

475 Lesser Street, LLC

December 8, 2014

**RECEIVED**

*By Alameda County Environmental Health at 10:26 am, Jan 07, 2015*

Mr. Jerry Wickham  
Alameda County Department of Environmental Health  
1131 Harbor Bay Parkway, Suite 250  
Alameda, CA 94502

SUBJECT: VAPOR INTRUSION ASSESSMENT REPORT CERTIFICATION  
County Case # RO 3135  
Lesser Commercial Property  
475 Lesser Street  
Oakland, CA

Dear Mr. Wickham:

You will find enclosed one copy of the following document prepared by P&D Environmental, Inc. for the subject site.

- Vapor Intrusion Assessment Report dated December 8, 2014 (document 0675.R4).

I declare, under penalty of perjury, that the information and/or recommendations contained in the above-mentioned work plan for the subject site is true and correct to the best of my knowledge.

Please don't hesitate to call me if you have any questions.

Sincerely,



Daniel Rabin  
475 Lesser Street, LLC

0675.L5

# **P&D ENVIRONMENTAL, INC.**

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

December 8, 2014  
Report 0675.R4

Ms. Kendra Marshall  
475 Lesser Street, LLC  
731 Sansome Street, 2<sup>nd</sup> Floor  
San Francisco, CA 94111

**SUBJECT: VAPOR INTRUSION ASSESSMENT REPORT**  
(IA1, IA1-DUP, IA2, and AA1)  
Lesser Commercial Property  
475 Lesser Street  
Oakland, California

Dear Ms. Marshall:

P&D Environmental, Inc. (P&D) has prepared this report documenting the following activities at the subject site.

- Collection of two indoor air samples at locations IA1 and IA2 in Building #2, and collection of one duplicate indoor air sample at location IA1 (designated as IA1-DUP).
- Collection of one ambient air sample.
- Collection of one sub-slab soil gas sample and duplicate sub-slab soil gas sample at Vapor Pin location SS4 in Building #2.

All work was performed in accordance with recommendations set forth in P&D's Soil Vapor Assessment Report (document 0675.R3) dated September 2, 2014. The recommendations were approved in a letter from the Alameda County Department of Environmental Health (ACDEH) dated September 8, 2014. The indoor air samples and ambient air sample were collected during a 24 hour period beginning on September 11 and finishing on September 12, 2014. The Vapor Pin sub-slab soil gas samples were collected on September 12, 2014 following completion of indoor air and ambient air sample collection.

The ambient air sample results show that benzene was detected at a concentration greater than regulatory agency air screening levels for commercial/industrial land use, and the indoor air sample results show that benzene was detected at concentrations approximately three times greater than regulatory agency air screening levels for commercial/industrial land use. Building #2 is approximately 600 square feet in size and is used for cold storage. Evaluation of alternate commercial exposure scenarios determined that a level of risk similar to the commercial outdoor air exposure risk is identified for a default commercial exposure scenario with an adjusted daily indoor air exposure of 2 to 4 hours per day for 25 years, or using a daily indoor air exposure of 10 hours per day with an adjusted exposure duration of 5 to 10 years. Use of Building #2 for cold storage is unlikely to result in exposure exceeding either of these two adjusted exposure scenarios.

A Site Location Map (Figure 1), a Site Plan showing Total Petroleum Hydrocarbons as Gasoline (TPH-G) concentrations in indoor and ambient air, and sub-slab soil gas (Figure 2), and a Site Plan showing benzene concentrations in indoor and ambient air, and sub-slab soil gas (Figure 3) are attached with this report. All work was performed under the direct supervision of a California professional geologist.

## BACKGROUND

Documentation of two prior Phase I environmental site assessments are provided in the following reports.

- September 28, 2012 Environmental Site Assessment prepared by AllWest Environmental, Inc. (AllWest), and
- April 3, 2014 Phase I Environmental Site Assessment prepared by Basics Environmental, Inc. (Basics).

Documentation of historical subsurface investigation and sample collection at the site is provided in the following report prepared by P&D.

- April 3, 2014 Subsurface Investigation Report (B1 through B4),
- June 11, 2014 Subsurface Investigation Report (B1A, B5 through B8 and SG1 through SG3),
- September 2, 2014 Soil Vapor Assessment Report (SS1 through SS9).

Based on review of these documents, the following information was identified for the site history.

The following subject site information was obtained from the AllWest report. The subject site is a rectangular 0.459-acre parcel developed with four one-story industrial buildings and was previously occupied by Instawhip Tip Top Foods, Inc. (Instawhip). The buildings and a concrete-paved driveway and outdoor service area cover the entire site. Building 1 consists of an office area and former food products processing area, product ingredients mix room, chemical storage room and a receiving area. Building 2 consists of a storage shed, building 3 is a cold storage building consisting of product refrigerator, freezer units and loading docks. Building 4 is a dry goods storage warehouse equipped with raised docks. The site is currently unoccupied except for a maintenance attendant.

It is P&D's understanding that based on historical documents there was a 8,000-gallon diesel underground storage tank (UST) grouted in place on April 9, 1987, and that the associated pump and piping were removed.

On March 26, 2014 P&D personnel oversaw the drilling of boreholes B1 through B4 at the subject site to depths of 8.0 to 10.0 feet below the ground surface (bgs) and the collection of soil and groundwater grab samples from the boreholes using a Geoprobe drill rig. Groundwater was encountered in the boreholes at depths of 6.0 or 6.5 feet bgs. The subsurface materials consisted of gravelly sand and gravelly clayey sand fill to a depth of 2.0 to 4.5 feet bgs, beneath which variable

amounts of clay, silty sand, and sand were encountered. No elevated Photoionization Detector (PID) values were measured and no odors, staining, or discoloration were observed in the soil from any of the boreholes. No odor or sheen were detected or observed for any of the groundwater grab samples.

Review of the soil sample results shows that benzene, toluene, ethylbenzene, and total xylenes (BTEX) were not detected in any of the soil samples, and that Total Petroleum Hydrocarbons as Diesel (TPH-D) was only detected in the samples collected from boreholes B1 and B4 at concentrations of 6.0 and 2.4 milligrams per kilogram (mg/kg), respectively. Review of the laboratory analytical report shows that the laboratory described the TPH-D results for soil samples B1-5.0 and B4-5.0 as consisting of both oil-range compounds and diesel-range compounds with no recognizable pattern.

Review of the groundwater sample results shows that BTEX compounds were not detected in any of the samples with the exception of the water sample from borehole B3, where benzene, toluene, ethylbenzene, and total xylenes were detected at concentrations of 2.6, 0.64, 4.3, and 20 micrograms per Liter ( $\mu\text{g/L}$ ), respectively. TPH-D was detected in groundwater samples B1-W, B2-W, B3-W and B4-W at concentrations of 67, 450, 790, and 240  $\mu\text{g/L}$ , respectively. Review of the laboratory analytical results shows that the laboratory described the TPH-D results for groundwater samples B1-W, B2-W, and B4-W as consisting of both oil-range compounds and diesel-range compounds with no recognizable pattern, and the TPH-D results for groundwater sample B3-W was described as consisting of oil-range compounds, diesel-range compounds with no recognizable pattern, and gasoline- range compounds. Documentation of the subsurface investigation is provided in P&D's Subsurface Investigation Report dated April 3, 2014 (document 0675.R1). The Basics April 3, 2014 report recommended that a copy of P&D's April 3, 2014 Subsurface Investigation Report be provided to a regulatory agency for review.

In a letter dated April 17, 2014 the ACDEH commented regarding P&D's April 3, 2014 Subsurface Investigation Report and also requested that copies of any other reports or documents relevant to the fuel release or other unauthorized releases not currently in the case files. On April 17, 2014 P&D personnel forwarded copies of the 2012 AllWest and the 2014 Basics Phase I reports to the ACDEH.

Following review of county assessor parcel maps, P&D personnel visited the City of Oakland offices on April 18, 2014 to identify the owner of the parcel located adjacent to Oakport Street in Oakland where a proposed borehole was located. Review of City files showed that the parcel is a Union Pacific Railroad (UPRR) right-of-way. Following telephone calls with the UPRR for site access, it was determined that the insurance requirements for site access were cost-prohibitive. On April 25, 2014 P&D personnel contacted representatives for the neighboring property at American Cylinder Head at 499 Lesser Street for permission for site access to drill a borehole for groundwater sample collection and access was denied. On April 29, 2014 P&D personnel contacted representatives for the neighboring property to the north of American Cylinder Head property at the Taz Marble property at 4445 Jensen Street (located on Oakport Street) and obtained permission for site access to drill a borehole for groundwater sample collection.

In a May 7, 2014 Subsurface Investigation Work Plan (document 0675.W1), P&D proposed to collect groundwater samples at four offsite locations to define the extent of petroleum

hydrocarbons in groundwater, soil gas samples at three onsite locations in the suspected vicinity of the former UST, and soil samples from one onsite borehole to evaluate Low Threat Closure Policy (LTCP) direct contact and outdoor air exposure conditions at the site. The work plan was approved in a letter from the ACDEH dated May 8, 2014.

Soil and groundwater samples were collected and soil gas wells constructed at the site on May 15, 2014 and soil gas samples were collected from the soil gas wells on May 19, 2014. Because of the shallow depth to groundwater (approximately 3 feet), efforts to collect soil gas samples at locations SG1 and SG2 were not successful and a soil gas sample was only collected at location SG3. Based on the investigation sample results, P&D concluded that the extent of petroleum hydrocarbons in groundwater had been defined; that no unacceptable petroleum hydrocarbon concentrations were detected in soil; and that based on conditions encountered at the time of construction and sampling of soil gas well SG3 that well SG3 is located in the vicinity of the UST. Documentation of the investigation and sample results is provided in P&D's June 11, 2014 Subsurface Investigation Report (document 0675.R2). In a letter dated June 26, 2014 the ACDEH requested a Soil Vapor Assessment Work Plan. P&D subsequently provided a Subsurface Investigation Work Plan (document 0675.W2) dated July 7, 2014, which was approved in a letter from the ACDEH dated July 8, 2014.

Vapor Pins were installed at nine locations designated as SS1 through SS9 at the subject site for sub-slab soil gas sample collection. Vapor Pins SS1 through SS6 were installed on July 9, 2014; and were sampled on July 10, 2014 in accordance with P&D's Subsurface Investigation Work Plan (document 0675.W2) dated July 7, 2014. The work plan was approved in a letter from the Alameda County Department of Environmental Health (ACDEH) dated July 8, 2014. Following receipt of the Vapor Pin sub-slab soil gas sample results and a discussion with the ACDEH, approval was provided by the ACDEH on August 4, 2014 for installation and sampling of additional Vapor Pins SS7 through SS9 which occurred on August 7, 2014. Documentation of the investigation and sample results is provided in P&D's September 2, 2014 Soil Vapor Assessment Report (document 0675.R3). Based on the sample results P&D concluded that soil gas concentrations only beneath Building #2 exceeded regulatory agency screening levels for commercial land use and recommended that indoor air sampling be performed in Building #2 with concurrent sampling of Vapor Pin SS4.

## FIELD ACTIVITIES

A discussion of field activities for collection of indoor air and ambient air, and Vapor Pin sub-slab soil gas samples are provided below.

### Air Sample Collection

The indoor and ambient air samples were collected during a 24 hour period that began on September 11, 2014 at approximately 7:00 a.m. and which finished on September 12, 2014 at approximately 7:00 a.m. Indoor air samples IA1 and IA2 and duplicate sample IA1-DUP were collected inside of Building #2, and ambient air sample AA1 was collected outside of the building in the northwest portion of the property (see Figure 2). The air samples were collected at each location into SIM-certified 6-liter Summa canisters equipped with SIM-certified 24-hour

flow controllers. At all sample collection locations the air sample inlet to the Summa canister was at a height of approximately five feet above the floor or ground surface.

After approximately 24 hours, the valves to the Summa canisters were closed, and the Summa canisters were stored in a box and subsequently shipped to the laboratory for extraction and analysis. Chain of custody procedures were observed for all sample handling. Measurements of Summa canister initial and final vacuums, and beginning and ending sample collection times were recorded on an Air Sampling Data Sheet that is provided in Appendix A of this report.

#### Sub-Slab Vapor Pin Soil Gas Sample Collection

A Vapor Pin sub-slab soil gas sample was collected by P&D personnel from Vapor Pin SS4 on September 12, 2014 following completion of the indoor and ambient air sample collection. A soil gas sampling manifold with a 1-liter Summa canister as the sampling canister (see Figure 4) was assembled in a shroud consisting of a 35-gallon Rubbermaid bin that has 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 Vapor Pin while still allowing access to the Vapor Pin 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 sample collection, 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 4). No purge testing for purge volume determination was performed because the samples were collected using 1-liter Summa canisters, and the volume of the canisters is substantially larger than the purge volumes used for purge volume testing. Following successful verification of the manifold shut-in test, a default of three purge volumes was extracted prior to sample collection. The purge volume was calculated based on the void space below the Vapor Pin plus the volume of the tube that extends through the Vapor Pin and the volume of the 2.0-foot length of 0.187-inch diameter tubing that connected the Vapor Pin to the sample media. The purge time was calculated using a nominal flow rate provided by the flow controller of 150 cubic centimeters per minute. In addition, a dish containing 2-Propanol was placed in the shroud to be used as a tracer gas for EPA Method TO-17 sample analysis.

Following completion of the purging of three volumes, 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 then used to open the sample canister valve, and 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 tubing that was inserted into the shroud atmosphere through a hole in the side of the shroud.

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. The pressure gage on the inlet

side of the flow controller (see Figure 4) was monitored during sample collection to ensure that the vacuum applied to the soil gas well does not exceed 100 inches of water.

One duplicate soil gas sample was collected into a Summa canister from Vapor Pin SS4 on September 12, 2014 using a stainless steel sampling tee for the Summa canister using methods described above. Following soil gas sample collection, a PID was connected to the Vapor Pin to obtain a preliminary field value for the sample collection location. The soil gas Summa canisters were stored in a box and promptly shipped to the laboratory for extraction and analysis.

In addition to collection of Summa canister samples as described above, a sorbent tube sample was collected at SS4 on September 12, 2014 as follows. The manifold was equipped with a tee located downstream from the flow controller prior to manifold assembly. At the time that the manifold was assembled (prior to the shut-in test), a sorbent tube was connected inside the shroud to the tee, that was located downstream from the flow controller with a valve located between the sorbent tube and the tee. The downstream side of the sorbent tube was connected with a polyethylene tube to a flow meter and a vacuum pump. Following Summa canister sample collection, the Summa canister was isolated from the manifold by closing the Summa canister valve, and the valve between the manifold and the sorbent tube was opened. A vacuum pump was used to apply a vacuum to the sorbent tube, and a rotometer located downstream of the sorbent tube was used to verify the soil gas flow rate at a nominal flow rate of 150 cubic centimeters per minute for collection of a 200 cubic centimeter sample. In addition to collection of one sorbent tube sample from Vapor Pin SS4, one replicate sorbent tube sample was also collected. Following collection of the sorbent tube soil gas sample, the ends of the sorbent tube were sealed. Before and after connection of the sorbent tube to the manifold the sorbent tubes were stored in a cooler with ice.

Clean, unused vacuum gages and stainless steel sampling manifolds were used for sample collection. Chain of custody procedures were observed for all sample handling. Vapor Pin purge volume calculations and measurements of vacuums, purging and equilibration time intervals, and PID readings were recorded on Soil Gas Sampling Data Sheets, which are attached with this report as Appendix B.

