-Dioxane	83	Not Detected	300	Not Detected
Bromodichloromethane	21	Not Detected	140	Not Detected
cis-1,3-Dichloropropene	21	Not Detected	94	Not Detected
4-Methyl-2-pentanone	21	Not Detected	85	Not Detected
Toluene	21	45	78	170
trans-1,3-Dichloropropene	21	Not Detected	94	Not Detected
1,1,2-Trichloroethane	21	Not Detected	110	Not Detected
Tetrachloroethene	21	6000	140	41000
2-Hexanone	83	Not Detected	340	Not Detected

eurofins | Air Toxics

Client Sample ID: SG6-17

Lab ID#: 1512124-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121528**	**Date of Collection: 12/2/15 2:55:00 PM**	
Dil. Factor:	**41.4**	**Date of Analysis: 12/16/15 03:08 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	21	Not Detected	180	Not Detected
1,2-Dibromoethane (EDB)	21	Not Detected	160	Not Detected
Chlorobenzene	21	Not Detected	95	Not Detected
Ethyl Benzene	21	Not Detected	90	Not Detected
m,p-Xylene	21	Not Detected	90	Not Detected
o-Xylene	21	Not Detected	90	Not Detected
Styrene	21	Not Detected	88	Not Detected
Bromoform	21	Not Detected	210	Not Detected
Cumene	21	Not Detected	100	Not Detected
1,1,2,2-Tetrachloroethane	21	Not Detected	140	Not Detected
Propylbenzene	21	Not Detected	100	Not Detected
4-Ethyltoluene	21	Not Detected	100	Not Detected
1,3,5-Trimethylbenzene	21	Not Detected	100	Not Detected
1,2,4-Trimethylbenzene	21	Not Detected	100	Not Detected
1,3-Dichlorobenzene	21	Not Detected	120	Not Detected
1,4-Dichlorobenzene	21	Not Detected	120	Not Detected
alpha-Chlorotoluene	21	Not Detected	110	Not Detected
1,2-Dichlorobenzene	21	Not Detected	120	Not Detected
1,2,4-Trichlorobenzene	83	Not Detected	610	Not Detected
Hexachlorobutadiene	83	Not Detected	880	Not Detected
1,1-Difluoroethane	83	200	220	540

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	109	70-130
1,2-Dichloroethane-d4	102	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: SG7-7

Lab ID#: 1512124-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121523**	**Date of Collection: 12/2/15 2:03:00 PM**	
Dil. Factor:	**8.54**	**Date of Analysis: 12/16/15 12:21 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	4.3	Not Detected	21	Not Detected
Freon 114	4.3	Not Detected	30	Not Detected
Chloromethane	43	Not Detected	88	Not Detected
Vinyl Chloride	4.3	Not Detected	11	Not Detected
1,3-Butadiene	4.3	Not Detected	9.4	Not Detected
Bromomethane	43	Not Detected	160	Not Detected
Chloroethane	17	Not Detected	45	Not Detected
Freon 11	4.3	Not Detected	24	Not Detected
Ethanol	17	Not Detected	32	Not Detected
Freon 113	4.3	Not Detected	33	Not Detected
1,1-Dichloroethene	4.3	Not Detected	17	Not Detected
Acetone	43	Not Detected	100	Not Detected
2-Propanol	17	Not Detected	42	Not Detected
Carbon Disulfide	17	Not Detected	53	Not Detected
3-Chloropropene	17	Not Detected	53	Not Detected
Methylene Chloride	43	Not Detected	150	Not Detected
Methyl tert-butyl ether	4.3	Not Detected	15	Not Detected
trans-1,2-Dichloroethene	4.3	Not Detected	17	Not Detected
Hexane	4.3	Not Detected	15	Not Detected
1,1-Dichloroethane	4.3	Not Detected	17	Not Detected
2-Butanone (Methyl Ethyl Ketone)	17	Not Detected	50	Not Detected
cis-1,2-Dichloroethene	4.3	Not Detected	17	Not Detected
Tetrahydrofuran	4.3	Not Detected	12	Not Detected
Chloroform	4.3	Not Detected	21	Not Detected
1,1,1-Trichloroethane	4.3	Not Detected	23	Not Detected
Cyclohexane	4.3	Not Detected	15	Not Detected
Carbon Tetrachloride	4.3	Not Detected	27	Not Detected
2,2,4-Trimethylpentane	4.3	Not Detected	20	Not Detected
Benzene	4.3	Not Detected	14	Not Detected
1,2-Dichloroethane	4.3	Not Detected	17	Not Detected
Heptane	4.3	Not Detected	17	Not Detected
Trichloroethene	4.3	Not Detected	23	Not Detected
1,2-Dichloropropane	4.3	Not Detected	20	Not Detected
1,4-Dioxane	17	Not Detected	62	Not Detected
Bromodichloromethane	4.3	Not Detected	29	Not Detected
cis-1,3-Dichloropropene	4.3	Not Detected	19	Not Detected
4-Methyl-2-pentanone	4.3	Not Detected	17	Not Detected
Toluene	4.3	Not Detected	16	Not Detected
trans-1,3-Dichloropropene	4.3	Not Detected	19	Not Detected
1,1,2-Trichloroethane	4.3	Not Detected	23	Not Detected
Tetrachloroethene	4.3	1000	29	7000
2-Hexanone	17	Not Detected	70	Not Detected

eurofins | Air Toxics

Client Sample ID: SG7-7

Lab ID#: 1512124-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121523**	**Date of Collection: 12/2/15 2:03:00 PM**	
Dil. Factor:	**8.54**	**Date of Analysis: 12/16/15 12:21 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	4.3	Not Detected	36	Not Detected
1,2-Dibromoethane (EDB)	4.3	Not Detected	33	Not Detected
Chlorobenzene	4.3	Not Detected	20	Not Detected
Ethyl Benzene	4.3	Not Detected	18	Not Detected
m,p-Xylene	4.3	Not Detected	18	Not Detected
o-Xylene	4.3	Not Detected	18	Not Detected
Styrene	4.3	Not Detected	18	Not Detected
Bromoform	4.3	Not Detected	44	Not Detected
Cumene	4.3	Not Detected	21	Not Detected
1,1,2,2-Tetrachloroethane	4.3	Not Detected	29	Not Detected
Propylbenzene	4.3	Not Detected	21	Not Detected
4-Ethyltoluene	4.3	Not Detected	21	Not Detected
1,3,5-Trimethylbenzene	4.3	Not Detected	21	Not Detected
1,2,4-Trimethylbenzene	4.3	Not Detected	21	Not Detected
1,3-Dichlorobenzene	4.3	Not Detected	26	Not Detected
1,4-Dichlorobenzene	4.3	Not Detected	26	Not Detected
alpha-Chlorotoluene	4.3	Not Detected	22	Not Detected
1,2-Dichlorobenzene	4.3	Not Detected	26	Not Detected
1,2,4-Trichlorobenzene	17	Not Detected	130	Not Detected
Hexachlorobutadiene	17	Not Detected	180	Not Detected
1,1-Difluoroethane	17	550	46	1500

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	93	70-130

eurofins | Air Toxics

Client Sample ID: SG7-17

Lab ID#: 1512124-12A

EPA METHOD TO-15 GC/MS

File Name:	**14121813**	**Date of Collection: 12/2/15 2:19:00 PM**	
Dil. Factor:	**7.33**	**Date of Analysis: 12/18/15 02:58 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	37	Not Detected	180	Not Detected
Freon 114	37	Not Detected	260	Not Detected
Chloromethane	150	Not Detected	300	Not Detected
Vinyl Chloride	37	Not Detected	94	Not Detected
1,3-Butadiene	150	Not Detected	320	Not Detected
Bromomethane	150	Not Detected	570	Not Detected
Chloroethane	150	Not Detected	390	Not Detected
Freon 11	37	Not Detected	200	Not Detected
Ethanol	150	Not Detected	280	Not Detected
Freon 113	37	Not Detected	280	Not Detected
1,1-Dichloroethene	37	Not Detected	140	Not Detected
Acetone	150	Not Detected	350	Not Detected
2-Propanol	150	Not Detected	360	Not Detected
Carbon Disulfide	37	Not Detected	110	Not Detected
3-Chloropropene	150	Not Detected	460	Not Detected
Methylene Chloride	37	Not Detected	130	Not Detected
Methyl tert-butyl ether	37	Not Detected	130	Not Detected
trans-1,2-Dichloroethene	37	Not Detected	140	Not Detected
Hexane	37	Not Detected	130	Not Detected
1,1-Dichloroethane	37	Not Detected	150	Not Detected
2-Butanone (Methyl Ethyl Ketone)	150	Not Detected	430	Not Detected
cis-1,2-Dichloroethene	37	Not Detected	140	Not Detected
Tetrahydrofuran	37	Not Detected	110	Not Detected
Chloroform	37	Not Detected	180	Not Detected
1,1,1-Trichloroethane	37	Not Detected	200	Not Detected
Cyclohexane	37	Not Detected	130	Not Detected
Carbon Tetrachloride	37	Not Detected	230	Not Detected
2,2,4-Trimethylpentane	37	Not Detected	170	Not Detected
Benzene	37	Not Detected	120	Not Detected
1,2-Dichloroethane	37	Not Detected	150	Not Detected
Heptane	37	Not Detected	150	Not Detected
Trichloroethene	37	Not Detected	200	Not Detected
1,2-Dichloropropane	37	Not Detected	170	Not Detected
1,4-Dioxane	150	Not Detected	530	Not Detected
Bromodichloromethane	37	Not Detected	240	Not Detected
cis-1,3-Dichloropropene	37	Not Detected	170	Not Detected
4-Methyl-2-pentanone	37	Not Detected	150	Not Detected
Toluene	37	Not Detected	140	Not Detected
trans-1,3-Dichloropropene	37	Not Detected	170	Not Detected
1,1,2-Trichloroethane	37	Not Detected	200	Not Detected
Tetrachloroethene	37	5500	250	37000
2-Hexanone	150	Not Detected	600	Not Detected

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Client Sample ID: SG7-17

Lab ID#: 1512124-12A

EPA METHOD TO-15 GC/MS

File Name:	**14121813**	**Date of Collection: 12/2/15 2:19:00 PM**	
Dil. Factor:	**7.33**	**Date of Analysis: 12/18/15 02:58 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	37	Not Detected	310	Not Detected
1,2-Dibromoethane (EDB)	37	Not Detected	280	Not Detected
Chlorobenzene	37	Not Detected	170	Not Detected
Ethyl Benzene	37	Not Detected	160	Not Detected
m,p-Xylene	37	Not Detected	160	Not Detected
o-Xylene	37	Not Detected	160	Not Detected
Styrene	37	Not Detected	160	Not Detected
Bromoform	37	Not Detected	380	Not Detected
Cumene	37	Not Detected	180	Not Detected
1,1,2,2-Tetrachloroethane	37	Not Detected	250	Not Detected
Propylbenzene	37	Not Detected	180	Not Detected
4-Ethyltoluene	37	Not Detected	180	Not Detected
1,3,5-Trimethylbenzene	37	Not Detected	180	Not Detected
1,2,4-Trimethylbenzene	37	Not Detected	180	Not Detected
1,3-Dichlorobenzene	37	Not Detected	220	Not Detected
1,4-Dichlorobenzene	37	Not Detected	220	Not Detected
alpha-Chlorotoluene	37	Not Detected	190	Not Detected
1,2-Dichlorobenzene	37	Not Detected	220	Not Detected
1,2,4-Trichlorobenzene	150	Not Detected	1100	Not Detected
Hexachlorobutadiene	150	Not Detected	1600	Not Detected
1,1-Difluoroethane	150	Not Detected	400	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: SG8-7

Lab ID#: 1512124-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121522**	**Date of Collection:**	**12/2/15 10:45:00 AM**
Dil. Factor:	**2.38**	**Date of Analysis:**	**12/15/15 11:56 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.9	Not Detected
Freon 114	1.2	Not Detected	8.3	Not Detected
Chloromethane	12	Not Detected	24	Not Detected
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	46	Not Detected
Chloroethane	4.8	Not Detected	12	Not Detected
Freon 11	1.2	Not Detected	6.7	Not Detected
Ethanol	4.8	Not Detected	9.0	Not Detected
Freon 113	1.2	Not Detected	9.1	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Acetone	12	Not Detected	28	Not Detected
2-Propanol	4.8	Not Detected	12	Not Detected
Carbon Disulfide	4.8	Not Detected	15	Not Detected
3-Chloropropene	4.8	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	41	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Hexane	1.2	Not Detected	4.2	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.8	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.8	Not Detected	14	Not Detected
cis-1,2-Dichloroethene	1.2	Not Detected	4.7	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.5	Not Detected
Chloroform	1.2	Not Detected	5.8	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Cyclohexane	1.2	Not Detected	4.1	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.5	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.6	Not Detected
Benzene	1.2	4.2	3.8	13
1,2-Dichloroethane	1.2	Not Detected	4.8	Not Detected
Heptane	1.2	Not Detected	4.9	Not Detected
Trichloroethene	1.2	Not Detected	6.4	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.5	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	8.0	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.9	Not Detected
Toluene	1.2	Not Detected	4.5	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.4	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.5	Not Detected
Tetrachloroethene	1.2	120	8.1	850
2-Hexanone	4.8	Not Detected	19	Not Detected

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Client Sample ID: SG8-7

Lab ID#: 1512124-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121522**	**Date of Collection: 12/2/15 10:45:00 AM**	
Dil. Factor:	**2.38**	**Date of Analysis: 12/15/15 11:56 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.1	Not Detected
Chlorobenzene	1.2	Not Detected	5.5	Not Detected
Ethyl Benzene	1.2	Not Detected	5.2	Not Detected
m,p-Xylene	1.2	Not Detected	5.2	Not Detected
o-Xylene	1.2	Not Detected	5.2	Not Detected
Styrene	1.2	Not Detected	5.1	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.8	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.2	Not Detected
Propylbenzene	1.2	Not Detected	5.8	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.8	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.8	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.2	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
1,2,4-Trichlorobenzene	4.8	Not Detected	35	Not Detected
Hexachlorobutadiene	4.8	Not Detected	51	Not Detected
1,1-Difluoroethane	4.8	79	13	210

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: SG9-17

Lab ID#: 1512124-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121524**	**Date of Collection: 12/2/15 3:46:00 PM**	
Dil. Factor:	**8.48**	**Date of Analysis: 12/16/15 12:59 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	4.2	Not Detected	21	Not Detected
Freon 114	4.2	Not Detected	30	Not Detected
Chloromethane	42	Not Detected	88	Not Detected
Vinyl Chloride	4.2	Not Detected	11	Not Detected
1,3-Butadiene	4.2	Not Detected	9.4	Not Detected
Bromomethane	42	Not Detected	160	Not Detected
Chloroethane	17	Not Detected	45	Not Detected
Freon 11	4.2	Not Detected	24	Not Detected
Ethanol	17	Not Detected	32	Not Detected
Freon 113	4.2	Not Detected	32	Not Detected
1,1-Dichloroethene	4.2	Not Detected	17	Not Detected
Acetone	42	Not Detected	100	Not Detected
2-Propanol	17	Not Detected	42	Not Detected
Carbon Disulfide	17	55	53	170
3-Chloropropene	17	Not Detected	53	Not Detected
Methylene Chloride	42	Not Detected	150	Not Detected
Methyl tert-butyl ether	4.2	Not Detected	15	Not Detected
trans-1,2-Dichloroethene	4.2	Not Detected	17	Not Detected
Hexane	4.2	8.4	15	29
1,1-Dichloroethane	4.2	Not Detected	17	Not Detected
2-Butanone (Methyl Ethyl Ketone)	17	Not Detected	50	Not Detected
cis-1,2-Dichloroethene	4.2	Not Detected	17	Not Detected
Tetrahydrofuran	4.2	Not Detected	12	Not Detected
Chloroform	4.2	9.5	21	46
1,1,1-Trichloroethane	4.2	Not Detected	23	Not Detected
Cyclohexane	4.2	Not Detected	14	Not Detected
Carbon Tetrachloride	4.2	Not Detected	27	Not Detected
2,2,4-Trimethylpentane	4.2	Not Detected	20	Not Detected
Benzene	4.2	13	14	42
1,2-Dichloroethane	4.2	Not Detected	17	Not Detected
Heptane	4.2	Not Detected	17	Not Detected
Trichloroethene	4.2	Not Detected	23	Not Detected
1,2-Dichloropropane	4.2	Not Detected	20	Not Detected
1,4-Dioxane	17	Not Detected	61	Not Detected
Bromodichloromethane	4.2	Not Detected	28	Not Detected
cis-1,3-Dichloropropene	4.2	Not Detected	19	Not Detected
4-Methyl-2-pentanone	4.2	Not Detected	17	Not Detected
Toluene	4.2	7.9	16	30
trans-1,3-Dichloropropene	4.2	Not Detected	19	Not Detected
1,1,2-Trichloroethane	4.2	Not Detected	23	Not Detected
Tetrachloroethene	4.2	580	29	4000
2-Hexanone	17	Not Detected	69	Not Detected

eurofins | Air Toxics

Client Sample ID: SG9-17

Lab ID#: 1512124-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121524**	**Date of Collection: 12/2/15 3:46:00 PM**	
Dil. Factor:	**8.48**	**Date of Analysis: 12/16/15 12:59 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	4.2	Not Detected	36	Not Detected
1,2-Dibromoethane (EDB)	4.2	Not Detected	32	Not Detected
Chlorobenzene	4.2	Not Detected	20	Not Detected
Ethyl Benzene	4.2	Not Detected	18	Not Detected
m,p-Xylene	4.2	Not Detected	18	Not Detected
o-Xylene	4.2	Not Detected	18	Not Detected
Styrene	4.2	Not Detected	18	Not Detected
Bromoform	4.2	Not Detected	44	Not Detected
Cumene	4.2	Not Detected	21	Not Detected
1,1,2,2-Tetrachloroethane	4.2	Not Detected	29	Not Detected
Propylbenzene	4.2	Not Detected	21	Not Detected
4-Ethyltoluene	4.2	Not Detected	21	Not Detected
1,3,5-Trimethylbenzene	4.2	Not Detected	21	Not Detected
1,2,4-Trimethylbenzene	4.2	Not Detected	21	Not Detected
1,3-Dichlorobenzene	4.2	Not Detected	25	Not Detected
1,4-Dichlorobenzene	4.2	Not Detected	25	Not Detected
alpha-Chlorotoluene	4.2	Not Detected	22	Not Detected
1,2-Dichlorobenzene	4.2	Not Detected	25	Not Detected
1,2,4-Trichlorobenzene	17	Not Detected	120	Not Detected
Hexachlorobutadiene	17	Not Detected	180	Not Detected
1,1-Difluoroethane	17	24000 E	46	66000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: SG9-17 DUP