## GEOLOGY AND HYDROGEOLOGY

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 Holocene Deposits, Bay mud (Qhbm), which is described as unconsolidated water-saturated dark plastic carbonaceous clay and silty clay. It may contain a few lenses of well-sorted fine sand and silt and a few shelly and peaty layers.

Review of the Geologic map and map database of the Oakland metropolitan area, Alameda, Contra Costa, and San Francisco Counties, California: A Digital Database that was compiled by R.W. Graymer (U. S. Geological Survey Miscellaneous Field Studies, MF-2342, Version 1.0 in 2000), shows the subject site as being underlain by artificial fill (af) which is described as consisting of Man-made deposits of various materials and ages. The materials are further described as some

being compacted and quite firm, but fills made before 1965 are nearly everywhere not compacted and consist simply of dumped materials.

Based on the materials historically encountered in boreholes B1 through B4 to depths of 8.0 and 10.0 feet bgs at the subject site, the subsurface materials encountered at the site consisted of gravelly sand and gravelly clayey sand fill to a depth of 2.0 to 4.5 feet bgs, beneath which variable amounts of clay, silty sand, and sand were encountered. The maximum sand layer thickness encountered was 2.5 feet. Groundwater was encountered during drilling in borehole B1 at a depth of 6.5 feet bgs, and at a depth of 6.0 feet bgs in the remaining boreholes, and was subsequently measured in boreholes B1, B2, B3, and B4 at 2.8, 2.9, 3.2, and 4.0 feet bgs, respectively.

The nearest surface water body to the subject site is a tidal canal located approximately 1,450 feet to the south of the site that is connected to the San Leandro Bay estuary, and San Leandro Bay which is located approximately 1,450 feet to the south. An underground culvert or storm drain portion of Peralta Creek is located approximately 630 feet west of the subject site and runs north-south along Coliseum Way. The groundwater flow direction at the site is unknown, but is presumed to be westerly to southerly towards these nearby surface water bodies. It is unknown if groundwater levels at the site are tidally influenced. Additionally, the conductivity of the water at the site is presently unknown.

#### WEATHER

No precipitation occurred during the five days preceding the air sampling or on the days of air and Vapor Pin sampling (September 11 and 12, 2014). Weather data, including precipitation and barometric pressure for the days of the sampling event and also for the two weeks preceding and following the days of sampling are provided as Appendix C. The weather station used for this weather information is located at the intersection of Fernside Boulevard and High Street in Alameda at an elevation of 16 feet above sea level, approximately 0.4 miles to the west-southwest of the subject site. The subject site is located at an elevation of approximately 12 feet above sea level. An internet link to the weather station information is provided in Appendix C.

#### LABORATORY ANALYSIS

All of the indoor and ambient air, soil gas, and shroud air samples were analyzed at Air Toxics Limited of Folsom California. The indoor and ambient air Summa canister samples were analyzed for Total Petroleum Hydrocarbons as Gasoline (TPH-G), methyl tertiary-butyl ether (MTBE), BTEX and naphthalene using EPA Method TO-15. The Summa canister soil gas samples were analyzed for TPH-G, MTBE, BTEX, and DFA (the tracer gas) using EPA Method TO-15. The soil gas samples collected on sorbent tubes were analyzed for naphthalene and 2-Propanol (the tracer gas) using EPA Method TO-17. All of the analyses were performed with detection limits that equal or are less than San Francisco Bay Regional Water Quality Control Board (RWQCB) December 2013 Table E soil gas commercial/industrial Environmental Screening Levels (ESLs).

All of the shroud air sample Tedlar bags were analyzed using EPA Method TO-15 for the tracer gas DFA for the Tedlar bag samples that were collected during Summa canister sample collection



for TO-15 analysis, and for the tracer gas 2-Propanol for the Tedlar bag samples that were collected during sorbent tube sample collection for TO-17 analysis.

The indoor and ambient air results are summarized in Table 1, the soil gas sample results are summarized in Table 2, and the shroud air sample results are summarized in Table 3. Copies of the laboratory analytical reports are attached with this report as Appendix D.

### RISK AND HAZARD ANALYSIS

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 California Department of Toxic Substances Control (DTSC) CalEPA Unit Risk Factors for carcinogenic toxicity for each carcinogenic COPC and Reference Concentrations for non-carcinogenic toxicity for all detected COPCs (with the exception of TPH-G) were obtained from the DTSC Human and Ecological Risk Division Soil Gas Screening Model VLOOKUP Table (last updated March 2014). The Reference Concentration values in the VLOOKUP Table were converted from  $\text{mg}/\text{m}^3$  to  $\mu\text{g}/\text{m}^3$  for use in this report. Although the laboratory reported xylene results as o-xylene and m,p-xylene, the Reference Concentration for each of o-, m-, and p-xylene is  $100 \mu\text{g}/\text{m}^3$ , and the combined m,p-xylene Reference Concentration identified in the calculation spreadsheet is for p-xylene. These Reference Concentration values were compared with the RWQCB December 2013 Table J-2 Toxicity Values provided in the RWQCB December 2013 Environmental Screening Level lookup tables and verified to be the same.

TPH-G is not considered to be a carcinogen, and for this reason there is no Unit Risk Factor for TPH-G, and risk is not calculated for TPH-G. The TPH-G Reference Concentration of  $570 \mu\text{g}/\text{m}^3$  that was used for calculation of the TPH-G hazard was obtained from the RWQCB Table J-2 Toxicity Values provided in the RWQCB December 2013 Environmental Screening Level lookup tables.

Risk and hazard analysis for the indoor and ambient air and for the Vapor Pin sub-slab soil gas sample results are each provided separately below.

#### Indoor and Ambient Air Samples

The incremental carcinogenic risk and hazard quotient were calculated for each detected compound for each of the air samples using equations provided in Appendix C of the Department of Toxic Substances Control (DTSC) "Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance)" dated October 2011. The averaging

time in the DTSC Guidance Appendix C risk calculation equation was corrected to be the averaging time for carcinogens.

Default exposure parameter values provided in Appendix C of the DTSC 2011 Vapor Intrusion Guidance for a residential exposure scenario (exposure time of 24 hours per day, exposure frequency of 350 days per year, exposure duration for 30 years, an averaging time for carcinogens of 70 years, and an averaging time for non-carcinogens of 30 years) were amended to a commercial/industrial exposure scenario (an exposure time of 10 hours per day, an exposure frequency of 250 days per year, and an exposure duration of 25 years). The indoor and ambient air incremental risk calculation results are provided in Table 4A, and the indoor and ambient air hazard quotient calculation results are provided in Table 4B. The indoor and ambient air cumulative incremental carcinogenic risk and hazard index results are summarized in Table 4C.

#### Vapor Pin Sub-Slab Soil Gas Samples

Risk and hazard analysis was not performed for the sub-slab soil gas sample results because indoor air sample results were available for risk and hazard evaluation.

#### DISCUSSION AND RECOMMENDATIONS

The indoor and ambient air results, the Vapor Pin results, and recommendations based on the results are each provided below.

#### Indoor and Ambient Air Samples

Review of Table 1 shows that benzene was the only compound detected in the air samples at concentrations exceeding the RWQCB December 2013 Table E-3 Ambient and Indoor Air Screening Levels for commercial/industrial land use, and that the ambient air sample benzene concentration also exceeded the Table E-3 commercial/industrial land use ESL.

Review of the summary of risk and hazard in Table 4C for the indoor air and ambient air samples shows that the cumulative risk for each sample ranges from 4.0 per million (4.0E-06) to 4.3 per million (4.3E-06). In addition, the cumulative risk for the ambient air sample is 1.5 per million (1.5E-06). Review of Table 4A shows that most of the risk is associated with benzene for each sample. These risks are 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 also recommends that activities to reduce exposure to COPCs be evaluated when the cumulative risk exceeds 100 per million. Review of Table 4C shows that the calculated cumulative risk exceeds 1 per million for all of the samples (including the ambient air sample), and does not exceed 100 per million for any of the samples (the highest calculated cumulative risk was 4.3 per million).

Review of Table 4C shows that the calculated hazard index for each of the samples ranges from 0.17 to 0.21, with the ambient air hazard index calculated to be 0.078. Review of Table 4B shows that most of the hazard is associated with benzene. The DTSC has determined that the hazard posed by a site should not exceed 1 without further evaluation.

Based on the absence of a calculated hazard exceeding 1 for any of the indoor air samples, hazard posed by indoor air COPCs was not considered further. Review of Table 1 shows that the only carcinogens detected in indoor air were benzene and ethylbenzene, and that the highest benzene and ethylbenzene concentrations were detected in indoor air sample IA1. Table 5 provides alternate risk exposure scenarios for the benzene and ethylbenzene detected in indoor air sample IA1. Commercial exposure scenarios for daily exposure times of 10, 5, 4, 2 and 1 hour per day, and exposure durations of 25, 20, 15, 10 and 5 years are evaluated. Comparison of cumulative carcinogenic risk identified for ambient air 1.5 per million (1.5E-06, see Tables 4A and 4C), shows that a similar level of risk is identified in Table 5 for a default commercial exposure scenario with an adjusted daily exposure of 2 to 4 hours per day, or for a default commercial exposure scenario using a daily exposure of 10 hours per day with an adjusted exposure duration of 5 to 10 years. Use of Building #2 for cold storage is unlikely to result in exposure exceeding either of these two adjusted exposure scenarios.

#### Vapor Pin Sub-Slab Soil Gas Samples

Review of the Table 2 Percent Shroud columns shows that the tracer gas concentrations detected in the samples are less than 5 percent of the shroud atmosphere tracer gas concentrations (see Table 3 for the shroud tracer gas concentrations), indicating that the soil gas samples are valid samples. Additionally, review of Table 2 shows that none of the TO-15 or TO-17 analytes were detected at concentrations exceeding their respective December 2013 Table E-2 soil gas commercial/industrial ESL values with the exception of TPH-G and benzene in both the soil gas sample collected at SS4 and the duplicate collected at SS4. Table 2 also shows the historical results from the July 10, 2014 sample collection event for SS4.

The default attenuation factor for concrete floor slabs for sub-slab soil gas and indoor air concentrations is 0.005. Comparison of the detected indoor air results (Table 1) with the sub-slab soil gas results (Table 2) shows that TPH-G vapor concentrations attenuate by approximately four orders of magnitude (an attenuation factor of 0.0001) and that benzene and toluene attenuate by approximately 3 orders of magnitude (an attenuation factor of 0.001) between sub-slab soil gas and indoor air.

#### Recommendations

Review of historical soil gas concentrations shows that the only sub-slab soil gas location where soil gas concentrations have exceeded commercial/industrial soil gas ESL values is at location SS4 (see Figures 2 and 3), indicating that the area of vapor intrusion associated with Building #2 is limited to the southern corner of the building. It is P&D's understanding that Building #2 is a cold storage room. The building footprint is approximately 300 feet by 20 feet.

P&D recommends that the case be closed with the following conditions.

- Building #2 entrances be sealed so that no entry to Building #2 occurs, and that signs be posted at all sealed entries indicating that entry is prohibited based on potential vapor intrusion concerns.
- The property owner certify on an annual basis that the sealed entries and notices to Building #2 have been inspected and are maintained and intact.
- A deed notification be prepared and recorded identifying the potential vapor intrusion conditions for Building #2, and requiring that any modifications to Building #2 (including demolition or additions) be performed following review of the modifications by the ACDEH.

### DISTRIBUTION

A copy of this report will be uploaded to the GeoTracker and ACDEH ftp databases.

### LIMITATIONS

This report was prepared solely for the use of 475 Lesser Street, LLC. 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 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 boreholes 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.

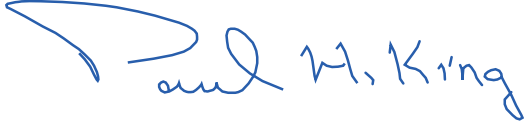
This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information contained herein is brought to the attention of the appropriate regulatory agencies, where required by law. Additionally, it is the sole responsibility of the 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.

December 8, 2014  
Report 0675.R4

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: 12/31/15



Attachments:

Table 1 - Summary of Indoor and Ambient Air Analytical Results  
Table 2 - Summary of Sub-Slab Soil Gas Sample Analytical Results  
Table 3 - Summary of Shroud Sample Tracer Gas Analytical Results  
Table 4A - Indoor and Crawlspace Air Risk Calculation Results  
Table 4B - Indoor and Crawlspace Air Hazard Calculation Results  
Table 4C - Indoor and Crawlspace Air Risk and Hazard Calculation Results Summary  
Table 5 - Summary of Incremental Carcinogenic Risk Calculations With Different Exposure Scenarios

Figure 1 - Site Location Map

Figure 2 - Site Plan Showing TPH-G Concentrations in Indoor and Ambient Air, and Sub-Slab Soil Gas

Figure 3 - Site Plan Showing Benzene Concentrations in Indoor and Ambient Air, and Sub-Slab Soil Gas

Figure 4 - Typical Soil Gas Sampling Manifold

Appendix A - Air Sampling Data Sheet

Appendix B - Purge Volume Calculation Sheet and Soil Gas Sampling Field Data Sheet

Appendix C - Weather Information

Appendix D - Laboratory Analytical Reports and Chain of Custody Documentation

Cc: Ms. Kendra Marshall, 475 Lesser Street, LLC.

PHK/mlbd/sjc  
0675.R4

# **TABLES**

Table 1

## Summary of Indoor and Ambient Air Sample Laboratory Analytical Results

Sample ID	Sample Date	TPH-G	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Naphthalene
IA1	9/12/2014	200	ND<0.77	<b>1.4</b>	2.4	0.77	2.6	0.98	ND<5.6
IA1-DUP	9/12/2014	200	ND<0.57	<b>1.4</b>	1.6	0.63	2.4	0.89	ND<4.1
IA2	9/12/2014	140	ND<0.70	<b>1.3</b>	1.8	0.62	2.3	0.85	ND<5.1
AA1	9/12/2014	78	ND<0.63	<b>0.43</b>	1.4	0.80	3.3	1.1	ND<4.6
ESL		2,500	47	0.42	1,300	4.9	440 Combined		0.36
<u>Notes:</u>									
TPH-G = Total Petroleum Hydrocarbons as Gasoline.									
MTBE = Methyl-tert-Butyl Ether.									
ND = Not Detected.									
NA = Not Analyzed.									
ESL = Environmental Screening Level, by San Francisco Bay – Regional Water Quality Control Board , updated December 2013 from Table E –									
Indoor Air Screening Levels. Commercial/Industrial Land Use.									
<b>Values in bold exceed their respective ESL values.</b>									
Results and ESL values in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).									

Table 2  
Summary of Sub-Slab Soil Gas Sample Analytical Results

Sample ID	Sample Date	TPH-G	MTBE	Benzene	Toluene	Ethyl-benzene	m,p-Xylenes	o-Xylenes	Naphthalene	1,1-DFA	Percent Shroud	2-Propanol	Percent Shroud
SS4	9/12/2014	2,200,000	ND<420	<b>1,000</b>	2,600	ND<500	ND<500	ND<500	4.0	24,000	0	ND<240	0
SS4	7/10/2014	2,700,000	240	<b>3,400</b>	480	ND<250	ND<250	ND<250	ND<2.5	5,200	0	ND<240	0
SS4-DUP	9/12/2014	2,200,000	ND<430	<b>970</b>	2,400	ND<520	ND<520	ND<520	NA	16,000	0	NA	NA
SS4-REP	9/12/2014	NA	NA	NA	NA	NA	NA	NA	ND<2.5	NA	NA	ND<240	0
LTCP				280		3,600			310				
ESL		2,500,000	47,000	420	1,300,000	4,900	Combined = 440,000		360	No Value	No Value	No Value	No Value
<b>Notes:</b>													
TPH-G = Total Petroleum Hydrocarbons as Gasoline.													
MTBE = Methyl-tert-Butyl Ether.													
1,1-DFA = 1,1-Difluoroethane.													
ND = Not Detected.													
NA = Not Analyzed.													
a = Laboratory Note: exceeds instrument calibration range.													
LTCP = Low Threat Closure Policy, developed by State Water Resources Control Board , effective August 17, 2012, from Appendix 4 Direct Measurement of Soil Gas Concentrations. Soil Gas Criteria with no bioattenuation zone.													
ESL = Environmental Screening Level, by San Francisco Bay – Regional Water Quality Control Board , updated December 2013 from Table E – Soil Gas Screening Levels for Evaluation of Potential Vapor Intrusion for Commercial/Industrial Land Use.													
<i>Italicized values exceed their respective LTCP values.</i>													
<b>Values in bold exceed their respective ESL values.</b>													
Results and LTCP and ESL values in micrograms per cubic meter (µg/m3 ).													



Summary of Shroud Sample Tracer Gas Analytical Results

Sample ID	Sample Date	1,1-DFA, #	2-Propanol, ##
SS4 DFA	9/12/2014	12,000,000	NA
SS4 DFA	7/10/2014	13,000,000	NA
SS4 2-PROPANOL	9/12/2014	NA	3,300,000
SS4 2-PROPANOL	7/10/2014	NA	3,500,000
<b>Notes:</b>			
ND = Not Detected.			
NA = Not Analyzed.			
# = 1,1-DFA used as leak detection compound for TO-15 analysis.			
## = 2-Propanol used as leak detection compound for TO-17 analysis.			
Results in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), unless otherwise indicated.			

Table 4A  
Indoor and Ambient Air Risk Calculation Results

Equation		Concentration in Air	X	Exposure Time	X	Exposure Frequency	X	Exposure Duration	X	Inhalation Unit Risk Factor	all divided by	Averaging Time for Carcinogens	X	365	X	24	Calculated Individual Compound Incremental Carcinogenic Risk	Cumulative Carcinogenic Risk	Comments
Units		(ug/m3)		(hrs/day)		(days/yr)		(yrs)		(ug/m3)		(yrs)		(days/yr)		(hr/day)			
Location	Compound																		
IA1	Benzene	1.4		10		250		25		2.90E-05		70		365		24	4.14E-06		Commercial Exposure
IA1	Ethylbenzene	0.77		10		250		25		2.50E-06		70		365		24	1.96E-07	<b>4.3E-06</b>	
IA1-DUP	Benzene	1.4		10		250		25		2.90E-05		70		365		24	4.14E-06		Commercial Exposure
IA1-DUP	Ethylbenzene	0.63		10		250		25		2.50E-06		70		365		24	1.61E-07	<b>4.3E-06</b>	
IA2	Benzene	1.3		10		250		25		2.90E-05		70		365		24	3.84E-06		Commercial Exposure
IA2	Ethylbenzene	0.62		10		250		25		2.50E-06		70		365		24	1.58E-07	<b>4.0E-06</b>	
AA1	Benzene	0.43		10		250		25		2.90E-05		70		365		24	1.27E-06		Commercial Exposure
AA1	Ethylbenzene	0.80		10		250		25		2.50E-06		70		365		24	2.04E-07	<b>1.5E-06</b>	
<b>Notes:</b>																			
ND = Not Detected																			
NA = Not Applicable																			
Unit Risk Factor value obtained from HERD Soil Gas Screening Model VLOOK sheet (last updated March 2014).																			
Risk Calculation equation obtained from DTSC Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance) October 2011, Appendix C.																			

Table 4B  
Indoor and Ambient Air Hazard Calculation Results

Equation	Concentration in Air	Exposure Time	Exposure Frequency	Exposure Duration	all divided by	Averaging Time for Non-cancer Toxic Effects	365	24	Reference Concentration (RfC)	Calculated Individual Compound Hazard Quotient	Hazard Index	Comments
Units	(ug/m3)	(hrs/day)	(days/yr)	(yrs)		(yrs)	(days/yr)	(hr/day)	(ug/m3)			
Location	Compound											
IA1	TPH-G	200	10	250	25	30	365	24	5.70E+02	8.34E-02		Commercial Exposure
IA1	Benzene	1.4	10	250	25	30	365	24	3.00E+00	1.11E-01		
IA1	Toluene	2.4	10	250	25	30	365	24	3.00E+02	1.90E-03		
IA1	Ethylbenzene	0.77	10	250	25	30	365	24	1.00E+03	1.83E-04		
IA1	m,p-Xylene	2.6	10	250	25	30	365	24	1.00E+02	6.18E-03		used p-xylene RfC
IA1	o-Xylene	0.98	10	250	25	30	365	24	1.00E+02	2.33E-03		
											<b>2.1E-01</b>	
IA1-DUP	TPH-G	200	10	250	25	30	365	24	5.70E+02	8.34E-02		Commercial Exposure
IA1-DUP	Benzene	1.4	10	250	25	30	365	24	3.00E+00	1.11E-01		
IA1-DUP	Toluene	1.6	10	250	25	30	365	24	3.00E+02	1.27E-03		
IA1-DUP	Ethylbenzene	0.63	10	250	25	30	365	24	1.00E+03	1.50E-04		
IA1-DUP	m,p-Xylene	2.4	10	250	25	30	365	24	1.00E+02	5.71E-03		used p-xylene RfC
IA1-DUP	o-Xylene	0.89	10	250	25	30	365	24	1.00E+02	2.12E-03		
											<b>2.0E-01</b>	
IA2	TPH-G	140	10	250	25	30	365	24	5.70E+02	5.84E-02		Commercial Exposure
IA2	Benzene	1.3	10	250	25	30	365	24	3.00E+00	1.03E-01		
IA2	Toluene	1.8	10	250	25	30	365	24	3.00E+02	1.43E-03		
IA2	Ethylbenzene	0.62	10	250	25	30	365	24	1.00E+03	1.47E-04		
IA2	m,p-Xylene	2.3	10	250	25	30	365	24	1.00E+02	5.47E-03		used p-xylene RfC
IA2	o-Xylene	0.85	10	250	25	30	365	24	1.00E+02	2.02E-03		
											<b>1.7E-01</b>	
AA1	TPH-G	78	10	250	25	30	365	24	5.70E+02	3.25E-02		
AA1	Benzene	0.43	10	250	25	30	365	24	3.00E+00	3.41E-02		
AA1	Toluene	1.4	10	250	25	30	365	24	3.00E+02	1.11E-03		
AA1	Ethylbenzene	0.80	10	250	25	30	365	24	1.00E+03	1.90E-04		
AA1	m,p-Xylene	3.3	10	250	25	30	365	24	1.00E+02	7.85E-03		used p-xylene RfC
AA1	o-Xylene	1.1	10	250	25	30	365	24	1.00E+02	2.62E-03		
											<b>7.8E-02</b>	
Notes:												
TPH-G = Total Petroleum Hydrocarbons as Gasoline												
ND = Not Detected												
NA = Not Applicable												
p-Xylene Reference Concentration used for m,p-Xylene hazard calculation.												
Reference Concentration value obtained from HERD Soil Gas Screening Model VLOOK sheet (last updated March 2014 except for TPH-G).												
Reference Concentration value for TPH-G obtained from SFRWQCB December 2013 ESL Table J-2.												
Hazard Calculation equation obtained from DTSC Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance) October 2011, Appendix C.												

Table 4C  
Indoor and Ambient Air Risk and Hazard Calculation Results Summary

		Calculated	Calculated	Calculated		
	Sample	Cumulative Incremental	Cumulative Incremental	Cumulative Incremental	Calculated	Recommendations Based on
Air Sample Designation	Collection Date	Carcinogenic Risk	Carcinogenic Risk Alternate Description	Carcinogenic Risk Alternate Description	Hazard Index	DTSC-Recommended Guidance for Action or Response
Location						
IA1	9/12/2014	4.3E-06	0.0000043	4.3 in a million	0.21	Evaluate need for action- risk greater than 1.
IA1-DUP	9/12/2014	4.3E-06	0.0000043	4.3 in a million	0.20	Evaluate need for action- risk greater than 1.
IA2	9/12/2014	4.0E-06	0.0000040	4.0 in a million	0.17	Evaluate need for action- risk greater than 1.
AA1	9/12/2014	1.5E-06	0.0000015	1.5 in a million	0.078	Not Applicable - Ambient Air.
Notes:						
<b>RISK MANAGEMENT MATRIX FOR VAPOR INTRUSION</b>						
<b>Risk</b>	<b>Hazard</b>	<b>Response</b>	<b>Activities</b>			
Less than 1 in a million	$x \leq 1.0$	No Further Action	None			
1 to 100 in a million	$x \geq 1.0$	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 5  
Summary of Incremental Carcinogenic Risk Calculations Using Different Exposure Scenarios

Equation		Concentration in Air	X	Exposure Time	X	Exposure Frequency	X	Exposure Duration	X	Inhalation Unit Risk Factor	all divided by	Averaging Time for Carcinogens	X	365	X	24	Calculated Individual Compound Incremental Carcinogenic Risk	Cumulative Carcinogenic Risk	Comments
Units		(ug/m3)		(hrs/day)		(days/yr)		(yrs)		(ug/m3)		(yrs)		(days/yr)		(hr/day)			
Location	Compound																		
IA1	Benzene	1.4		10		250		25		2.90E-05		70		365		24	4.14E-06		Commercial Exposure
IA1	Ethylbenzene	0.77		10		250		25		2.50E-06		70		365		24	1.96E-07	4.3E-06	
IA1	Benzene	1.4		5		250		25		2.90E-05		70		365		24	2.07E-06		Commercial Exposure
IA1	Ethylbenzene	0.77		5		250		25		2.50E-06		70		365		24	9.81E-08	2.2E-06	
IA1	Benzene	1.4		4		250		25		2.90E-05		70		365		24	1.66E-06		Commercial Exposure
IA1	Ethylbenzene	0.77		4		250		25		2.50E-06		70		365		24	7.85E-08	1.7E-06	
IA1	Benzene	1.4		2		250		25		2.90E-05		70		365		24	8.28E-07		Commercial Exposure
IA1	Ethylbenzene	0.77		2		250		25		2.50E-06		70		365		24	3.92E-08	8.7E-07	
IA1	Benzene	1.4		1		250		25		2.90E-05		70		365		24	4.14E-07		Commercial Exposure
IA1	Ethylbenzene	0.77		1		250		25		2.50E-06		70		365		24	1.96E-08	4.3E-07	
IA1	Benzene	1.4		10		250		25		2.90E-05		70		365		24	4.14E-06		Commercial Exposure
IA1	Ethylbenzene	0.77		10		250		25		2.50E-06		70		365		24	1.96E-07	4.3E-06	
IA1	Benzene	1.4		10		250		20		2.90E-05		70		365		24	3.31E-06		Commercial Exposure
IA1	Ethylbenzene	0.77		10		250		20		2.50E-06		70		365		24	1.57E-07	3.5E-06	
IA1	Benzene	1.4		10		250		15		2.90E-05		70		365		24	2.48E-06		Commercial Exposure
IA1	Ethylbenzene	0.77		10		250		15		2.50E-06		70		365		24	1.18E-07	2.6E-06	
IA1	Benzene	1.4		10		250		10		2.90E-05		70		365		24	1.66E-06		Commercial Exposure
IA1	Ethylbenzene	0.77		10		250		10		2.50E-06		70		365		24	7.85E-08	1.7E-06	
IA1	Benzene	1.4		10		250		5		2.90E-05		70		365		24	8.28E-07		Commercial Exposure
IA1	Ethylbenzene	0.77		10		250		5		2.50E-06		70		365		24	3.92E-08	8.7E-07	
Notes:																			
ND = Not Detected																			
NA = Not Applicable																			
Unit Risk Factor value obtained from HERD Soil Gas Screening Model VLOOK sheet (last updated March 2014)																			
Risk Calculation equation obtained from DTSC Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (Vapor Intrusion Guidance) October 2011, Appendix																			