Lab ID#: 1512124-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121525**	**Date of Collection: 12/2/15 3:46:00 PM**	
Dil. Factor:	**9.68**	**Date of Analysis: 12/16/15 01:24 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	4.8	Not Detected	24	Not Detected
Freon 114	4.8	Not Detected	34	Not Detected
Chloromethane	48	Not Detected	100	Not Detected
Vinyl Chloride	4.8	Not Detected	12	Not Detected
1,3-Butadiene	4.8	Not Detected	11	Not Detected
Bromomethane	48	Not Detected	190	Not Detected
Chloroethane	19	Not Detected	51	Not Detected
Freon 11	4.8	Not Detected	27	Not Detected
Ethanol	19	Not Detected	36	Not Detected
Freon 113	4.8	Not Detected	37	Not Detected
1,1-Dichloroethene	4.8	Not Detected	19	Not Detected
Acetone	48	Not Detected	110	Not Detected
2-Propanol	19	Not Detected	48	Not Detected
Carbon Disulfide	19	61	60	190
3-Chloropropene	19	Not Detected	60	Not Detected
Methylene Chloride	48	Not Detected	170	Not Detected
Methyl tert-butyl ether	4.8	Not Detected	17	Not Detected
trans-1,2-Dichloroethene	4.8	Not Detected	19	Not Detected
Hexane	4.8	11	17	39
1,1-Dichloroethane	4.8	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	19	Not Detected	57	Not Detected
cis-1,2-Dichloroethene	4.8	Not Detected	19	Not Detected
Tetrahydrofuran	4.8	Not Detected	14	Not Detected
Chloroform	4.8	11	24	54
1,1,1-Trichloroethane	4.8	Not Detected	26	Not Detected
Cyclohexane	4.8	Not Detected	17	Not Detected
Carbon Tetrachloride	4.8	Not Detected	30	Not Detected
2,2,4-Trimethylpentane	4.8	Not Detected	23	Not Detected
Benzene	4.8	14	15	44
1,2-Dichloroethane	4.8	Not Detected	20	Not Detected
Heptane	4.8	Not Detected	20	Not Detected
Trichloroethene	4.8	Not Detected	26	Not Detected
1,2-Dichloropropane	4.8	Not Detected	22	Not Detected
1,4-Dioxane	19	Not Detected	70	Not Detected
Bromodichloromethane	4.8	Not Detected	32	Not Detected
cis-1,3-Dichloropropene	4.8	Not Detected	22	Not Detected
4-Methyl-2-pentanone	4.8	Not Detected	20	Not Detected
Toluene	4.8	9.0	18	34
trans-1,3-Dichloropropene	4.8	Not Detected	22	Not Detected
1,1,2-Trichloroethane	4.8	Not Detected	26	Not Detected
Tetrachloroethene	4.8	670	33	4600
2-Hexanone	19	Not Detected	79	Not Detected

eurofins | Air Toxics

Client Sample ID: SG9-17 DUP

Lab ID#: 1512124-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121525**	**Date of Collection: 12/2/15 3:46:00 PM**	
Dil. Factor:	**9.68**	**Date of Analysis: 12/16/15 01:24 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	4.8	Not Detected	41	Not Detected
1,2-Dibromoethane (EDB)	4.8	Not Detected	37	Not Detected
Chlorobenzene	4.8	Not Detected	22	Not Detected
Ethyl Benzene	4.8	Not Detected	21	Not Detected
m,p-Xylene	4.8	Not Detected	21	Not Detected
o-Xylene	4.8	Not Detected	21	Not Detected
Styrene	4.8	Not Detected	21	Not Detected
Bromoform	4.8	Not Detected	50	Not Detected
Cumene	4.8	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	4.8	Not Detected	33	Not Detected
Propylbenzene	4.8	Not Detected	24	Not Detected
4-Ethyltoluene	4.8	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	4.8	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	4.8	Not Detected	24	Not Detected
1,3-Dichlorobenzene	4.8	Not Detected	29	Not Detected
1,4-Dichlorobenzene	4.8	Not Detected	29	Not Detected
alpha-Chlorotoluene	4.8	Not Detected	25	Not Detected
1,2-Dichlorobenzene	4.8	Not Detected	29	Not Detected
1,2,4-Trichlorobenzene	19	Not Detected	140	Not Detected
Hexachlorobutadiene	19	Not Detected	210	Not Detected
1,1-Difluoroethane	19	3400 E	52	9200 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	110	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: SG10-7

Lab ID#: 1512124-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121532**	**Date of Collection: 12/2/15 3:55:00 PM**	
Dil. Factor:	**45.2**	**Date of Analysis: 12/16/15 05:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	23	Not Detected	110	Not Detected
Freon 114	23	Not Detected	160	Not Detected
Chloromethane	230	Not Detected	470	Not Detected
Vinyl Chloride	23	Not Detected	58	Not Detected
1,3-Butadiene	23	Not Detected	50	Not Detected
Bromomethane	230	Not Detected	880	Not Detected
Chloroethane	90	Not Detected	240	Not Detected
Freon 11	23	Not Detected	130	Not Detected
Ethanol	90	Not Detected	170	Not Detected
Freon 113	23	Not Detected	170	Not Detected
1,1-Dichloroethene	23	Not Detected	90	Not Detected
Acetone	230	Not Detected	540	Not Detected
2-Propanol	90	Not Detected	220	Not Detected
Carbon Disulfide	90	Not Detected	280	Not Detected
3-Chloropropene	90	Not Detected	280	Not Detected
Methylene Chloride	230	Not Detected	780	Not Detected
Methyl tert-butyl ether	23	Not Detected	81	Not Detected
trans-1,2-Dichloroethene	23	Not Detected	90	Not Detected
Hexane	23	Not Detected	80	Not Detected
1,1-Dichloroethane	23	Not Detected	91	Not Detected
2-Butanone (Methyl Ethyl Ketone)	90	Not Detected	270	Not Detected
cis-1,2-Dichloroethene	23	Not Detected	90	Not Detected
Tetrahydrofuran	23	Not Detected	67	Not Detected
Chloroform	23	Not Detected	110	Not Detected
1,1,1-Trichloroethane	23	Not Detected	120	Not Detected
Cyclohexane	23	Not Detected	78	Not Detected
Carbon Tetrachloride	23	Not Detected	140	Not Detected
2,2,4-Trimethylpentane	23	Not Detected	100	Not Detected
Benzene	23	Not Detected	72	Not Detected
1,2-Dichloroethane	23	Not Detected	91	Not Detected
Heptane	23	Not Detected	93	Not Detected
Trichloroethene	23	Not Detected	120	Not Detected
1,2-Dichloropropane	23	Not Detected	100	Not Detected
1,4-Dioxane	90	Not Detected	320	Not Detected
Bromodichloromethane	23	Not Detected	150	Not Detected
cis-1,3-Dichloropropene	23	Not Detected	100	Not Detected
4-Methyl-2-pentanone	23	Not Detected	92	Not Detected
Toluene	23	Not Detected	85	Not Detected
trans-1,3-Dichloropropene	23	Not Detected	100	Not Detected
1,1,2-Trichloroethane	23	Not Detected	120	Not Detected
Tetrachloroethene	23	160	150	1100
2-Hexanone	90	Not Detected	370	Not Detected

eurofins | Air Toxics

Client Sample ID: SG10-7

Lab ID#: 1512124-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121532**	**Date of Collection: 12/2/15 3:55:00 PM**	
Dil. Factor:	**45.2**	**Date of Analysis: 12/16/15 05:10 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	23	Not Detected	190	Not Detected
1,2-Dibromoethane (EDB)	23	Not Detected	170	Not Detected
Chlorobenzene	23	Not Detected	100	Not Detected
Ethyl Benzene	23	Not Detected	98	Not Detected
m,p-Xylene	23	Not Detected	98	Not Detected
o-Xylene	23	Not Detected	98	Not Detected
Styrene	23	Not Detected	96	Not Detected
Bromoform	23	Not Detected	230	Not Detected
Cumene	23	Not Detected	110	Not Detected
1,1,2,2-Tetrachloroethane	23	Not Detected	160	Not Detected
Propylbenzene	23	Not Detected	110	Not Detected
4-Ethyltoluene	23	Not Detected	110	Not Detected
1,3,5-Trimethylbenzene	23	Not Detected	110	Not Detected
1,2,4-Trimethylbenzene	23	Not Detected	110	Not Detected
1,3-Dichlorobenzene	23	Not Detected	140	Not Detected
1,4-Dichlorobenzene	23	Not Detected	140	Not Detected
alpha-Chlorotoluene	23	Not Detected	120	Not Detected
1,2-Dichlorobenzene	23	Not Detected	140	Not Detected
1,2,4-Trichlorobenzene	90	Not Detected	670	Not Detected
Hexachlorobutadiene	90	Not Detected	960	Not Detected
1,1-Difluoroethane	90	250000 E	240	680000 E

E = Exceeds instrument calibration range.