# **FIGURES**

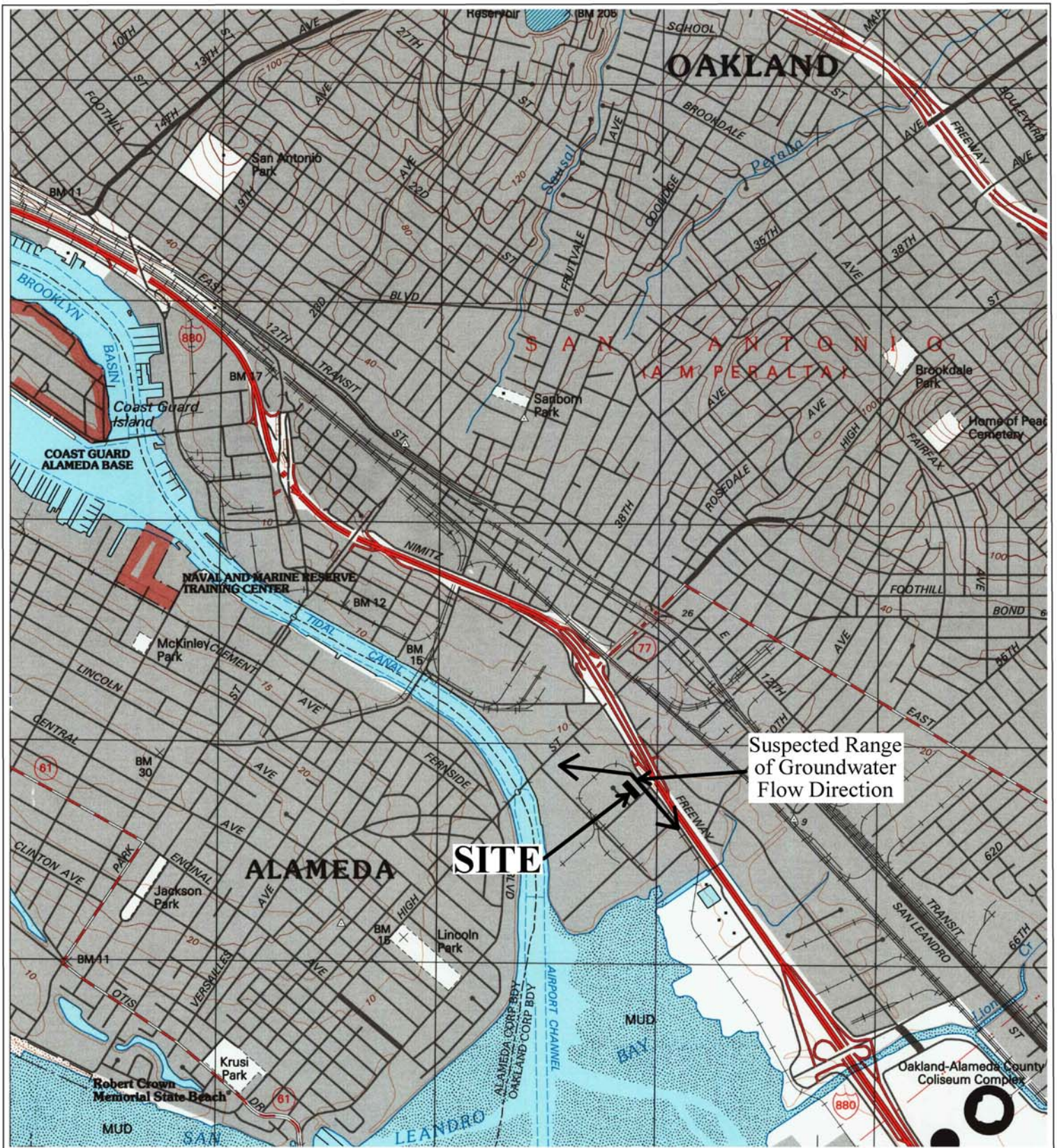


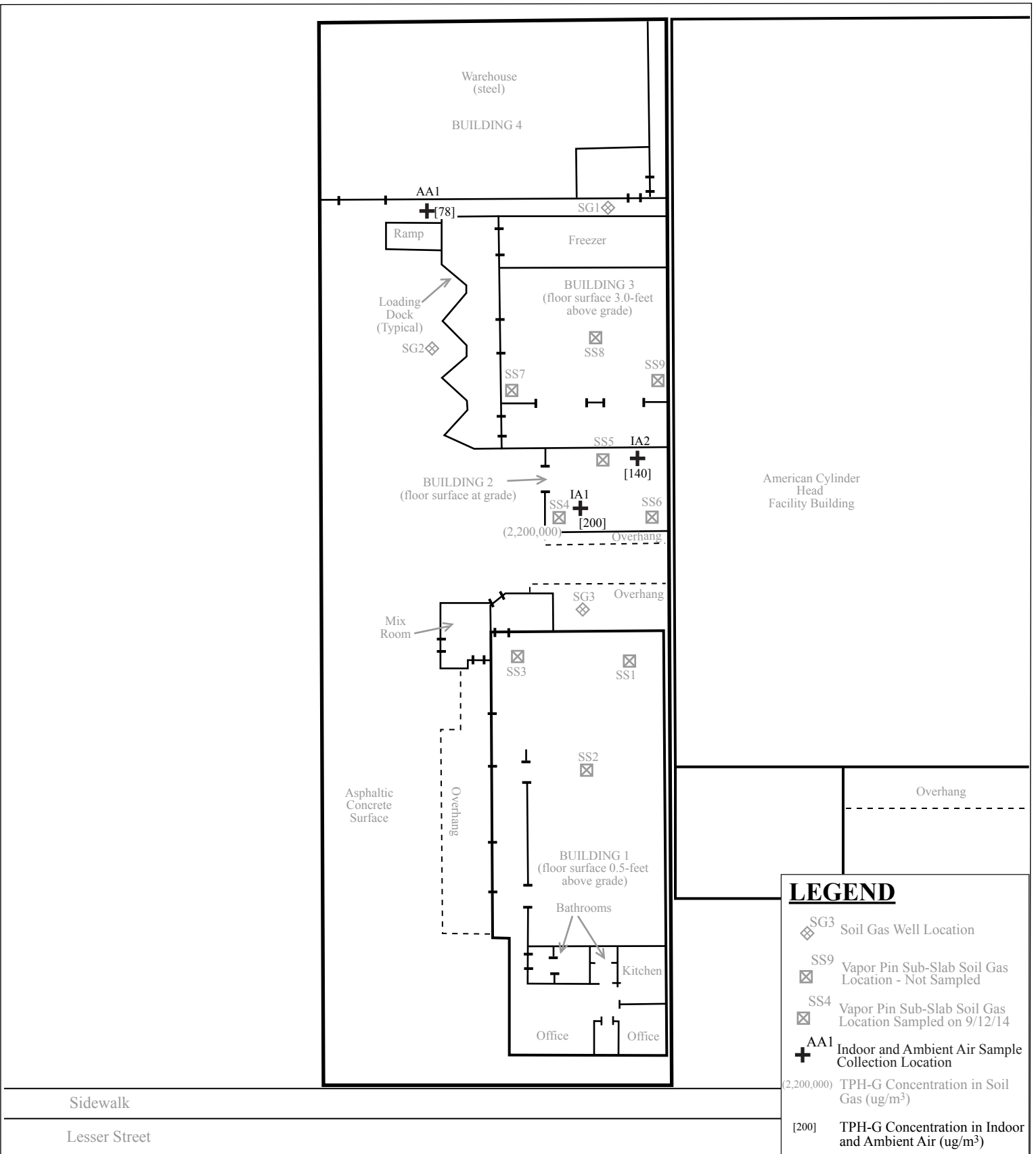
Figure 1  
 Site Location Map  
 475 Lesser Street  
 Oakland, California

Basemap from:  
 U.S. Geological Survey  
 Oakland East, California  
 7.5-Minute Quadrangle, Map edited 1996

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

0 1,000 2,000  
 Approximate Scale in Feet

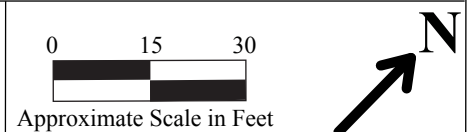




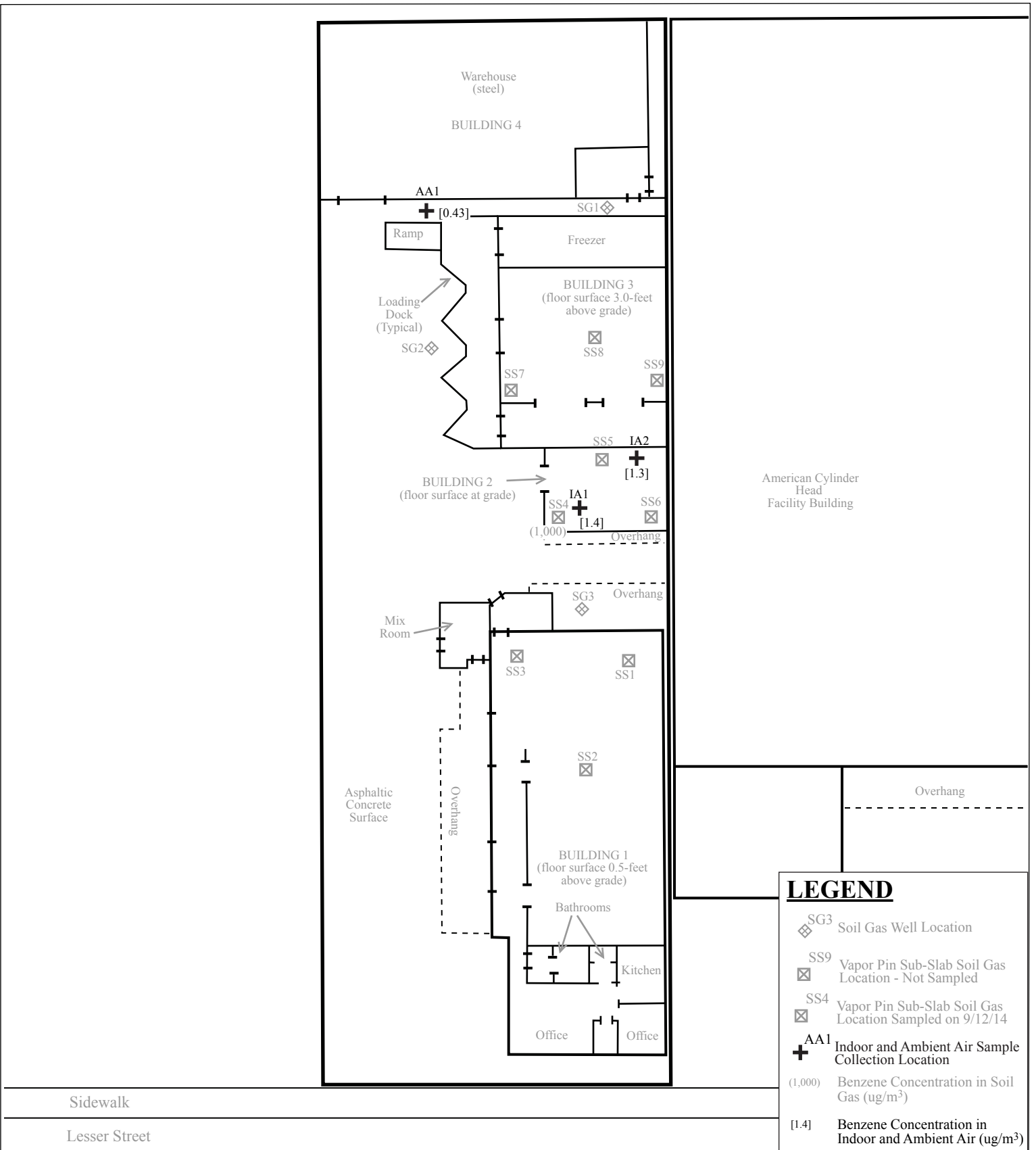
**Figure 2**  
 Site Plan Showing TPH-G Concentrations in Indoor and Ambient Air and Sub-Slab Soil Gas  
 475 Lesser Street  
 Oakland, California

Base Map From:  
 Basics Environmental, Inc., dated April 3, 2014, and  
 Google Earth, 8/28/2012

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







**Figure 3**  
 Site Plan Showing Benzene Concentrations in Indoor and Ambient Air and Sub-Slab Soil Gas  
 475 Lesser Street  
 Oakland, California

Base Map From:  
 Basics Environmental, Inc., dated April 3, 2014, and  
 Google Earth, 8/28/2012

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

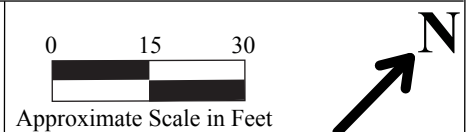




Figure 4  
Typical Soil Gas Sample Collection Manifold  
475 Lesser Street  
Oakland, California

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

# **APPENDIX A**

## **Air Sampling Field Data Sheet**

AIR SAMPLING DATA SHEET

Address 475 LESSER ST  
 Job # 0675.R4  
 Date 9/11/14  
 Sampler Name MLBD

Sample Location Designation	Canister #	Start pump flow rate (cc/min) and time	End pump flow rate (cc/min) and time	Sample Canister Initial Vacuum Check (In. Hg) and time	9/11/14 Begin sample collection vacuum (In. Hg) and time	9/12/14 End sample collection vacuum (In. Hg) and time	NOTES
AA1	34470	flow time	flow time	vac -30 time 0630	vac -30 time 0700	vac -9 time 0700	
IA1	35178	flow time	flow time	vac -30 time 0635	vac -30 time 0703	vac -12 time 0702	
IA1 DWP	34499	flow time	flow time	vac -30 time 0638	vac -30 time 0703	vac -6 time 0702	
IA2	21012	flow time	flow time	vac -30 time 0640	vac -30 time 0705	vac -9 time 0704	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
		flow time	flow time	vac time	vac time	vac time	
NOTES							

## **APPENDIX B**

### **Purge Volume Calculation Sheet and Soil Gas Sampling Field Data Sheet**

Soil Gas Purge Volume Calculations

One Purge Volume is calculated as

- 1 The volume of the hole through the slab,
- 2 Plus the volume of the hole beneath the slab,
- 3 Plus the volume of the tube in the Vapor Pin,
- 4 Plus the volume of the tube connecting the Vapor Pin to the sample container,
- 5 Less the volume of the hole through the slab for any drilling for recessed Vapor Pin placement
- 6 Less the volume of the Vapor Pin

1 The slab borehole volume is calculated as follows:

Borehole slab dia. = 0.625 inches (this is 5/8 inch diameter)

Slab Thickness = 5.5 inches

**V borehole** = pi x (r x r) x h, where pi = 3.14, r = 0.625 in./2, and h = 5.5 in.

V borehole = 3.14 x ( 0.3125 x 0.3125 ) x ( 5.5 in.) = 1.69 cubic inches.

2 The sub-slab borehole volume is calculated as follows:

Borehole slab dia. = 0.625 inches (this is 5/8 inch diameter)

Depth below slab = 2 inches

**V borehole** = pi x (r x r) x h, where pi = 3.14, r = 0.625 in./2, and h = 2.0 in.

V borehole = 3.14 x ( 0.3125 x 0.3125 ) x ( 2.0 in.) = 0.61 cubic inches.

3 The Vapor Pin tube volume is calculated as follows:

Tubing diameter = 0.125 inches

Tubing Length = 2 inches

**V borehole** = pi x (r x r) x h, where pi = 3.14, r = 0.125 in./2, and h = 2.0 in.

V borehole = 3.14 x ( 0.0625 x 0.0625 ) x ( 2.0 in.) = 0.02 cubic inches.

4 The tube volume connecting the Vapor Pin to the sample container is calculated as follows:

Tubing diameter = 0.187 inches

Tubing Length = 24 inches

**V borehole** = pi x (r x r) x h, where pi = 3.14, r = 0.187 in./2, and h = 24.0 in.

V borehole = 3.14 x ( 0.0935 x 0.0935 ) x ( 24.0 in.) = 0.66 cubic inches.

5 The slab borehole volume that is removed for the recessed Vapor Pin is calculated as follows:

Borehole slab dia. = 0.625 inches (this is 5/8 inch diameter)

Slab Thickness = 1.75 inches (if Vapor Pin is recessed this is 1.75 inches)

**V borehole** = pi x (r x r) x h, where pi = 3.14, r = 0.625 in./2, and h = 1.8 in.

V borehole = 3.14 x ( 0.3125 x 0.3125 ) x ( 1.8 in.) = 0.54 cubic inches.

6 The Vapor Pin volume is calculated as follows:

Vapor Pin diameter = 0.625 inches (this is 5/8 inch diameter)

Vapor Pin Length = 2 inches

**V borehole** = pi x (r x r) x h, where pi = 3.14, r = 0.625 in./2, and h = 2.0 in.

V borehole = 3.14 x ( 0.3125 x 0.3125 ) x ( 2.0 in.) = 0.61 cubic inches.

The total volume for one purge volume is V slab borehole + V sub-slab borehole + V vapor pin tube + V tubing connecting vapor pin to sample container

- V slab borehole for recessed vapor pin - V vapor pin

V total = 1.69 cubic inches + 0.61 cubic inches + 0.02 cubic inches + 0.66 cubic inches - 0.54 cubic inches - 0.61 cubic inches = 1.83 cubic inches.

To convert to cubic centimeters:

V total = 1.83 cubic inches x 16.39 cubic centimeters/cubic inches = 30.0 cubic centimeters.

The total volume for 3 purge volume(s) is calculated as follows:

V purge total = 30.0 cubic centimeters x 3 = 90.1 cubic centimeters.

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

The purge time is calculated as follows:

T purge = 90 cubic centimeters/ 150 cubic centimeters per minute = 0.60 minutes.

Converting the purge time to seconds, 0.60 minutes x 60 seconds/ minute = 36 seconds.

Notes:

Yellow hi-lite indicates data entry required.

Blue hi-lite indicates values are calculated or automatically updated.



## **APPENDIX C**

### **Weather Information**



Report 0675.R4  
Appendix C

<http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=KCAALAME7&graphspan=custom&month=8&day=29&year=2014&monthend=9&dayend=12&yearend=2014>

## Weather History for KCAALAME7

High St Bridge, Alameda, CA  
About This Weather Station

**Lat:** N 37 ° 45 ' 48 " ( 37.763 ° )  
**Lon:** W 122 ° 13 ' 33 " ( -122.226 ° )  
**Elevation (ft):** 16  
**Hardware:** Davis Vantage VUE

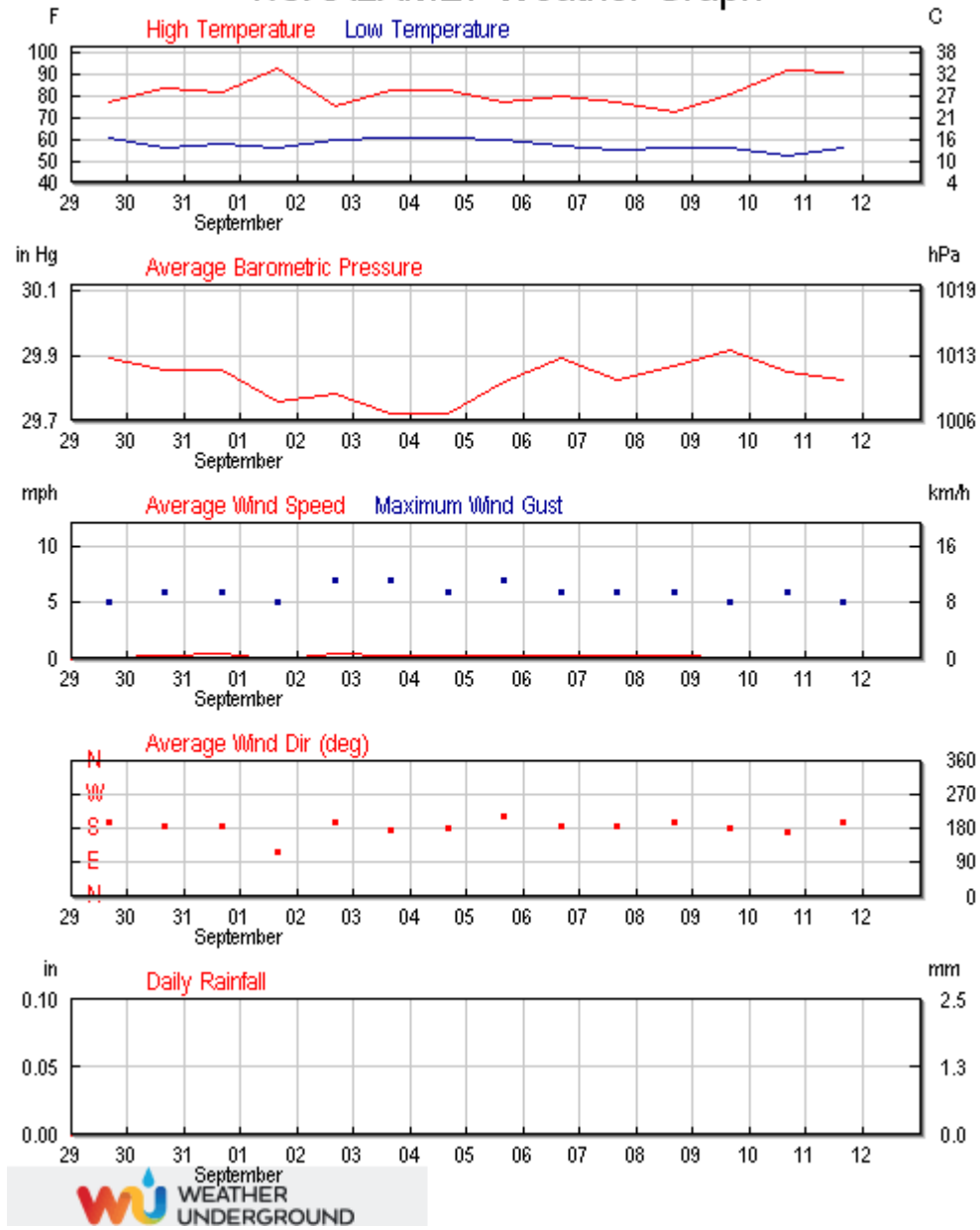
High St Bridge, Alameda, CA

August 29 2014 - TO - September 12 2014 Go

[Daily](#) [Weekly](#) [Monthly](#) [Yearly](#) [Custom](#)

	High:	Low:	Average:
Temperature:	92.1 °F	52.0 °F	66.6 °F
Dew Point:	65.4 °F	50.9 °F	58.8 °F
Humidity:	99.0%	31.0%	78.5%
Wind Speed:	2.0mph from the South	-	0.2mph
Wind Gust:	173.0mph from the NNW	-	-
Wind:	-	-	South
Pressure:	29.97in	29.67in	-
Precipitation:	0.00in		

### KCAALAME7 Weather Graph



Report 0675.R4  
Appendix C

<http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=KCAALAME7&graphspan=day&month=9&day=11&year=2014>

« [Previous Day](#)      September ▼ 11 ▼ 2014 ▼ View      [Next Day »](#)

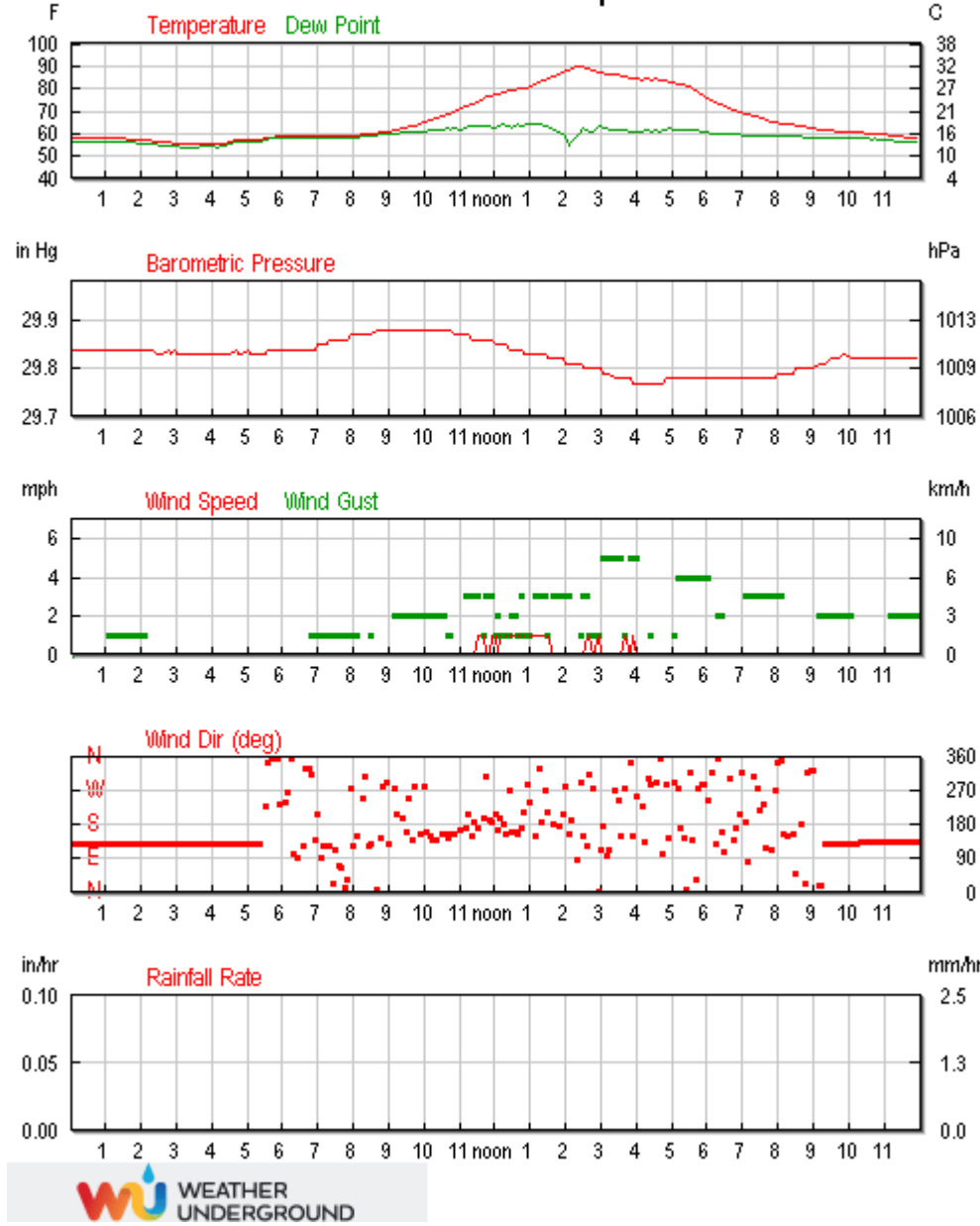
**Daily** [Weekly](#) [Monthly](#) [Yearly](#) [Custom](#)

	Current:	High:	Low:	Average:
Temperature:	<b>85.8</b> °F	<b>90.7</b> °F	<b>55.6</b> °F	<b>73.1</b> °F
Dew Point:	<b>48.9</b> °F	<b>64.4</b> °F	<b>54.3</b> °F	<b>59.4</b> °F
Humidity:	28%	98%	32%	79%
Wind Speed:	<b>1.0</b> mph	<b>1.0</b> mph	-	<b>0.1</b> mph
Wind Gust:	<b>1.0</b> mph	<b>5.0</b> mph	-	-
Wind:	SSW	-	-	SSW
Pressure:	<b>29.83</b> in	<b>29.88</b> in	<b>29.77</b> in	-
Precipitation:	<b>0.00</b> in			

Weather History for the Rest of This Month

	High:	Low:	Average:
Temperature:	<b>92.1</b> °F	<b>52.0</b> °F	<b>66.9</b> °F
Dew Point:	<b>67.5</b> °F	<b>50.9</b> °F	<b>59.8</b> °F
Humidity:	99.0%	31.0%	80.0%
Wind Speed:	<b>2.0</b> mph from the SSW	-	<b>0.2</b> mph
Wind Gust:	<b>236.0</b> mph from the WNW	-	-
Wind:	-	-	South
Pressure:	<b>30.01</b> in	<b>29.67</b> in	-
Precipitation:	<b>0.54</b> in		

### KCAALAME7 Weather Graph for 9/11/2014



Report 0675.R4  
Appendix C

<http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=KCAALAME7&graphspan=day&month=9&day=12&year=2014>

« [Previous Day](#)      September ▾ 12 ▾ 2014 ▾ View      [Next Day »](#)

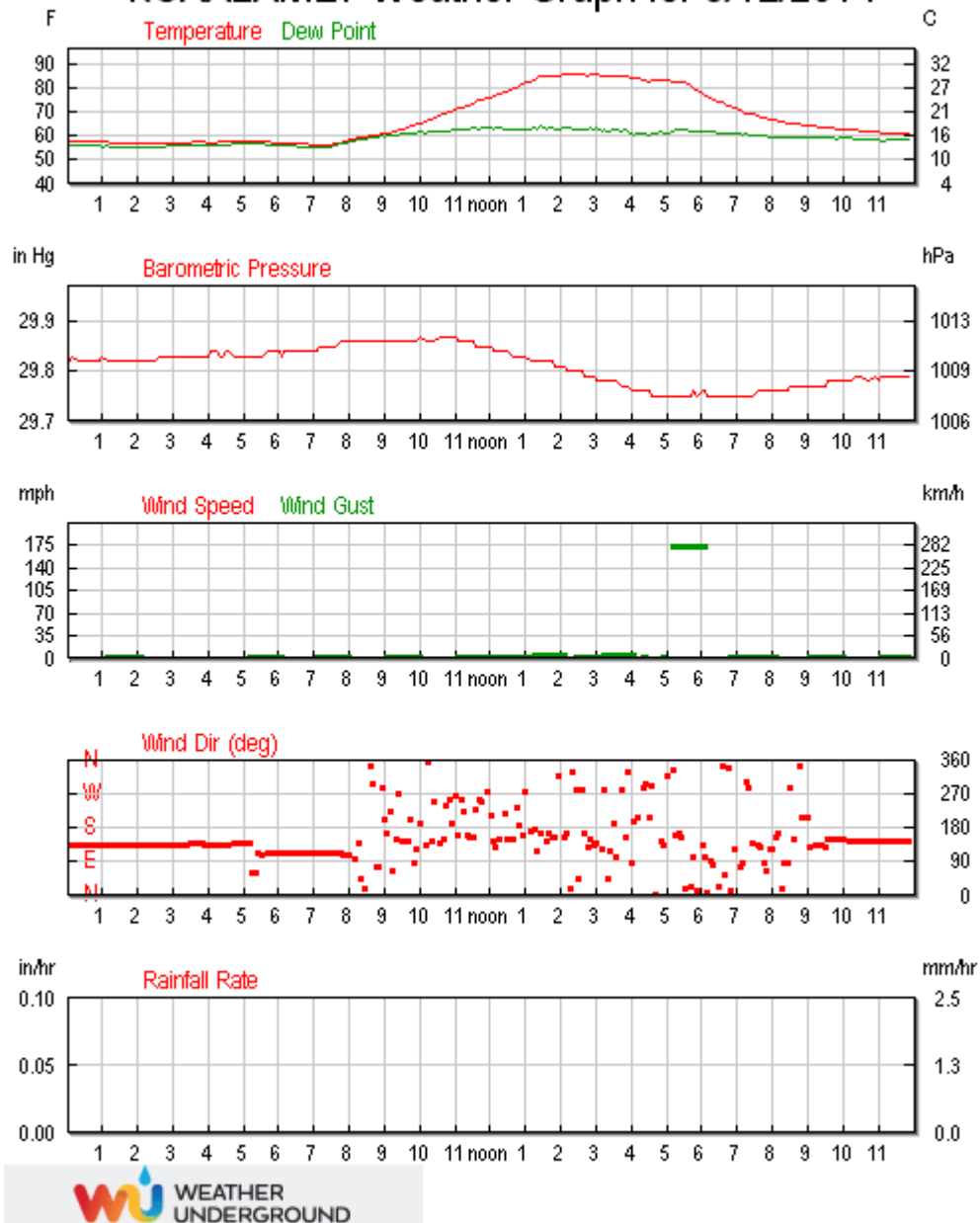
**Daily** [Weekly](#) [Monthly](#) [Yearly](#) [Custom](#)

	Current:	High:	Low:	Average:
Temperature:	82.2 °F	86.4 °F	56.2 °F	71.3 °F
Dew Point:	52.6 °F	64.1 °F	55.0 °F	59.4 °F
Humidity:	36%	98%	45%	79%
Wind Speed:	1.0mph	1.0mph	-	0.1mph
Wind Gust:	4.0mph	173.0mph	-	-
Wind:	SE	-	-	South
Pressure:	29.86in	29.87in	29.75in	-
Precipitation:	0.00in			

Weather History for the Rest of This Month

	High:	Low:	Average:
Temperature:	92.1 °F	52.0 °F	66.9 °F
Dew Point:	67.5 °F	50.9 °F	59.8 °F
Humidity:	99.0%	31.0%	80.0%
Wind Speed:	2.0mph from the SSW	-	0.2mph
Wind Gust:	236.0mph from the WNW	-	-
Wind:	-	-	South
Pressure:	30.01in	29.67in	-
Precipitation:	0.54in		