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	107	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1512124-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121507c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/15 12:59 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	2.0	Not Detected	5.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	5.0	Not Detected	12	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	2.0	Not Detected	6.2	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	2.0	Not Detected	5.9	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected
2-Hexanone	2.0	Not Detected	8.2	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1512124-17A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121507c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/15 12:59 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
1,1-Difluoroethane	2.0	Not Detected	5.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	80	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1512124-17B

EPA METHOD TO-15 GC/MS

File Name:	**14121810a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/18/15 12:51 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.0	Not Detected	25	Not Detected
Freon 114	5.0	Not Detected	35	Not Detected
Chloromethane	20	Not Detected	41	Not Detected
Vinyl Chloride	5.0	Not Detected	13	Not Detected
1,3-Butadiene	20	Not Detected	44	Not Detected
Bromomethane	20	Not Detected	78	Not Detected
Chloroethane	20	Not Detected	53	Not Detected
Freon 11	5.0	Not Detected	28	Not Detected
Ethanol	20	Not Detected	38	Not Detected
Freon 113	5.0	Not Detected	38	Not Detected
1,1-Dichloroethene	5.0	Not Detected	20	Not Detected
Acetone	20	Not Detected	48	Not Detected
2-Propanol	20	Not Detected	49	Not Detected
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Hexane	5.0	Not Detected	18	Not Detected
1,1-Dichloroethane	5.0	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	20	Not Detected	59	Not Detected
cis-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	5.0	Not Detected	24	Not Detected
1,1,1-Trichloroethane	5.0	Not Detected	27	Not Detected
Cyclohexane	5.0	Not Detected	17	Not Detected
Carbon Tetrachloride	5.0	Not Detected	31	Not Detected
2,2,4-Trimethylpentane	5.0	Not Detected	23	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
1,2-Dichloroethane	5.0	Not Detected	20	Not Detected
Heptane	5.0	Not Detected	20	Not Detected
Trichloroethene	5.0	Not Detected	27	Not Detected
1,2-Dichloropropane	5.0	Not Detected	23	Not Detected
1,4-Dioxane	20	Not Detected	72	Not Detected
Bromodichloromethane	5.0	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
4-Methyl-2-pentanone	5.0	Not Detected	20	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
1,1,2-Trichloroethane	5.0	Not Detected	27	Not Detected
Tetrachloroethene	5.0	Not Detected	34	Not Detected
2-Hexanone	20	Not Detected	82	Not Detected

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Client Sample ID: Lab Blank

Lab ID#: 1512124-17B

EPA METHOD TO-15 GC/MS

File Name:	**14121810a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/18/15 12:51 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	210	Not Detected
1,1-Difluoroethane	20	Not Detected	54	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: CCV

Lab ID#: 1512124-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121502**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/15 10:05 AM**	

Compound	%Recovery
Freon 12	107
Freon 114	105
Chloromethane	104
Vinyl Chloride	102
1,3-Butadiene	95
Bromomethane	98
Chloroethane	97
Freon 11	102
Ethanol	97
Freon 113	101
1,1-Dichloroethene	98
Acetone	100
2-Propanol	104
Carbon Disulfide	97
3-Chloropropene	99
Methylene Chloride	108
Methyl tert-butyl ether	100
trans-1,2-Dichloroethene	99
Hexane	103
1,1-Dichloroethane	105
2-Butanone (Methyl Ethyl Ketone)	115
cis-1,2-Dichloroethene	104
Tetrahydrofuran	106
Chloroform	109
1,1,1-Trichloroethane	105
Cyclohexane	99
Carbon Tetrachloride	106
2,2,4-Trimethylpentane	111
Benzene	112
1,2-Dichloroethane	112
Heptane	111
Trichloroethene	124
1,2-Dichloropropane	108
1,4-Dioxane	107
Bromodichloromethane	111
cis-1,3-Dichloropropene	116
4-Methyl-2-pentanone	111
Toluene	111
trans-1,3-Dichloropropene	112
1,1,2-Trichloroethane	109
Tetrachloroethene	108
2-Hexanone	112

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Client Sample ID: CCV

Lab ID#: 1512124-18A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121502**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/15 10:05 AM**	

Compound	%Recovery
Dibromochloromethane	113
1,2-Dibromoethane (EDB)	113
Chlorobenzene	112
Ethyl Benzene	111
m,p-Xylene	116
o-Xylene	118
Styrene	126
Bromoform	115
Cumene	117
1,1,2,2-Tetrachloroethane	100
Propylbenzene	117
4-Ethyltoluene	115
1,3,5-Trimethylbenzene	114
1,2,4-Trimethylbenzene	102
1,3-Dichlorobenzene	97
1,4-Dichlorobenzene	104
alpha-Chlorotoluene	115
1,2-Dichlorobenzene	110
1,2,4-Trichlorobenzene	94
Hexachlorobutadiene	96
1,1-Difluoroethane	90

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	106	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: CCV

Lab ID#: 1512124-18B

EPA METHOD TO-15 GC/MS

File Name:	**14121802**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 12/18/15 09:15 AM**

Compound	%Recovery
Freon 12	101
Freon 114	96
Chloromethane	102
Vinyl Chloride	97
1,3-Butadiene	96
Bromomethane	98
Chloroethane	95
Freon 11	103
Ethanol	108
Freon 113	98
1,1-Dichloroethene	98
Acetone	96
2-Propanol	102
Carbon Disulfide	102
3-Chloropropene	98
Methylene Chloride	96
Methyl tert-butyl ether	111
trans-1,2-Dichloroethene	93
Hexane	98
1,1-Dichloroethane	100
2-Butanone (Methyl Ethyl Ketone)	102
cis-1,2-Dichloroethene	102
Tetrahydrofuran	94
Chloroform	101
1,1,1-Trichloroethane	103
Cyclohexane	89
Carbon Tetrachloride	108
2,2,4-Trimethylpentane	100
Benzene	96
1,2-Dichloroethane	104
Heptane	96
Trichloroethene	88
1,2-Dichloropropane	101
1,4-Dioxane	102
Bromodichloromethane	104
cis-1,3-Dichloropropene	110
4-Methyl-2-pentanone	85
Toluene	97
trans-1,3-Dichloropropene	118
1,1,2-Trichloroethane	99
Tetrachloroethene	98
2-Hexanone	105

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Client Sample ID: CCV

Lab ID#: 1512124-18B

EPA METHOD TO-15 GC/MS

File Name:	**14121802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/18/15 09:15 AM**	

Compound	%Recovery
Dibromochloromethane	103
1,2-Dibromoethane (EDB)	102
Chlorobenzene	98
Ethyl Benzene	96
m,p-Xylene	100
o-Xylene	100
Styrene	98
Bromoform	101
Cumene	99
1,1,2,2-Tetrachloroethane	107
Propylbenzene	98
4-Ethyltoluene	98
1,3,5-Trimethylbenzene	95
1,2,4-Trimethylbenzene	97
1,3-Dichlorobenzene	100
1,4-Dichlorobenzene	94
alpha-Chlorotoluene	114
1,2-Dichlorobenzene	96
1,2,4-Trichlorobenzene	80
Hexachlorobutadiene	79
1,1-Difluoroethane	103

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCS

Lab ID#: 1512124-19A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/15 10:43 AM**	