### KCAALAME7 Weather Graph for 9/12/2014



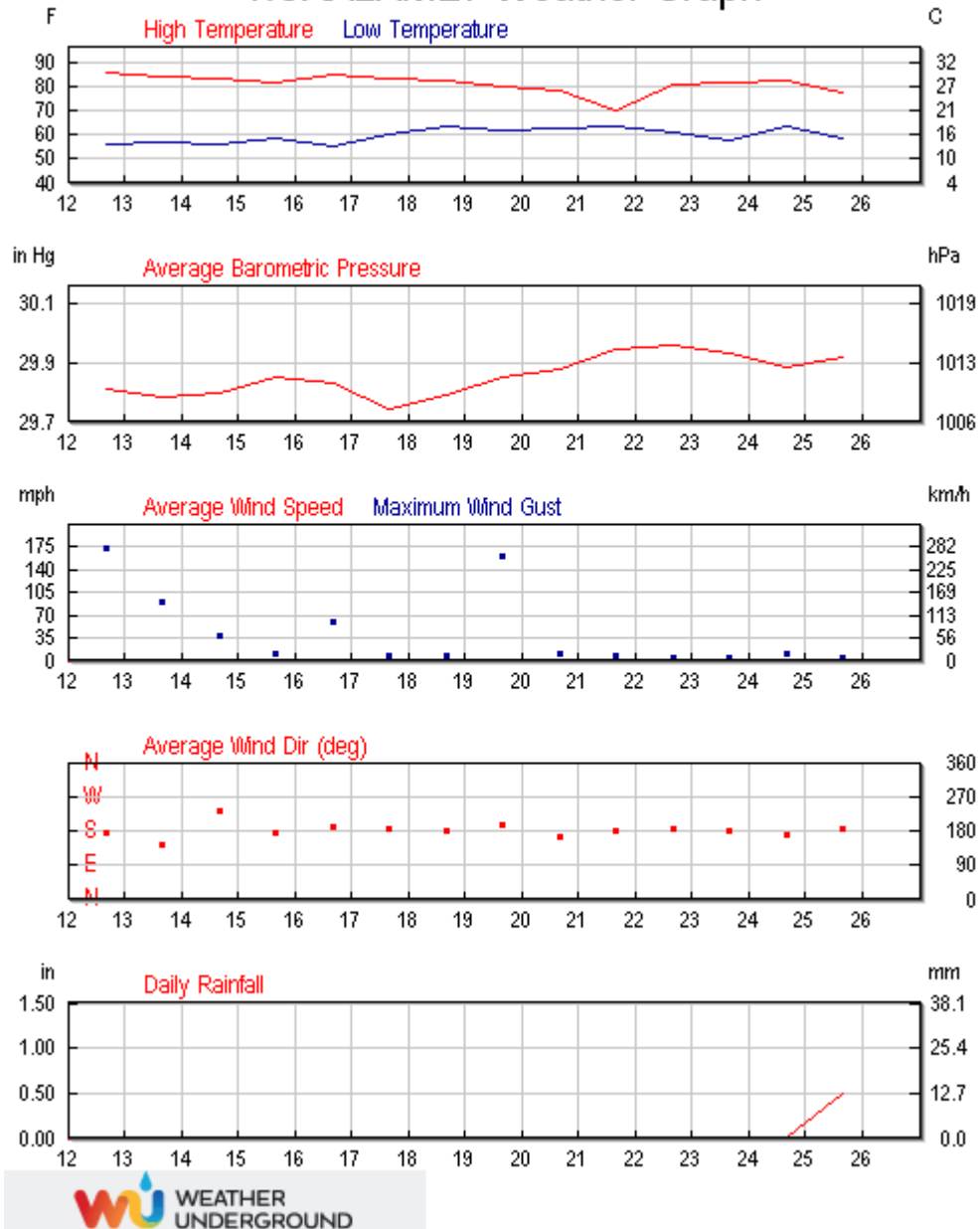
Report 0675.R4  
Appendix C

<http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=KCAALAME7&graphspan=custom&month=9&day=12&year=2014&monthend=9&dayend=26&yearend=2014>

September 12 2014 - TO - September 26 2014 Go  
[Daily](#) [Weekly](#) [Monthly](#) [Yearly](#) [Custom](#)

	High:	Low:	Average:
Temperature:	86.4 °F	55.0 °F	67.7 °F
Dew Point:	67.5 °F	53.9 °F	61.1 °F
Humidity:	98.0%	41.0%	80.9%
Wind Speed:	2.0mph from the South	-	0.2mph
Wind Gust:	173.0mph from the NNW	-	-
Wind:	-	-	South
Pressure:	30.00in	29.70in	-
Precipitation:	0.54in		

### KCAALAME7 Weather Graph





## **APPENDIX D**

### **Laboratory Analytical Reports and Chain of Custody Documentation**

- **Air Toxics Work Order # 1409224: Vapor Pin Samples SS4 and SS4-DUP TPH-G, MBTEX, and 1,1-DFA Results**
- **Air Toxics Work Order # 1409197: Vapor Pin Samples SS4 and SS4-REP Naphthalene and 2-Propanol Results**
- **Air Toxics Work Order # 1409191A: Vapor Pin Shroud Sample SS4 DFA Through SS6 DFA 1,1-DFA Results**
- **Air Toxics Work Order # 1409191B: Vapor Pin Shroud Sample SS4 2-Propanol 2-Propanol Results**
- **Air Toxics Work Order # 1409218: Air Samples IA1, IA1-DUP, IA2, and AA1 TPH-G, MBTEX, and Naphthalene Results**

9/26/2014

Mr. Paul King

P & D Environmental

55 Santa Clara

Suite 240

Oakland CA 94610

Project Name: 475 LESSER ST OAKLAND, CA

Project #: 0675

Workorder #: 1409224

Dear Mr. Paul King

The following report includes the data for the above referenced project for sample(s) received on 9/12/2014 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 Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact 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

**WORK ORDER #: 1409224**

Work Order Summary

<b>CLIENT:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610	<b>BILL TO:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610
<b>PHONE:</b>	510-658-6916	<b>P.O. #</b>	
<b>FAX:</b>	510-834-0772	<b>PROJECT #</b>	0675 475 LESSER ST OAKLAND, CA
<b>DATE RECEIVED:</b>	09/12/2014	<b>CONTACT:</b>	Kyle Vagadori
<b>DATE COMPLETED:</b>	09/26/2014		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SS4	TO-15	4.5 "Hg	14.4 psi
02A	SS4-DUP	TO-15	4.5 "Hg	15 psi
03A	Lab Blank	TO-15	NA	NA
04A	CCV	TO-15	NA	NA
05A	LCS	TO-15	NA	NA
05AA	LCSD	TO-15	NA	NA

CERTIFIED BY:   
 Technical Director

DATE: 09/26/14

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-13-6, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
 Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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**  
**P & D Environmental**  
**Workorder# 1409224**

Two 1 Liter Summa Canister samples were received on September 12, 2014. 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**

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical batch. Recovery is reported as 100% in the associated results for each CCV.

Dilution was performed on sample SS4 and SS4-DUP due to the presence of high level non-target species.

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.

**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

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

**Client Sample ID: SS4**

**Lab ID#: 1409224-01A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	120	330	370	1000
Toluene	120	700	440	2600
TPH ref. to Gasoline (MW=100)	5800	550000	24000	2200000
1,1-Difluoroethane	470	8800	1200	24000

**Client Sample ID: SS4-DUP**

**Lab ID#: 1409224-02A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	120	300	380	970
Toluene	120	630	450	2400
TPH ref. to Gasoline (MW=100)	6000	530000	24000	2200000
1,1-Difluoroethane	480	6000	1300	16000



Client Sample ID: SS4

Lab ID#: 1409224-01A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092427	Date of Collection:	9/12/14 8:34:00 AM
Dil. Factor:	233	Date of Analysis:	9/25/14 12:34 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	120	Not Detected	420	Not Detected
Benzene	120	330	370	1000
Toluene	120	700	440	2600
Ethyl Benzene	120	Not Detected	500	Not Detected
m,p-Xylene	120	Not Detected	500	Not Detected
o-Xylene	120	Not Detected	500	Not Detected
TPH ref. to Gasoline (MW=100)	5800	550000	24000	2200000
1,1-Difluoroethane	470	8800	1200	24000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	114	70-130
4-Bromofluorobenzene	106	70-130



Air Toxics

Client Sample ID: SS4-DUP

Lab ID#: 1409224-02A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092428	Date of Collection:	9/12/14 8:34:00 AM
Dil. Factor:	238	Date of Analysis:	9/25/14 12:58 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	120	Not Detected	430	Not Detected
Benzene	120	300	380	970
Toluene	120	630	450	2400
Ethyl Benzene	120	Not Detected	520	Not Detected
m,p-Xylene	120	Not Detected	520	Not Detected
o-Xylene	120	Not Detected	520	Not Detected
TPH ref. to Gasoline (MW=100)	6000	530000	24000	2200000
1,1-Difluoroethane	480	6000	1300	16000

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	108	70-130





Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1409224-03A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092411f	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/24/14 01:47 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
Toluene	0.50	Not Detected	1.9	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
TPH ref. to Gasoline (MW=100)	25	Not Detected	100	Not Detected
1,1-Difluoroethane	2.0	Not Detected	5.4	Not Detected

Container Type: NA - Not Applicable

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



Air Toxics

Client Sample ID: CCV

Lab ID#: 1409224-04A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092402	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/24/14 09:02 AM

Compound	%Recovery
Methyl tert-butyl ether	101
Benzene	101
Toluene	105
Ethyl Benzene	100
m,p-Xylene	100
o-Xylene	100
TPH ref. to Gasoline (MW=100)	100
1,1-Difluoroethane	104

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	97	70-130

Client Sample ID: LCS

Lab ID#: 1409224-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092403	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/24/14 09:27 AM

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	96	70-130
Benzene	96	70-130
Toluene	99	70-130
Ethyl Benzene	94	70-130
m,p-Xylene	95	70-130
o-Xylene	95	70-130
TPH ref. to Gasoline (MW=100)	Not Spiked	
1,1-Difluoroethane	Not Spiked	

Container Type: NA - Not Applicable

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



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1409224-05AA

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	3092404	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/24/14 09:52 AM

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	94	70-130
Benzene	95	70-130
Toluene	97	70-130
Ethyl Benzene	93	70-130
m,p-Xylene	95	70-130
o-Xylene	95	70-130
TPH ref. to Gasoline (MW=100)	Not Spiked	
1,1-Difluoroethane	Not Spiked	

Container Type: NA - Not Applicable

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

# CHAIN OF CUSTODY RECORD

**P&D ENVIRONMENTAL, INC.**

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

PROJECT NUMBER:

**0675**

PROJECT NAME:

**475 LESSER ST  
OAKLAND, CA**

SAMPLED BY: (PRINTED & SIGNATURE)

**MICHAEL BASS-DESCHENES** *Michael Bass-Deschenes*

NUMBER OF CONTAINERS

ANALYSIS(ES):

**TPH-GALTEX DFA BY D-15**

PRESERVATIVE

REMARKS

SAMPLE NUMBER

DATE

TIME

TYPE

SAMPLE LOCATION

INITIALS UAC UGC FID/PPM

OIA  
O2A

**SS4**

**9/12/14**

082100  
083415  
**11:45**

SOLV  
**168**

**-30 -5 36**

**1**

**X**

**NOOC**

**NORMAL TAT**

**SS4-DUP**

**"**

082100  
083415  
**"**

**"**

**-30 -5 36**

**1**

**X**

**"**

**" "**

Custody Seal Intact?

Y N **(None)** Temp **NA**

**EAT Dropoff**

RELINQUISHED BY: (SIGNATURE)

*Michael Bass-Deschenes*

DATE TIME

**9-12-14 11:42**

RECEIVED BY: (SIGNATURE)

*Roy [Signature]*

Total No. of Samples (This Shipment)

**2**

Total No. of Containers (This Shipment)

**2**

LABORATORY:

**EUROFINS/ARTONICS, INC.**

RELINQUISHED BY: (SIGNATURE)

*[Signature]*

DATE TIME

RECEIVED BY: (SIGNATURE)

LABORATORY CONTACT:

**KYLE VAGANDEI**

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**

9/25/2014  
Mr. Paul King  
P & D Environmental  
55 Santa Clara  
Suite 240  
Oakland CA 94610

Project Name: 475 LESSER ST OAKLAND, CA  
Project #: 0675  
Workorder #: 1409197

Dear Mr. Paul King

The following report includes the data for the above referenced project for sample(s) received on 9/12/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-17 VI 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 Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact 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

**WORK ORDER #: 1409197**

Work Order Summary

<b>CLIENT:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610	<b>BILL TO:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610
<b>PHONE:</b>	510-658-6916	<b>P.O. #</b>	
<b>FAX:</b>	510-834-0772	<b>PROJECT #</b>	0675 475 LESSER ST OAKLAND, CA
<b>DATE RECEIVED:</b>	09/12/2014	<b>CONTACT:</b>	Kyle Vagadori
<b>DATE COMPLETED:</b>	09/24/2014		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>
01A	SS4	Modified TO-17 VI
02A	SS4-REP	Modified TO-17 VI
03A	Lab Blank	Modified TO-17 VI
04A	CCV	Modified TO-17 VI
05A	LCS	Modified TO-17 VI
05AA	LCSD	Modified TO-17 VI

CERTIFIED BY:  DATE: 09/25/14

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
TX NELAP - T104704434-13-6, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.  
Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.  
180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 9562  
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

**LABORATORY NARRATIVE**  
**Modified EPA Method TO-17 (VI Tubes)**  
**P & D Environmental**  
**Workorder# 1409197**

Two TO-17 VI Tube samples were received on September 12, 2014. The laboratory performed the analysis via modified EPA Method TO-17 using GC/MS in the full scan mode. TO-17 'VI' sorbent tubes are thermally desorbed onto a secondary trap. The trap is thermally desorbed to elute the components into the GC/MS system for compound separation and detection.

A modification that may be applied to EPA Method TO-17 at the client's discretion is the requirement to transport sorbent tubes at 4 deg C. Laboratory studies demonstrate a high level of stability for VOCs on the TO-17 'VI' tube at room temperature for periods of up to 14 days. Tubes can be shipped to and from the field site at ambient conditions as long as the 14-day sample hold time is upheld. Trip blanks and field surrogate spikes are used as additional control measures to monitor recovery and background contribution during tube transport.

Since the TO-17 VI application significantly extends the scope of target compounds addressed in EPA Method TO-15 and TO-17, the laboratory has implemented several method modifications outlined in the table below. Specific project requirements may over-ride the laboratory modifications.

<i>Requirement</i>	<i>TO-17</i>	<i>ATL Modifications</i>
Initial Calibration	%RSD<math>\leq 30\%</math> with 2 allowed out up to 40%	VOC list: %RSD<math>\leq 30\%</math> with 2 allowed out up to 40% SVOC list: %RSD<math>\leq 30\%</math> with 2 allowed out up to 40%
Daily Calibration	%D for each target compound within +/-30%.	Fluorene, Phenanthrene, Anthracene, Fluoranthene, and Pyrene within +/-40%D
Audit Accuracy	70-130%	Second source recovery limits for Fluorene, Phenanthrene, Anthracene, Fluoranthene, and Pyrene = 60-140%.
Distributed Volume Pairs	Collection of distributed volume pairs required for monitoring ambient air to insure high quality.	If site is well-characterized or performance previously verified, single tube sampling may be appropriate. Distributed pairs may be impractical for soil gas collection due to configuration and volume constraints.

### **Receiving Notes**

A Temperature Blank was not included with the shipment. Temperature was measured on a representative sample and was not within  $4 \pm 2$  °C. Coolant in the form of blue ice was present. Analysis proceeded.

### **Analytical Notes**

A sampling volume of 0.200 L was used to convert ng to ug/m<sup>3</sup> for the associated Lab Blank.

Due to extreme matrix interference, surrogate 1,2-Dichloroethane-d4 in samples SS4 and SS4-REP could not be quantitated and was not reported.

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 blank (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

**Summary of Detected Compounds  
EPA METHOD TO-17**

**Client Sample ID: SS4**

**Lab ID#: 1409197-01A**

<b>Compound</b>	<b>Rpt. Limit (ng)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ng)</b>	<b>Amount (ug/m3)</b>
Naphthalene	0.50	2.5	0.80	4.0

**Client Sample ID: SS4-REP**

**Lab ID#: 1409197-02A**

No Detections Were Found.