Compound	%Recovery	Method Limits
Freon 12	114	70-130
Freon 114	116	70-130
Chloromethane	107	70-130
Vinyl Chloride	108	70-130
1,3-Butadiene	96	70-130
Bromomethane	104	70-130
Chloroethane	106	70-130
Freon 11	108	70-130
Ethanol	98	70-130
Freon 113	104	70-130
1,1-Dichloroethene	104	70-130
Acetone	102	70-130
2-Propanol	113	70-130
Carbon Disulfide	90	70-130
3-Chloropropene	94	70-130
Methylene Chloride	112	70-130
Methyl tert-butyl ether	100	70-130
trans-1,2-Dichloroethene	106	70-130
Hexane	107	70-130
1,1-Dichloroethane	108	70-130
2-Butanone (Methyl Ethyl Ketone)	112	70-130
cis-1,2-Dichloroethene	105	70-130
Tetrahydrofuran	111	70-130
Chloroform	111	70-130
1,1,1-Trichloroethane	109	70-130
Cyclohexane	106	70-130
Carbon Tetrachloride	109	70-130
2,2,4-Trimethylpentane	117	70-130
Benzene	117	70-130
1,2-Dichloroethane	112	70-130
Heptane	115	70-130
Trichloroethene	109	70-130
1,2-Dichloropropane	110	70-130
1,4-Dioxane	117	70-130
Bromodichloromethane	118	70-130
cis-1,3-Dichloropropene	113	70-130
4-Methyl-2-pentanone	119	70-130
Toluene	116	70-130
trans-1,3-Dichloropropene	113	70-130
1,1,2-Trichloroethane	112	70-130
Tetrachloroethene	110	70-130
2-Hexanone	122	70-130

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Client Sample ID: LCS

Lab ID#: 1512124-19A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121503**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/15 10:43 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	117	70-130
1,2-Dibromoethane (EDB)	115	70-130
Chlorobenzene	114	70-130
Ethyl Benzene	115	70-130
m,p-Xylene	117	70-130
o-Xylene	122	70-130
Styrene	128	70-130
Bromoform	122	70-130
Cumene	119	70-130
1,1,2,2-Tetrachloroethane	122	70-130
Propylbenzene	123	70-130
4-Ethyltoluene	124	70-130
1,3,5-Trimethylbenzene	117	70-130
1,2,4-Trimethylbenzene	126	70-130
1,3-Dichlorobenzene	101	70-130
1,4-Dichlorobenzene	100	70-130
alpha-Chlorotoluene	107	70-130
1,2-Dichlorobenzene	102	70-130
1,2,4-Trichlorobenzene	118	70-130
Hexachlorobutadiene	118	70-130
1,1-Difluoroethane	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	100	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: LCSD

Lab ID#: 1512124-19AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/15 11:07 AM**	

Compound	%Recovery	Method Limits
Freon 12	113	70-130
Freon 114	113	70-130
Chloromethane	104	70-130
Vinyl Chloride	106	70-130
1,3-Butadiene	98	70-130
Bromomethane	103	70-130
Chloroethane	105	70-130
Freon 11	108	70-130
Ethanol	99	70-130
Freon 113	104	70-130
1,1-Dichloroethene	102	70-130
Acetone	99	70-130
2-Propanol	111	70-130
Carbon Disulfide	89	70-130
3-Chloropropene	93	70-130
Methylene Chloride	112	70-130
Methyl tert-butyl ether	100	70-130
trans-1,2-Dichloroethene	103	70-130
Hexane	104	70-130
1,1-Dichloroethane	108	70-130
2-Butanone (Methyl Ethyl Ketone)	115	70-130
cis-1,2-Dichloroethene	107	70-130
Tetrahydrofuran	111	70-130
Chloroform	109	70-130
1,1,1-Trichloroethane	108	70-130
Cyclohexane	103	70-130
Carbon Tetrachloride	108	70-130
2,2,4-Trimethylpentane	116	70-130
Benzene	115	70-130
1,2-Dichloroethane	116	70-130
Heptane	109	70-130
Trichloroethene	110	70-130
1,2-Dichloropropane	109	70-130
1,4-Dioxane	116	70-130
Bromodichloromethane	117	70-130
cis-1,3-Dichloropropene	112	70-130
4-Methyl-2-pentanone	115	70-130
Toluene	114	70-130
trans-1,3-Dichloropropene	112	70-130
1,1,2-Trichloroethane	108	70-130
Tetrachloroethene	109	70-130
2-Hexanone	119	70-130

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Client Sample ID: LCSD

Lab ID#: 1512124-19AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**a121504**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/15/15 11:07 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	114	70-130
1,2-Dibromoethane (EDB)	115	70-130
Chlorobenzene	111	70-130
Ethyl Benzene	115	70-130
m,p-Xylene	115	70-130
o-Xylene	122	70-130
Styrene	125	70-130
Bromoform	118	70-130
Cumene	116	70-130
1,1,2,2-Tetrachloroethane	120	70-130
Propylbenzene	120	70-130
4-Ethyltoluene	117	70-130
1,3,5-Trimethylbenzene	117	70-130
1,2,4-Trimethylbenzene	126	70-130
1,3-Dichlorobenzene	118	70-130
1,4-Dichlorobenzene	119	70-130
alpha-Chlorotoluene	132 Q	70-130
1,2-Dichlorobenzene	123	70-130
1,2,4-Trichlorobenzene	133 Q	70-130
Hexachlorobutadiene	130	70-130
1,1-Difluoroethane	Not Spiked	

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: LCS

Lab ID#: 1512124-19B

EPA METHOD TO-15 GC/MS

File Name:	**14121808**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/18/15 11:53 AM**	

Compound	%Recovery	Method Limits
Freon 12	116	70-130
Freon 114	116	70-130
Chloromethane	105	70-130
Vinyl Chloride	111	70-130
1,3-Butadiene	107	70-130
Bromomethane	110	70-130
Chloroethane	100	70-130
Freon 11	116	70-130
Ethanol	90	70-130
Freon 113	104	70-130
1,1-Dichloroethene	107	70-130
Acetone	104	70-130
2-Propanol	110	70-130
Carbon Disulfide	95	70-130
3-Chloropropene	106	70-130
Methylene Chloride	106	70-130
Methyl tert-butyl ether	103	70-130
trans-1,2-Dichloroethene	100	70-130
Hexane	110	70-130
1,1-Dichloroethane	110	70-130
2-Butanone (Methyl Ethyl Ketone)	110	70-130
cis-1,2-Dichloroethene	107	70-130
Tetrahydrofuran	97	70-130
Chloroform	109	70-130
1,1,1-Trichloroethane	110	70-130
Cyclohexane	98	70-130
Carbon Tetrachloride	119	70-130
2,2,4-Trimethylpentane	110	70-130
Benzene	101	70-130
1,2-Dichloroethane	112	70-130
Heptane	104	70-130
Trichloroethene	93	70-130
1,2-Dichloropropane	108	70-130
1,4-Dioxane	106	70-130
Bromodichloromethane	108	70-130
cis-1,3-Dichloropropene	106	70-130
4-Methyl-2-pentanone	87	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	108	70-130
1,1,2-Trichloroethane	106	70-130
Tetrachloroethene	104	70-130
2-Hexanone	109	70-130

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Client Sample ID: LCS

Lab ID#: 1512124-19B

EPA METHOD TO-15 GC/MS

File Name:	**14121808**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/18/15 11:53 AM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	108	70-130
1,2-Dibromoethane (EDB)	108	70-130
Chlorobenzene	104	70-130
Ethyl Benzene	106	70-130
m,p-Xylene	106	70-130
o-Xylene	108	70-130
Styrene	104	70-130
Bromoform	109	70-130
Cumene	107	70-130
1,1,2,2-Tetrachloroethane	118	70-130
Propylbenzene	108	70-130
4-Ethyltoluene	106	70-130
1,3,5-Trimethylbenzene	102	70-130
1,2,4-Trimethylbenzene	103	70-130
1,3-Dichlorobenzene	106	70-130
1,4-Dichlorobenzene	104	70-130
alpha-Chlorotoluene	123	70-130
1,2-Dichlorobenzene	108	70-130
1,2,4-Trichlorobenzene	95	70-130
Hexachlorobutadiene	91	70-130
1,1-Difluoroethane	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: LCSD

Lab ID#: 1512124-19BB

EPA METHOD TO-15 GC/MS

File Name:	**14121809**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/18/15 12:17 PM**	

Compound	%Recovery	Method Limits
Freon 12	115	70-130
Freon 114	107	70-130
Chloromethane	102	70-130
Vinyl Chloride	107	70-130
1,3-Butadiene	98	70-130
Bromomethane	110	70-130
Chloroethane	99	70-130
Freon 11	109	70-130
Ethanol	88	70-130
Freon 113	100	70-130
1,1-Dichloroethene	102	70-130
Acetone	107	70-130
2-Propanol	108	70-130
Carbon Disulfide	92	70-130
3-Chloropropene	98	70-130
Methylene Chloride	100	70-130
Methyl tert-butyl ether	99	70-130
trans-1,2-Dichloroethene	96	70-130
Hexane	103	70-130
1,1-Dichloroethane	107	70-130
2-Butanone (Methyl Ethyl Ketone)	105	70-130
cis-1,2-Dichloroethene	103	70-130
Tetrahydrofuran	94	70-130
Chloroform	106	70-130
1,1,1-Trichloroethane	109	70-130
Cyclohexane	96	70-130
Carbon Tetrachloride	112	70-130
2,2,4-Trimethylpentane	108	70-130
Benzene	101	70-130
1,2-Dichloroethane	106	70-130
Heptane	99	70-130
Trichloroethene	96	70-130
1,2-Dichloropropane	106	70-130
1,4-Dioxane	105	70-130
Bromodichloromethane	108	70-130
cis-1,3-Dichloropropene	101	70-130
4-Methyl-2-pentanone	86	70-130
Toluene	102	70-130
trans-1,3-Dichloropropene	111	70-130
1,1,2-Trichloroethane	104	70-130
Tetrachloroethene	104	70-130
2-Hexanone	110	70-130

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Client Sample ID: LCSD

Lab ID#: 1512124-19BB

EPA METHOD TO-15 GC/MS

File Name:	**14121809**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/18/15 12:17 PM**	

Compound	%Recovery	Method Limits
Dibromochloromethane	107	70-130
1,2-Dibromoethane (EDB)	105	70-130
Chlorobenzene	105	70-130
Ethyl Benzene	103	70-130
m,p-Xylene	106	70-130
o-Xylene	108	70-130
Styrene	103	70-130
Bromoform	107	70-130
Cumene	104	70-130
1,1,2,2-Tetrachloroethane	115	70-130
Propylbenzene	105	70-130
4-Ethyltoluene	104	70-130
1,3,5-Trimethylbenzene	101	70-130
1,2,4-Trimethylbenzene	103	70-130
1,3-Dichlorobenzene	106	70-130
1,4-Dichlorobenzene	101	70-130
alpha-Chlorotoluene	116	70-130
1,2-Dichlorobenzene	107	70-130
1,2,4-Trichlorobenzene	92	70-130
Hexachlorobutadiene	85	70-130
1,1-Difluoroethane	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	102	70-130

CHAIN OF CUSTODY RECORD

P&D ENVIRONMENTAL, INC.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610
(510) 658-6916

PROJECT NUMBER: 0461

PROJECT NAME: RED HANGER KLEANERS 6239 COLLEGE AVE. OAKLAND, CA

SAMPLED BY: (PRINTED & SIGNATURE) MICHAEL BASS-DESCHENES

	SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION	INIT. VAC	FINAL VAC	PID (PPM)	NUMBER OF CONTAINERS	ANALYSIS(ES): TO-15 AND 5FA (TRACER GAS)	PRESERVATIVE	REMARKS
01A	SG1-7	12-2-15	092726	Soil Gas		-30	-5	0	1	X	NONE	NORMAL TAT
			093150	"								
02A	SG2-7	12-2-15	111400	"		-30	-5	7	1	X	NONE	" "
			112520	"								
03A	SG2-17	12-2-15	112300	"		-30	-5	24	1	X	NONE	" "
			112950	"								
04A	SG3-17	12-2-15	101940	"		-30	-5	9	1	X	NONE	" "
			102605	"								
05A	SG4-7	12-2-15	093010	"		-30	-5	0	1	X	NONE	" "
			094315	"								

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	Total No. of Samples (This Shipment): 16	LABORATORY:
	12-3-15	1230		Total No. of Containers (This Shipment): 16	EUROFINS AIR TOXICS LTD.
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	LABORATORY CONTACT: KYLE VAGADORI	LABORATORY PHONE NUMBER: (916) 605-3339
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	SAMPLE ANALYSIS REQUEST SHEET ATTACHED: ( ) YES (X) NO	

Results and billing to:
P&D Environmental, Inc.
lab@pdenviro.com

REMARKS:
1-LITER SUMMA.

1512124

CHAIN OF CUSTODY RECORD

P&D ENVIRONMENTAL, INC.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610
(510) 658-6916

PROJECT NUMBER: 0461

PROJECT NAME: RED HANGER KLEANERS 6239 COLLEGE AVE. OAKLAND, CA

SAMPLED BY: (PRINTED & SIGNATURE) MICHAEL BASS-DESCHENES Michael Bass-Deschenes

	SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION	INIT VAC	FINAL VAC	PID (PPM)	NUMBER OF CONTAINERS	ANALYSIS(ES): TO-15 AND DEA (TRACER GAS)	PRESERVATIVE	REMARKS
06A	SG4-7 DUP	12-2-15	093010	Soil Gas		-30	-5	0	1	X	NONE	NORMAL TAT
			094315	"								
09A	SG5-7	12-2-15	130439	"		-30	-5	2	1	X	"	"
			131120	"								
08A	SG5-17	12-2-15	132030	"		-30	-5	1.3	1	X	"	"
			132415	"								
04A	SG6-7	12-2-15	144100	"		-30	-5	12	1	X	"	"
			144950	"								
10A	SG6-17	12-2-15	145800	"		-30	-5	14	1	X	"	"
			145545	"								

RELINQUISHED BY: (SIGNATURE) Michael Bass-Deschenes	DATE 12-3-15	TIME 1232	RECEIVED BY: (SIGNATURE)	Total No. of Samples (This Shipment) 16 / Total No. of Containers (This Shipment) 16	LABORATORY: EUROFINS/AIR TOXICS, LTD
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	LABORATORY CONTACT: KYLE JAGADORI	LABORATORY PHONE NUMBER: (916) 605-3339
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	SAMPLE ANALYSIS REQUEST SHEET ATTACHED: ( ) YES (X) NO	

Results and billing to:
P&D Environmental, Inc.
lab@pdenviro.com

REMARKS: 1-LITER SUMMA

151214

CHAIN OF CUSTODY RECORD

P&D ENVIRONMENTAL, INC.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610
(510) 658-6916

PROJECT NUMBER: 0461

PROJECT NAME: RED HANGER KLEANERS 6239 COLLEGE AVE. OAKLAND, CA

SAMPLED BY: (PRINTED & SIGNATURE) MICHAEL BASS-DESCHENES

SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION (IN VAC / FINAL VAC / PID (ppm))	NUMBER OF CONTAINERS	ANALYSIS(ES): TO-15 AND DFA (TRAILER GAS)	PRESERVATIVE	REMARKS
SG7-7	12-2-15	135700	SOIL GAS	-30 -5 0	1	X	NONE	NORMAL TAT
		140310	"					
SG7-17	12-2-15	141000	"	-30 -4 6	1	X	"	"
		141910	"					
SG8-7	12-2-15	103900	"	-30 -5 0	1	X	"	"
		104535	"					
SG9-17	12-2-15	153000	"	-29 -5 14	1	X	"	"
		154655	"					
SG9-17 DUP	12-2-15	153000	"	-29 -5 14	1	X	"	"
		154655	"					
SG10-7	12-2-15	154900	"	-30 -5 14	1	X	"	"
		155510	"					

RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	Total No. of Samples (This Shipment)	LABORATORY:
MICHAEL BASS-DESCHENES	12-3-15	1232		16	EUROFINS AIR TOXICS LTD.
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	Total No. of Containers (This Shipment) 18	LABORATORY CONTACT: KYLE VAGADORI
					LABORATORY PHONE NUMBER: (916)-605-3339
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)	SAMPLE ANALYSIS REQUEST SHEET ATTACHED: ( ) YES (X) NO	

Results and billing to:
P&D Environmental, Inc.
lab@pdenviro.com

REMARKS: 1-LITER SUMMA

151124

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12/13/2015
Mr. Paul King
P & D Environmental
55 Santa Clara
Suite 240
Oakland CA 94610

Project Name: RED HANGER KLEANERS 6239 COLLEGE AVE OAK
Project #: 0461
Workorder #: 1512047

Dear Mr. Paul King

The following report includes the data for the above referenced project for sample(s) received on 12/3/2015 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 (5&20 ppbv) are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Eurofins Air Toxics Inc. for your air analysis needs. Eurofins Air Toxics Inc. is committed to providing accurate data of the highest quality. Please feel free the Project Manager: Kyle Vagadori at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Kyle Vagadori

Project Manager

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WORK ORDER #: 1512047

Work Order Summary

CLIENT:	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610	**BILL TO:**	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610
PHONE:	510-658-6916	**P.O. #**	
FAX:	510-834-0772	**PROJECT #**	0461 RED HANGER KLEANERS 6239 COLLEGE AVE OAK
DATE RECEIVED:	12/03/2015	**CONTACT:**	Kyle Vagadori
DATE COMPLETED:	12/13/2015		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	SG1-7	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
02A	SG2-7	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
03A	SG2-17	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
04A	SG3-17	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
05A	SG4-7	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
06A	SG5-7	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
07A	SG5-17	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
08A	SG6-7	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
09A	SG6-17	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
10A	SG7-7	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
11A	SG7-17	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
12A	SG8-7	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
13A	SG9-17	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
14A	SG10-7	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
15A	Lab Blank	Modified TO-15 (5&20 ppbv	NA	NA
16A	CCV	Modified TO-15 (5&20 ppbv	NA	NA

CERTIFIED BY: Heidi Mayo DATE: 12/13/15

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,
TX NELAP - T104704343-14-7, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935
Name of Accreditation Body: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)
Accreditation number: CA300005, Effective date: 10/18/2014, Expiration date: 10/17/2015.
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9563
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15 Soil Gas
P & D Environmental
Workorder# 1512047

Fourteen 1 Liter Tedlar Bag samples were received on December 03, 2015. The laboratory performed analysis via EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 50 mLs of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Method TO-15 is validated for samples collected in specially treated canisters. As such, the use of Tedlar bags for sample collection is outside the scope of the method and not recommended for ambient or indoor air samples. It is the responsibility of the data user to determine the usability of TO-15 results generated from Tedlar bags.