Air Toxics

Client Sample ID: SS4

Lab ID#: 1409197-01A

EPA METHOD TO-17

File Name:	18091717	Date of Extraction: NA	Date of Collection: 9/12/14 9:51:00 AM
Dil. Factor:	1.00	Date of Analysis: 9/18/14 02:31 AM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
2-Propanol	49	240	Not Detected	Not Detected
Naphthalene	0.50	2.5	0.80	4.0

Air Sample Volume(L): 0.200  
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Toluene-d8	88	50-150
Naphthalene-d8	99	50-150



Air Toxics

Client Sample ID: SS4-REP

Lab ID#: 1409197-02A

EPA METHOD TO-17

File Name:	18091719	Date of Extraction:	NA	Date of Collection:	9/12/14 10:01:00 AM
Dil. Factor:	1.00			Date of Analysis:	9/18/14 03:54 AM

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
2-Propanol	49	240	Not Detected	Not Detected
Naphthalene	0.50	2.5	Not Detected	Not Detected

Air Sample Volume(L): 0.200  
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Toluene-d8	85	50-150
Naphthalene-d8	85	50-150

Client Sample ID: Lab Blank

Lab ID#: 1409197-03A

EPA METHOD TO-17

File Name:	18091705	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/17/14 05:15 PM	

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
2-Propanol	49	240	Not Detected	Not Detected
Naphthalene	0.50	2.5	Not Detected	Not Detected

Air Sample Volume(L): 0.200  
 Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	109	50-150
Toluene-d8	93	50-150
Naphthalene-d8	94	50-150



Air Toxics

Client Sample ID: CCV

Lab ID#: 1409197-04A

EPA METHOD TO-17

File Name:	18091702	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/17/14 03:08 PM	

Compound	%Recovery
2-Propanol	130
Naphthalene	87

Air Sample Volume(L): 1.00  
Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	50-150
Toluene-d8	104	50-150
Naphthalene-d8	106	50-150



Air Toxics

Client Sample ID: LCS

Lab ID#: 1409197-05A

EPA METHOD TO-17

File Name:	18091703	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/17/14 03:50 PM	

Compound	%Recovery	Method Limits
2-Propanol	131 Q	70-130
Naphthalene	88	70-130

Air Sample Volume(L): 1.00

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	115	50-150
Toluene-d8	108	50-150
Naphthalene-d8	107	50-150



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1409197-05AA

EPA METHOD TO-17

File Name:	18091704	Date of Extraction: NA	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/17/14 04:32 PM	

Compound	%Recovery	Method Limits
2-Propanol	126	70-130
Naphthalene	87	70-130

Air Sample Volume(L): 1.00  
Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	110	50-150
Toluene-d8	109	50-150
Naphthalene-d8	108	50-150



# CHAIN OF CUSTODY RECORD

<b>P&amp;D ENVIRONMENTAL, INC.</b> 55 Santa Clara Ave., Suite 240 Oakland, CA 94610 (510) 658-6916					NUMBER OF CONTAINERS	ANALYSES: ALPHABETICAL MAP 2-17-17	PRESERVATIVE	REMARKS			
PROJECT NUMBER: <div style="font-size: 1.5em; font-weight: bold;">0675</div>		PROJECT NAME: 475 LEPPER ST OAKLAND, CA									
SAMPLED BY: (PRINTED & SIGNATURE) MICHAEL BASS-DESCHENES <i>Michael Bass-Deschenes</i>											
SAMPLE NUMBER	DATE	TIME	TYPE	SAMPLE LOCATION							
OIA O2A SS4	9/12/14	08:00	Soil	Soil	1	X		NONE			
SS4-REP	"	10:00	Soil	Soil	1	X		NONE			
RELINQUISHED BY: (SIGNATURE) <i>Michael Bass-Deschenes</i>					DATE	TIME	RECEIVED BY: (SIGNATURE) <i>[Signature]</i>		Total No. of Samples (Plus Duplicate)	2	LABORATORY: ENVIRONMENTAL TOOLS INC.
RELINQUISHED BY: (SIGNATURE)					DATE	TIME	RECEIVED BY: (SIGNATURE)		Total No. of Containers (Plus Duplicate)	2	
RELINQUISHED BY: (SIGNATURE)					DATE	TIME	RECEIVED FOR LABORATORY BY: (SIGNATURE)		LABORATORY CONTACT: KYLE LABORATORY (916) 605-3339		
Results and Billing to: P&D Environmental, Inc. lab@pdenviron.com					REMARKS: SOBLET TUBE SAMPLE VOLUME = 500 CC FOR ALL SAMPLES -					SAMPLE ANALYSIS REQUEST SHEET ATTACHED. ( ) YES (X) NO	

Custody Seal Intact  
 Temp 28.6°C  
 EAT Dropoff

9/29/2014

Mr. Paul King

P & D Environmental

55 Santa Clara

Suite 240

Oakland CA 94610

Project Name: 475 LESSER ST. OAKLAND, CA

Project #: 0675

Workorder #: 1409191A

Dear Mr. Paul King

The following report includes the data for the above referenced project for sample(s) received on 9/12/2014 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 Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact 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

**WORK ORDER #: 1409191A**

Work Order Summary

<b>CLIENT:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610	<b>BILL TO:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610
<b>PHONE:</b>	510-658-6916	<b>P.O. #</b>	
<b>FAX:</b>	510-834-0772	<b>PROJECT #</b>	0675 475 LESSER ST. OAKLAND, CA
<b>DATE RECEIVED:</b>	09/12/2014	<b>CONTACT:</b>	Kyle Vagadori
<b>DATE COMPLETED:</b>	09/29/2014		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	SS4 DFA	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
02A	Lab Blank	Modified TO-15 (5&20 ppbv	NA	NA
03A	CCV	Modified TO-15 (5&20 ppbv	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 09/29/14

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-13-6, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
 Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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# 1409191A**

One Client Tedlar Bag sample was received on September 12, 2014. 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.

Sample SS4 DFA was transferred from a Tedlar bag into a summa canister to extend the hold time from 3 days to 30 days. Canister pressurization resulted in a dilution factor which was applied to all analytical results.

Dilution was performed on sample SS4 DFA 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

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

**Client Sample ID: SS4 DFA**

**Lab ID#: 1409191A-01A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
1,1-Difluoroethane	100000	4300000	280000	12000000



Air Toxics

Client Sample ID: SS4 DFA

Lab ID#: 1409191A-01A

EPA METHOD TO-15 GC/MS

File Name:	14092622	Date of Collection:	9/12/14 8:20:00 AM	
Dil. Factor:	5120	Date of Analysis:	9/26/14 06:53 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
1,1-Difluoroethane	100000	4300000	280000	12000000

Container Type: Client Tedlar Bag

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



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1409191A-02A

EPA METHOD TO-15 GC/MS

File Name:	14092611a	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/26/14 01:32 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	97	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	98	70-130





Air Toxics

Client Sample ID: CCV

Lab ID#: 1409191A-03A

EPA METHOD TO-15 GC/MS

File Name:	14092602	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/26/14 07:34 AM

Compound	%Recovery
1,1-Difluoroethane	100

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	97	70-130

# CHAIN OF CUSTODY RECORD

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

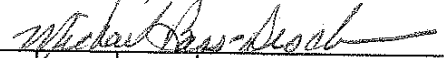
PROJECT NUMBER:

*0675*

PROJECT NAME:

*475 LESSER ST.  
 OAKLAND, CA*

SAMPLED BY: (PRINTED & SIGNATURE)

*MICHAEL BASS-DESCHENES* 

NUMBER OF CONTAINERS

ANALYSIS(ES):

*DEA  
 2-PROPANOL*

PRESERVATIVE

REMARKS

SAMPLE NUMBER

DATE

TIME

TYPE

SAMPLE LOCATION

*554 DEA  
 554 2-PROPANOL*

*9/12/14  
 "*

*0830  
 0948*

*AIR  
 "*

*1  
 1*

*X  
 X*

*NONE  
 "*

*NORMAL TAT  
 " " "*

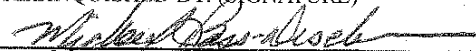
*OIA  
 OZA  
 HK  
 9/12/14*

Custody Seal Intact?

*Y N None Temp NT*

*EAT Droppoff*

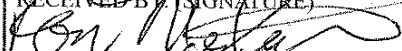
RELINQUISHED BY: (SIGNATURE)



DATE TIME

*9-12-14 1142*

RECEIVED BY: (SIGNATURE)



Total No. of Samples (This Shipment)

*2*

Total No. of Containers (This Shipment)

*2*

LABORATORY:

*EUROFINS/AIR TOXICS, INC*

RELINQUISHED BY: (SIGNATURE)

DATE TIME

RECEIVED BY: (SIGNATURE)

LABORATORY CONTACT:

LABORATORY PHONE NUMBER:

*KYLE LAGADORI*

*(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:

*TEDLAR BAG*

9/17/2014  
Mr. Paul King  
P & D Environmental  
55 Santa Clara  
Suite 240  
Oakland CA 94610

Project Name: 475 LESSER ST. OAKLAND, CA  
Project #: 0675  
Workorder #: 1409191B

Dear Mr. Paul King

The following report includes the data for the above referenced project for sample(s) received on 9/12/2014 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 Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact 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

**WORK ORDER #: 1409191B**

Work Order Summary

<b>CLIENT:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610	<b>BILL TO:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610
<b>PHONE:</b>	510-658-6916	<b>P.O. #</b>	
<b>FAX:</b>	510-834-0772	<b>PROJECT #</b>	0675 475 LESSER ST. OAKLAND, CA
<b>DATE RECEIVED:</b>	09/12/2014	<b>CONTACT:</b>	Kyle Vagadori
<b>DATE COMPLETED:</b>	09/17/2014		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
02A	SS4 2-PROPANOL	Modified TO-15 (5&20 ppbv	Tedlar Bag	Tedlar Bag
03A	Lab Blank	Modified TO-15 (5&20 ppbv	NA	NA
04A	CCV	Modified TO-15 (5&20 ppbv	NA	NA
05A	LCS	Modified TO-15 (5&20 ppbv	NA	NA
05AA	LCSD	Modified TO-15 (5&20 ppbv	NA	NA

CERTIFIED BY:   
 \_\_\_\_\_  
 Technical Director

DATE: 09/17/14

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
 TX NELAP - T104704434-13-6, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
 Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
 Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.

Eurofins Air Toxics Inc.. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.  
 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# 1409191B**

One Client Tedlar Bag sample was received on September 12, 2014. 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**

Dilution was performed on sample SS4 2-PROPANOL due to the presence of high level target species.

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.

**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

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

**Client Sample ID: SS4 2-PROPANOL**

**Lab ID#: 1409191B-02A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
2-Propanol	6700	1300000	16000	3300000



Air Toxics

Client Sample ID: SS4 2-PROPANOL

Lab ID#: 1409191B-02A

EPA METHOD TO-15 GC/MS

File Name:	14091510	Date of Collection:	9/12/14 9:48:00 AM	
Dil. Factor:	333	Date of Analysis:	9/15/14 12:11 PM	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	6700	1300000	16000	3300000

Container Type: Client Tedlar Bag

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	93	70-130

Client Sample ID: Lab Blank

Lab ID#: 1409191B-03A

EPA METHOD TO-15 GC/MS

File Name:	14091506	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/15/14 08:37 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Propanol	20	Not Detected	49	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	91	70-130





Air Toxics

Client Sample ID: CCV

Lab ID#: 1409191B-04A

EPA METHOD TO-15 GC/MS

File Name:	14091502	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/15/14 06:43 AM

Compound	%Recovery
----------	-----------

2-Propanol	79
------------	----

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	93	70-130

**Client Sample ID: LCS**

**Lab ID#: 1409191B-05A**

**EPA METHOD TO-15 GC/MS**

<b>File Name:</b>	<b>14091503</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/15/14 07:10 AM</b>

<b>Compound</b>	<b>%Recovery</b>	<b>Method Limits</b>
2-Propanol	85	70-130

**Container Type: NA - Not Applicable**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	97	70-130

**Client Sample ID: LCSD**

**Lab ID#: 1409191B-05AA**

**EPA METHOD TO-15 GC/MS**

<b>File Name:</b>	<b>14091504</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/15/14 07:33 AM</b>

<b>Compound</b>	<b>%Recovery</b>	<b>Method Limits</b>
2-Propanol	77	70-130

**Container Type: NA - Not Applicable**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	100	70-130

# CHAIN OF CUSTODY RECORD

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

**PROJECT NUMBER:**  
*0675*

**PROJECT NAME:**  
*475 LESSER ST.  
 OAKLAND, CA*

**SAMPLED BY: (PRINTED & SIGNATURE)**  
*Michael Bass-Deschenes Michael Bass-Desch*

NUMBER OF CONTAINERS	ANALYSIS(ES)		PRESERVATIVE	REMARKS
	DFA	2-PROPANOL		
1	<input checked="" type="checkbox"/>		NONE	NORMAL TAT
1	<input checked="" type="checkbox"/>		(1	" "

HC  
 11/2/14  
 01A  
 02A

*Custody Seal Intact?*  
 Y N None Temp NT  
*EAT Drapoff*

<b>RELINQUISHED BY: (SIGNATURE)</b> <i>Michael Bass-Desch</i>	<b>DATE</b>	<b>TIME</b>	<b>RECEIVED BY: (SIGNATURE)</b> <i>Ken Vela</i>	<small>Total No. of Samples (This Shipment)</small> <i>2</i>	<b>LABORATORY:</b> <i>EUROFINS/AIR TOXICS, INC</i>
<b>RELINQUISHED BY: (SIGNATURE)</b>	<b>DATE</b>	<b>TIME</b>	<b>RECEIVED BY: (SIGNATURE)</b>	<small>Total No. of Containers (This Shipment)</small> <i>2</i>	<b>LABORATORY CONTACT:</b> <i>RUE JAGADORI (916) 605-3339</i>
<b>RELINQUISHED BY: (SIGNATURE)</b>	<b>DATE</b>	<b>TIME</b>	<b>RECEIVED FOR LABORATORY BY: (SIGNATURE)</b>	<b>SAMPLE ANALYSIS REQUEST SHEET ATTACHED: ( ) YES (X) NO</b>	

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

**REMARKS:**  
*TEDLAR BAG*

9/29/2014  
Mr. Paul King  
P & D Environmental  
55 Santa Clara  
Suite 240  
Oakland CA 94610

Project Name: 475 LESSER ST. OAKLAND, CA  
Project #: 0675  
Workorder #: 1409218

Dear Mr. Paul King

The following report includes the data for the above referenced project for sample(s) received on 9/12/2014 at Air Toxics Ltd.