Dilution was performed on all samples due to the presence of high level target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit, LOD, or MDL value. See data page for project specific U-flag definition.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS

Client Sample ID: SG1-7

Lab ID#: 1512047-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	2000000	7900000	5400000	21000000

Client Sample ID: SG2-7

Lab ID#: 1512047-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	2000000	4500000	5400000	12000000

Client Sample ID: SG2-17

Lab ID#: 1512047-03A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	2000000	3400000	5400000	9200000

Client Sample ID: SG3-17

Lab ID#: 1512047-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	2000000	3200000	5400000	8800000

Client Sample ID: SG4-7

Lab ID#: 1512047-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	330000	1500000	900000	4000000

Client Sample ID: SG5-7

Lab ID#: 1512047-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	3800000	2700000	10000000

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS

Client Sample ID: SG5-17

Lab ID#: 1512047-07A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	2800000	2700000	7400000

Client Sample ID: SG6-7

Lab ID#: 1512047-08A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	5800000	2700000	16000000

Client Sample ID: SG6-17

Lab ID#: 1512047-09A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	3800000	2700000	10000000

Client Sample ID: SG7-7

Lab ID#: 1512047-10A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	6900000	2700000	18000000

Client Sample ID: SG7-17

Lab ID#: 1512047-11A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	2800000	2700000	7600000

Client Sample ID: SG8-7

Lab ID#: 1512047-12A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	2700000	2700000	7400000

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Summary of Detected Compounds
EPA METHOD TO-15 GC/MS

Client Sample ID: SG9-17

Lab ID#: 1512047-13A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	3500000	2700000	9400000

Client Sample ID: SG10-7

Lab ID#: 1512047-14A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	2900000	2700000	7800000

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Client Sample ID: SG1-7

Lab ID#: 1512047-01A

EPA METHOD TO-15 GC/MS

File Name:	**14120418**	**Date of Collection: 12/2/15 9:25:00 AM**	
Dil. Factor:	**100000**	**Date of Analysis: 12/4/15 08:48 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	2000000	7900000	5400000	21000000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: SG2-7

Lab ID#: 1512047-02A

EPA METHOD TO-15 GC/MS

File Name:	**14120419**	**Date of Collection: 12/2/15 11:15:00 AM**	
Dil. Factor:	**100000**	**Date of Analysis: 12/4/15 09:10 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	2000000	4500000	5400000	12000000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	112	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: SG2-17

Lab ID#: 1512047-03A

EPA METHOD TO-15 GC/MS

File Name:	**14120420**	**Date of Collection: 12/2/15 11:24:00 AM**	
Dil. Factor:	**100000**	**Date of Analysis: 12/4/15 09:33 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	2000000	3400000	5400000	9200000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	106	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	97	70-130

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Client Sample ID: SG3-17

Lab ID#: 1512047-04A

EPA METHOD TO-15 GC/MS

File Name:	**14120421**	**Date of Collection: 12/2/15 10:20:00 AM**	
Dil. Factor:	**100000**	**Date of Analysis: 12/4/15 09:55 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	2000000	3200000	5400000	8800000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	98	70-130

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Client Sample ID: SG4-7

Lab ID#: 1512047-05A

EPA METHOD TO-15 GC/MS

File Name:	**14120423**	**Date of Collection: 12/2/15 9:29:00 AM**	
Dil. Factor:	**16700**	**Date of Analysis: 12/5/15 06:18 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	330000	1500000	900000	4000000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	91	70-130

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Client Sample ID: SG5-7

Lab ID#: 1512047-06A

EPA METHOD TO-15 GC/MS

File Name:	**14120424**	**Date of Collection: 12/2/15 1:04:00 PM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 06:44 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	3800000	2700000	10000000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	107	70-130
4-Bromofluorobenzene	90	70-130

eurofins | Air Toxics

Client Sample ID: SG5-17

Lab ID#: 1512047-07A

EPA METHOD TO-15 GC/MS

File Name:	**14120425**	**Date of Collection: 12/2/15 1:20:00 PM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 07:12 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	2800000	2700000	7400000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	94	70-130

eurofins | Air Toxics

Client Sample ID: SG6-7

Lab ID#: 1512047-08A

EPA METHOD TO-15 GC/MS

File Name:	**14120426**	**Date of Collection: 12/2/15 2:42:00 PM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 07:37 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	5800000	2700000	16000000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	100	70-130

eurofins | Air Toxics

Client Sample ID: SG6-17

Lab ID#: 1512047-09A

EPA METHOD TO-15 GC/MS

File Name:	**14120427**	**Date of Collection: 12/2/15 2:51:00 PM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 08:08 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	3800000	2700000	10000000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	98	70-130

eurofins | Air Toxics

Client Sample ID: SG7-7

Lab ID#: 1512047-10A

EPA METHOD TO-15 GC/MS

File Name:	**14120428**	**Date of Collection: 12/2/15 1:58:00 PM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 08:31 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	6900000	2700000	18000000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: SG7-17

Lab ID#: 1512047-11A

EPA METHOD TO-15 GC/MS

File Name:	**14120429**	**Date of Collection: 12/2/15 2:11:00 PM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 08:59 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	2800000	2700000	7600000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	115	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: SG8-7

Lab ID#: 1512047-12A

EPA METHOD TO-15 GC/MS

File Name:	**14120430**	**Date of Collection: 12/2/15 10:38:00 AM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 09:22 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	2700000	2700000	7400000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	95	70-130

eurofins | Air Toxics

Client Sample ID: SG9-17

Lab ID#: 1512047-13A

EPA METHOD TO-15 GC/MS

File Name:	**14120431**	**Date of Collection: 12/2/15 3:31:00 PM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 09:49 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	3500000	2700000	9400000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	92	70-130

eurofins | Air Toxics

Client Sample ID: SG10-7

Lab ID#: 1512047-14A

EPA METHOD TO-15 GC/MS

File Name:	**14120432**	**Date of Collection: 12/2/15 3:49:00 PM**	
Dil. Factor:	**50000**	**Date of Analysis: 12/5/15 10:51 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	1000000	2900000	2700000	7800000

Container Type: 1 Liter Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	112	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	80	70-130

eurofins | Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1512047-15A

EPA METHOD TO-15 GC/MS

File Name:	**14120406c**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/4/15 04:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	20	Not Detected	54	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	97	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 1512047-16A

EPA METHOD TO-15 GC/MS

File Name:	**14120405**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 12/4/15 03:57 PM**	

Compound	%Recovery
1,1-Difluoroethane	90

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	102	70-130

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

P&D ENVIRONMENTAL, INC.
55 Santa Clara Ave., Suite 240
Oakland, CA 94610
(510) 658-6916

PROJECT NUMBER: 0461

PROJECT NAME: RED HANGER KLEANERS 6239 COLLEGE AVE. OAKLAND, CA

SAMPLED BY: (PRINTED & SIGNATURE) MICHAEL BASS-DESCHENES

	SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION	NUMBER OF CONTAINERS	ANALYSIS(ES): DSA (TRACER GAS)	PRESERVATIVE	REMARKS
01A	SG1-7	12-2-15	0925	AIR		1	X	NONE	NORMAL TAT
02A	SG2-7	"	1115	"		1	X	"	"
03A	SG2-17	"	1124	"		1	X	"	"
04A	SG3-17	"	1020	"		1	X	"	"
05A	SG4-7	"	0929	"		1	X	"	"
06A	SG5-7	"	1304	"		1	X	"	"
07A	SG5-17	"	1320	"		1	X	"	"
08A	SG6-7	"	1442	"		1	X	"	"
09A	SG6-17	"	1451	"		1	X	"	"
10A	SG7-7	"	1352	"		1	X	"	"
11A	SG7-17	"	1411	"		1	X	"	"
12A	SG8-7	"	1032	"		1	X	"	"
13A	SG9-17	"	1531	"		1	X	"	"
14A	SG10-7	"	1549	"		1	X	"	"

RELINQUISHED BY: (SIGNATURE) — DATE 12-3-15 — TIME 1232 — RECEIVED BY: (SIGNATURE)

Total No. of Samples (This Shipment): 14
Total No. of Containers (This Shipment): 14