The data and associated QC analyzed by Modified 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 Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact 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

**WORK ORDER #: 1409218**

Work Order Summary

<b>CLIENT:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610	<b>BILL TO:</b>	Mr. Paul King P & D Environmental 55 Santa Clara Suite 240 Oakland, CA 94610
<b>PHONE:</b>	510-658-6916	<b>P.O. #</b>	
<b>FAX:</b>	510-834-0772	<b>PROJECT #</b>	0675 475 LESSER ST. OAKLAND, CA
<b>DATE RECEIVED:</b>	09/12/2014	<b>CONTACT:</b>	Kyle Vagadori
<b>DATE COMPLETED:</b>	09/29/2014		

<u>FRACTION #</u>	<u>NAME</u>	<u>TEST</u>	<u>RECEIPT VAC./PRES.</u>	<u>FINAL PRESSURE</u>
01A	AA1	Modified TO-15	6.7 "Hg	5.2 psi
01B	AA1	Modified TO-15	6.7 "Hg	5.2 psi
02A	IA1	Modified TO-15	11.2 "Hg	5 psi
02B	IA1	Modified TO-15	11.2 "Hg	5 psi
03A	IA1-DUP	Modified TO-15	4.9 "Hg	4.7 psi
03B	IA1-DUP	Modified TO-15	4.9 "Hg	4.7 psi
04A	IA2	Modified TO-15	9.4 "Hg	4.9 psi
04B	IA2	Modified TO-15	9.4 "Hg	4.9 psi
05A	Lab Blank	Modified TO-15	NA	NA
05B	Lab Blank	Modified TO-15	NA	NA
06A	CCV	Modified TO-15	NA	NA
06B	CCV	Modified TO-15	NA	NA
07A	LCS	Modified TO-15	NA	NA
07AA	LCSD	Modified TO-15	NA	NA
07B	LCS	Modified TO-15	NA	NA
07BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: 

DATE: 09/29/14

Technical Director

Certification numbers: AZ Licensure AZ0775, NJ NELAP - CA016, NY NELAP - 11291,  
TX NELAP - T104704434-13-6, UT NELAP CA009332014-5, VA NELAP - 460197, WA NELAP - C935  
Name of Accrediting Agency: NELAP/ORELAP (Oregon Environmental Laboratory Accreditation Program)  
Accreditation number: CA300005, Effective date: 10/18/2013, Expiration date: 10/17/2014.

Eurofins Air Toxics Inc. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Eurofins Air Toxics, Inc.

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

**LABORATORY NARRATIVE**  
**Modified TO-15 Full Scan/SIM**  
**P & D Environmental**  
**Workorder# 1409218**

Four 6 Liter Summa Canister (SIM Certified) samples were received on September 12, 2014. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan and SIM acquisition modes. The method involves concentrating up to 1.0 liters 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.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

<i>Requirement</i>	<i>TO-15</i>	<i>ATL Modifications</i>
ICAL %RSD acceptance criteria	<math>\leq 30\%</math> RSD with 2 compounds allowed out to <math>< 40\%</math> RSD	For Full Scan: 30% RSD with 4 compounds allowed out to <math>< 40\%</math> RSD  For SIM: Project specific; default criteria is <math>\leq 30\%</math> RSD with 10% of compounds allowed out to <math>< 40\%</math> RSD
Daily Calibration	+/- 30% Difference	For Full Scan: <math>\leq 30\%</math> Difference with four allowed out up to <math>\leq 40\%</math>; flag and narrate outliers  For SIM: Project specific; default criteria is <math>\leq 30\%</math> Difference with 10% of compounds allowed out up to <math>\leq 40\%</math>; flag and narrate outliers
Blank and standards	Zero air	Nitrogen
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

**Receiving Notes**

There were no receiving discrepancies.

**Analytical Notes**

The results for each sample in this report were acquired from two separate data files originating from the same analytical run. The two data files have the same base file name and are differentiated with a "sim" extension on the SIM data file.

A single point calibration for TPH referenced to Gasoline was performed for each daily analytical

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batch. Recovery is reported as 100% in the associated results for each CCV.

### **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.

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



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

**Client Sample ID: AA1**

**Lab ID#: 1409218-01A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
TPH ref. to Gasoline (MW=100)	17	19	71	78

**Client Sample ID: AA1**

**Lab ID#: 1409218-01B**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.087	0.13	0.28	0.43
Toluene	0.035	0.38	0.13	1.4
Ethyl Benzene	0.035	0.18	0.15	0.80
m,p-Xylene	0.070	0.76	0.30	3.3
o-Xylene	0.035	0.26	0.15	1.1

**Client Sample ID: IA1**

**Lab ID#: 1409218-02A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
TPH ref. to Gasoline (MW=100)	21	48	88	200

**Client Sample ID: IA1**

**Lab ID#: 1409218-02B**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.11	0.43	0.34	1.4
Toluene	0.043	0.64	0.16	2.4
Ethyl Benzene	0.043	0.18	0.18	0.77
m,p-Xylene	0.086	0.60	0.37	2.6
o-Xylene	0.043	0.22	0.18	0.98

**Client Sample ID: IA1-DUP**

**Lab ID#: 1409218-03A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
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**Summary of Detected Compounds**  
**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

**Client Sample ID: IA1-DUP**

**Lab ID#: 1409218-03A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
TPH ref. to Gasoline (MW=100)	16	49	65	200

**Client Sample ID: IA1-DUP**

**Lab ID#: 1409218-03B**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.079	0.44	0.25	1.4
Toluene	0.032	0.44	0.12	1.6
Ethyl Benzene	0.032	0.14	0.14	0.63
m,p-Xylene	0.063	0.56	0.27	2.4
o-Xylene	0.032	0.20	0.14	0.89

**Client Sample ID: IA2**

**Lab ID#: 1409218-04A**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
TPH ref. to Gasoline (MW=100)	19	35	79	140

**Client Sample ID: IA2**

**Lab ID#: 1409218-04B**

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Benzene	0.097	0.40	0.31	1.3
Toluene	0.039	0.48	0.15	1.8
Ethyl Benzene	0.039	0.14	0.17	0.62
m,p-Xylene	0.078	0.52	0.34	2.3
o-Xylene	0.039	0.20	0.17	0.85

Client Sample ID: AA1

Lab ID#: 1409218-01A

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

File Name:	a091817	Date of Collection:	9/12/14 7:00:00 AM
Dil. Factor:	1.74	Date of Analysis:	9/18/14 08:43 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Naphthalene	0.87	Not Detected	4.6	Not Detected
TPH ref. to Gasoline (MW=100)	17	19	71	78

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	102	70-130



Air Toxics

Client Sample ID: AA1

Lab ID#: 1409218-01B

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

<b>File Name:</b>	a091817sim	<b>Date of Collection:</b> 9/12/14 7:00:00 AM
<b>Dil. Factor:</b>	1.74	<b>Date of Analysis:</b> 9/18/14 08:43 PM

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Methyl tert-butyl ether	0.17	Not Detected	0.63	Not Detected
Benzene	0.087	0.13	0.28	0.43
Toluene	0.035	0.38	0.13	1.4
Ethyl Benzene	0.035	0.18	0.15	0.80
m,p-Xylene	0.070	0.76	0.30	3.3
o-Xylene	0.035	0.26	0.15	1.1

**Container Type: 6 Liter Summa Canister (SIM Certified)**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	98	70-130

Client Sample ID: IA1

Lab ID#: 1409218-02A

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

File Name:	a091819	Date of Collection:	9/12/14 7:02:00 AM
Dil. Factor:	2.14	Date of Analysis:	9/18/14 10:01 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Naphthalene	1.1	Not Detected	5.6	Not Detected
TPH ref. to Gasoline (MW=100)	21	48	88	200

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	91	70-130
4-Bromofluorobenzene	99	70-130



Air Toxics

Client Sample ID: IA1

Lab ID#: 1409218-02B

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

<b>File Name:</b>	<b>a091819sim</b>	<b>Date of Collection:</b> 9/12/14 7:02:00 AM
<b>Dil. Factor:</b>	<b>2.14</b>	<b>Date of Analysis:</b> 9/18/14 10:01 PM

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Methyl tert-butyl ether	0.21	Not Detected	0.77	Not Detected
Benzene	0.11	0.43	0.34	1.4
Toluene	0.043	0.64	0.16	2.4
Ethyl Benzene	0.043	0.18	0.18	0.77
m,p-Xylene	0.086	0.60	0.37	2.6
o-Xylene	0.043	0.22	0.18	0.98

**Container Type: 6 Liter Summa Canister (SIM Certified)**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	100	70-130



Air Toxics

Client Sample ID: IA1-DUP

Lab ID#: 1409218-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	a091821	Date of Collection:	9/12/14 7:02:00 AM
Dil. Factor:	1.58	Date of Analysis:	9/18/14 11:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Naphthalene	0.79	Not Detected	4.1	Not Detected
TPH ref. to Gasoline (MW=100)	16	49	65	200

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	101	70-130



Air Toxics

Client Sample ID: IA1-DUP

Lab ID#: 1409218-03B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	a091821sim	Date of Collection:	9/12/14 7:02:00 AM
Dil. Factor:	1.58	Date of Analysis:	9/18/14 11:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.16	Not Detected	0.57	Not Detected
Benzene	0.079	0.44	0.25	1.4
Toluene	0.032	0.44	0.12	1.6
Ethyl Benzene	0.032	0.14	0.14	0.63
m,p-Xylene	0.063	0.56	0.27	2.4
o-Xylene	0.032	0.20	0.14	0.89

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	100	70-130





Air Toxics

Client Sample ID: IA2

Lab ID#: 1409218-04A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	a091823	Date of Collection:	9/12/14 7:04:00 AM
Dil. Factor:	1.94	Date of Analysis:	9/19/14 12:41 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Naphthalene	0.97	Not Detected	5.1	Not Detected
TPH ref. to Gasoline (MW=100)	19	35	79	140

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	88	70-130
4-Bromofluorobenzene	104	70-130



Air Toxics

Client Sample ID: IA2

Lab ID#: 1409218-04B

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

<b>File Name:</b>	<b>a091823sim</b>	<b>Date of Collection:</b> 9/12/14 7:04:00 AM
<b>Dil. Factor:</b>	<b>1.94</b>	<b>Date of Analysis:</b> 9/19/14 12:41 AM

<b>Compound</b>	<b>Rpt. Limit (ppbv)</b>	<b>Amount (ppbv)</b>	<b>Rpt. Limit (ug/m3)</b>	<b>Amount (ug/m3)</b>
Methyl tert-butyl ether	0.19	Not Detected	0.70	Not Detected
Benzene	0.097	0.40	0.31	1.3
Toluene	0.039	0.48	0.15	1.8
Ethyl Benzene	0.039	0.14	0.17	0.62
m,p-Xylene	0.078	0.52	0.34	2.3
o-Xylene	0.039	0.20	0.17	0.85

**Container Type: 6 Liter Summa Canister (SIM Certified)**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	94	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	91	70-130



Air Toxics

Client Sample ID: Lab Blank

Lab ID#: 1409218-05A

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	a091806	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/18/14 12:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Naphthalene	0.50	Not Detected	2.6	Not Detected
TPH ref. to Gasoline (MW=100)	10	Not Detected	41	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	95	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	103	70-130



Client Sample ID: Lab Blank

Lab ID#: 1409218-05B

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	a091806sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/18/14 12:44 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methyl tert-butyl ether	0.10	Not Detected	0.36	Not Detected
Benzene	0.050	Not Detected	0.16	Not Detected
Toluene	0.020	Not Detected	0.075	Not Detected
Ethyl Benzene	0.020	Not Detected	0.087	Not Detected
m,p-Xylene	0.040	Not Detected	0.17	Not Detected
o-Xylene	0.020	Not Detected	0.087	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	88	70-130

**Client Sample ID: CCV**
**Lab ID#: 1409218-06A**
**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

<b>File Name:</b>	<b>a091802</b>	<b>Date of Collection: NA</b>
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis: 9/18/14 09:53 AM</b>

<b>Compound</b>	<b>%Recovery</b>
Naphthalene	88
TPH ref. to Gasoline (MW=100)	100

**Container Type: NA - Not Applicable**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	85	70-130
Toluene-d8	92	70-130
4-Bromofluorobenzene	108	70-130

Client Sample ID: CCV

Lab ID#: 1409218-06B

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

<b>File Name:</b>	<b>a091802sim</b>	<b>Date of Collection:</b> NA
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis:</b> 9/18/14 09:53 AM

<b>Compound</b>	<b>%Recovery</b>
Methyl tert-butyl ether	88
Benzene	87
Toluene	98
Ethyl Benzene	92
m,p-Xylene	90
o-Xylene	89

Container Type: NA - Not Applicable

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	87	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: LCS

Lab ID#: 1409218-07A

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

File Name:	a091803	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/18/14 10:32 AM

Compound	%Recovery	Method Limits
Naphthalene	75	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

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

Client Sample ID: LCSD

Lab ID#: 1409218-07AA

## MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	a091804	Date of Collection: NA
Dil. Factor:	1.00	Date of Analysis: 9/18/14 11:12 AM

Compound	%Recovery	Method Limits
Naphthalene	83	60-140
TPH ref. to Gasoline (MW=100)	Not Spiked	

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	91	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	104	70-130



Client Sample ID: LCS

Lab ID#: 1409218-07B

**MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN**

<b>File Name:</b>	<b>a091803sim</b>	<b>Date of Collection:</b> NA
<b>Dil. Factor:</b>	<b>1.00</b>	<b>Date of Analysis:</b> 9/18/14 10:32 AM

<b>Compound</b>	<b>%Recovery</b>	<b>Method Limits</b>
Methyl tert-butyl ether	91	70-130
Benzene	103	70-130
Toluene	98	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	91	70-130
o-Xylene	89	70-130

**Container Type: NA - Not Applicable**

<b>Surrogates</b>	<b>%Recovery</b>	<b>Method Limits</b>
1,2-Dichloroethane-d4	115	70-130
Toluene-d8	94	70-130
4-Bromofluorobenzene	110	70-130



Air Toxics

Client Sample ID: LCSD

Lab ID#: 1409218-07BB

MODIFIED EPA METHOD TO-15 GC/MS SIM/FULL SCAN

File Name:	a091804sim	Date of Collection:	NA
Dil. Factor:	1.00	Date of Analysis:	9/18/14 11:12 AM

Compound	%Recovery	Method Limits
Methyl tert-butyl ether	91	70-130
Benzene	103	70-130
Toluene	98	70-130
Ethyl Benzene	92	70-130
m,p-Xylene	91	70-130
o-Xylene	89	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	93	70-130
4-Bromofluorobenzene	109	70-130

# CHAIN OF CUSTODY RECORD

**P&D ENVIRONMENTAL, INC.**

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

PROJECT NUMBER:

0675

PROJECT NAME:

475 LESSER ST.  
OAKLAND, CA

SAMPLED BY: (PRINTED & SIGNATURE)

MICHAEL BASS-DESCHENES *Michael Bass-Deschenes*

SAMPLE NUMBER

DATE

TIME

TYPE

SAMPLE LOCATION

NUMBER OF CONTAINERS

ANALYSIS(ES):

TRI-C-MBEX, MATHALENE  
BY 10-15

PRESERVATIVE

REMARKS

01A  
02A  
03A  
04A

AA1

9/12/14

0700

AIR

-30 0700 -9 0700

1

X

NONE

NORMAL TAT

IA1

"

0702

"

-30 0703 -12 0702

1

X

IA1-DUP

"

0702

"

-30 0703 -6 0702

1

X

IA2

"

0704

"

-30 0705 -9 0704

1

X

Custody Seal Intact?

Y N None Temp NA

*EAT Dropoff*

RELINQUISHED BY: (SIGNATURE)

*Michael Bass-Deschenes*

DATE

9-12-14

RECEIVED BY: (SIGNATURE)

*[Signature]*

Total No. of Samples (This Shipment)

4

Total No. of Containers (This Shipment)

4

LABORATORY:

EUROFINS/AIR TOXICS INC.

RELINQUISHED BY: (SIGNATURE)

DATE

RECEIVED BY: (SIGNATURE)

LABORATORY CONTACT:

KYLE VAGADRI

LABORATORY PHONE NUMBER:

(916) 605-3339

RELINQUISHED BY: (SIGNATURE)

DATE

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:

FLOW RATE: 3.4 mL/MIN