LABORATORY: ENVIRO FIN/AIR TOXICS, LTD

RELINQUISHED BY: (SIGNATURE) — DATE — TIME — RECEIVED BY: (SIGNATURE)

LABORATORY CONTACT: KYLE VAGADORI

LABORATORY PHONE NUMBER: (916) 605-3339

RELINQUISHED BY: (SIGNATURE) — DATE — TIME — RECEIVED FOR LABORATORY BY: (SIGNATURE)

SAMPLE ANALYSIS REQUEST SHEET ATTACHED: ( ) YES (X) NO

Results and billing to:
P&D Environmental, Inc.
lab@pdenviro.com

REMARKS: 1-LITER TEDLAR

1512047

APPENDIX E

DTSC December 2014 Vapor Intrusion Risk and Hazard Calculation Work Sheets

USEPA SG-SCREEN
Version 2.0, 04/2003
DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Benzene

Results Summary				
Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.00E+01	9.4E-04	9.4E-03	9.7E-08	3.0E-03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.00E+01			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

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 (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Toluene

Results Summary				
Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.10E+01	8.6E-04	9.4E-03	NA	3.0E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108883	1.10E+01			Toluene

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 (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
5.80E+03	6.3E-04	3.7E+00	7.7E-06	1.0E-01

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	5.80E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Carbon disulfide

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
5.40E+01	1.0E-03	5.6E-02	NA	7.7E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75150	5.40E+01			Carbon disulfide

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 (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

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)
SI	1.35	0.489	0.167	5

MORE ↓

(Lookup Receptor Parameters)

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
5.90E+04	6.3E-04	3.7E+01	7.8E-05	1.0E+00

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	5.90E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	2.7E-04	3.2E+01	6.8E-05	8.9E-01

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Benzene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.30E+02	4.4E-04	5.7E-02	5.9E-07	1.8E-02

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.30E+02			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
6.20E+04	2.7E-04	1.7E+01	3.5E-05	4.6E-01

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	6.20E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24	0.5
					(NEW)	(NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Cyclohexane

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.10E+02	4.0E-04	4.4E-02	NA	7.1E-06

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
110827	1.10E+02			Cyclohexane

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
3.70E+03	6.3E-04	2.3E+00	4.9E-06	6.4E-02

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.70E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
3.70E+03	6.3E-04	2.3E+00	4.9E-06	6.4E-02

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.70E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
2.30E+04	6.3E-04	1.5E+01	3.1E-05	4.0E-01

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	2.30E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Benzene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
5.60E+01	4.4E-04	2.5E-02	2.5E-07	7.9E-03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	5.60E+01			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Toluene

Results Summary				
Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
5.40E+01	3.9E-04	2.1E-02	NA	6.8E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108883	5.40E+01			Toluene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.50E+04	2.7E-04	4.0E+00	8.5E-06	1.1E-01

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.50E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Carbon disulfide

Results Summary				
Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.40E+02	5.1E-04	7.1E-02	NA	9.7E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75150	1.40E+02			Carbon disulfide

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
6.10E+04	3.2E-04	1.9E+01	9.3E-06	1.3E-01

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	6.10E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Benzene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.40E+02	2.2E-04	3.1E-02	7.3E-08	2.3E-03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.40E+02			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Toluene

Results Summary				
Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.70E+02	2.0E-04	3.3E-02	NA	2.5E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108883	1.70E+02			Toluene

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 (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
4.10E+04	1.3E-04	5.5E+00	2.7E-06	3.6E-02

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	4.10E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Hexane

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
8.90E+01	1.9E-04	1.7E-02	NA	5.4E-06

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
110543	8.90E+01			Hexane

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 (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
7.00E+03	3.2E-04	2.2E+00	1.1E-06	1.4E-02

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	7.00E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Tetrachloroethylene

Results Summary				
Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
3.70E+04	1.3E-04	5.0E+00	2.4E-06	3.3E-02

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	3.70E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Benzene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.30E+01	4.7E-04	6.1E-03	1.4E-08	4.6E-04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	1.30E+01			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
8.50E+02	3.2E-04	2.7E-01	1.3E-07	1.8E-03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	8.50E+02			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8	1
					(NEW)	(NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Benzene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
4.20E+01	2.2E-04	9.3E-03	2.2E-08	7.0E-04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	4.20E+01			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Toluene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
3.00E+01	2.0E-04	5.9E-03	NA	4.5E-06

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108883	3.00E+01			Toluene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
4.00E+03	1.3E-04	5.4E-01	2.6E-07	3.5E-03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	4.00E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Chloroform

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
4.60E+01	1.9E-04	8.9E-03	1.7E-08	2.1E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	4.60E+01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Carbon disulfide

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.70E+02	2.5E-04	4.3E-02	NA	1.4E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75150	1.70E+02			Carbon disulfide

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Hexane

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
2.90E+01	1.9E-04	5.4E-03	NA	1.8E-06

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
110543	2.90E+01			Hexane

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 (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
Version 2.0, 04/2003

DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Benzene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
4.40E+01	2.2E-04	9.7E-03	2.3E-08	7.4E-04

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
71432	4.40E+01			Benzene

MESSAGE: See VLOOKUP table comments on chemical properties and/or toxicity criteria for this chemical.

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
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DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Toluene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
3.40E+01	2.0E-04	6.7E-03	NA	5.1E-06

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
108883	3.40E+01			Toluene

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 (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
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DTSC Modification
December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
4.60E+03	1.3E-04	6.2E-01	3.0E-07	4.0E-03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	4.60E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

USEPA SG-SCREEN
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December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Chloroform

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
5.40E+01	1.9E-04	1.0E-02	2.0E-08	2.4E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
67663	5.40E+01			Chloroform

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

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December 2014

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Carbon disulfide

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.90E+02	2.5E-04	4.8E-02	NA	1.6E-05

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
75150	1.90E+02			Carbon disulfide

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Hexane

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
3.90E+01	1.9E-04	7.3E-03	NA	2.4E-06

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
110543	3.90E+01			Hexane

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 (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Commercial
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.10E+03	3.2E-04	3.5E-01	1.7E-07	2.3E-03

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.10E+03			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Commercial	70	25	25	250	8 (NEW)	1 (NEW)

END

APPENDIX F

Soil Gas Model Sensitivity Analysis Risk and Hazard Calculation Work Sheets

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	7.3E-04	8.8E+01	1.8E-04	2.4E+00

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	7.3E-04	8.8E+01	1.8E-04	2.4E+00

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	15	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	5.7E-04	6.9E+01	1.4E-04	1.9E+00

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	CL		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
CL	1.48	0.442	0.168	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	1.0E-03	1.2E+02	2.6E-04	3.4E+00

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	S		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	ENTER Vadose zone soil dry bulk density, ρ_b^A (g/cm^3)	ENTER Vadose zone soil total porosity, n^V (unitless)	ENTER Vadose zone soil water-filled porosity, θ_w^V (cm^3/cm^3)	ENTER Average vapor flow rate into bldg. (Leave blank to calculate) Q_{soil} (L/m)
S	1.66	0.375	0.054	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	3.3E-04	4.0E+01	8.4E-05	1.1E+00

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	1

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	1.0E-03	1.2E+02	2.6E-04	3.4E+00

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	96

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	6.3E-04	7.6E+01	1.6E-04	2.1E+00

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	182.88	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+05	2.7E-04	3.2E+01	6.8E-05	8.9E-01

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+05			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	487.68	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+04	7.3E-04	8.8E+00	1.8E-05	2.4E-01

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+04			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END

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

DATA ENTRY SHEET

Scenario: Residential
Chemical: Tetrachloroethylene

Results Summary

Soil Gas Conc. ($\mu g/m^3$)	Attenuation Factor (unitless)	Indoor Air Conc. ($\mu g/m^3$)	Cancer Risk	Noncancer Hazard
1.20E+07	7.3E-04	8.8E+03	1.8E-02	2.4E+02

Reset to Defaults

Soil Gas Concentration Data

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Soil gas conc., C_g ($\mu g/m^3$)	OR	ENTER Soil gas conc., C_g (ppmv)	Chemical
127184	1.20E+07			Tetrachloroethylene

MORE ↓

ENTER Depth below grade to bottom of enclosed space floor, L_F (15 or 200 cm)	ENTER Soil gas sampling depth below grade, L_s (cm)	ENTER Average soil temperature, T_S (^oC)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	ENTER User-defined vadose zone soil vapor permeability, k_v (cm^2)
15	152	24	SI		

MORE ↓

Lookup Soil Parameters

ENTER Vandose zone SCS soil type	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)
SI	1.35	0.489	0.167	5

MORE ↓

Lookup Receptor Parameters

	ENTER Averaging time for carcinogens, AT_C (yrs)	ENTER Averaging time for noncarcinogens, AT_{NC} (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure Time ET (hrs/day)	ENTER Air Exchange Rate ACH $(hour)^{-1}$
NEW=> Residential	70	26	26	350	24 (NEW)	0.5 (NEW)

END