PHASE II ENVIRONMENTAL SITE ASSESSMENT REPORT

ABC Supply Company Property
3610 SE 29th Avenue
Portland, Multnomah County, Oregon

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HAI Project No. 8426

HAI **HAHN AND ASSOCIATES, INC.**
434 NW 6TH AVENUE, SUITE 203
PORTLAND, OREGON 97209-3651
TEL 503.796.0717 • FAX 503.227.2209
www.hahnenv.com

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1.0 **SUMMARY OF FINDINGS**

Phase II Environmental Site Assessment (ESA) activities were performed at the commercial property located at 3610 SE 29th Avenue in Portland, Oregon. The work was conducted to evaluate the present condition of subsurface soils and soil gas beneath the property with regard to potential impacts of hazardous substances originating from historical automotive repair shop operations at the property; from the presence of two underground storage tanks (USTs) that were formerly located at the property; and as related to soil and debris used to fill a ravine that formerly transected the property.

In April and May 2013, work activities performed included a geophysical survey, a subsurface soil investigation, and a sub-slab soil gas investigation (i.e. vapor intrusion assessment). The geophysical survey was conducted to confirm the location and orientation of two known filled in-place USTs. Ten soil borings and three sub-slab soil gas points were completed to facilitate the collection of soil and soil gas samples at the property.

The areas targeted for investigation included the location of the two former USTs that were not previously (or adequately) assessed; an area of soil disturbance (identified via the geophysical survey) suggestive of a backfilled pit; the former shop where vehicle maintenance activities were conducted (Building A); and the filled ravine.

A summary of the findings relating to the Phase II ESA activities is presented below.

1) Geophysical Survey
   The geophysical survey confirmed the location, depth, and orientation of the two former USTs documented at the property as having been filled in-place. These USTs, and an associated former fuel pump, were located near the southwest corner of Building A. The geophysical survey also identified the location of a disturbed soil zone located near the southeastern corner of Building A that was suspected to be a backfilled excavation.

2) Subsurface Conditions

Subsurface soils beneath the northern portion of the property (Building A area) consisted of sandy silts to fine grained sands. None of the soils encountered in the Building A area exhibited field screening evidence of potential contamination.

Soil borings installed within the former ravine (Building B area) identified anthropogenic fill to depths ranging from 20 to 23 feet below ground surface (bgs) consisting predominantly of sandy silts with varying quantities of brick, concrete, glass, and organic matter such as wood and matted leaves. Field screening evidence of potential contamination (discoloration, sheen, odor) was observed in fill soil at two of the three borings installed in the former ravine area.

Except for a minor perched water zone at a depth of 15 feet bgs at one boring location, groundwater was not encountered in any boring to the maximum depth investigated at 20 feet bgs.

3) Soil Gas Testing Results

Volatile organic compounds (VOCs) were detected in each of the three sub-slab soil gas samples collected beneath Building A, but were present at concentrations below occupational risk-based screening levels for *Vapor Intrusion*. Given the existing and intended future use of the property for commercial purposes, the low levels of VOCs detected in soil gas beneath the property do not appear to pose a vapor intrusion concern for existing or future structures at the property. The detected VOCs in soil gas are suggestive of the potential presence contamination to soil or groundwater in areas beneath or near Building A.

Methane was detected in soil gas readings within open boreholes installed in the filled ravine area at concentrations up to 100% of the lower explosive limit (LEL). The detected methane is likely attributable to the decay of organic debris buried with the soils used to fill the former ravine. The primary risks relating to methane are as an explosion hazard in spaces where methane may accumulate to concentrations at or above the LEL, with at least 10% oxygen and in the presence of a heat source or spark. Methane is also a risk as an asphyxiant because of its potential to displace oxygen in confined spaces.

4) Soil Testing Results

Laboratory testing of soil samples from soil borings advanced at the two filled in-place USTs, the former fuel pump, and at the suspected backfilled excavation – all south of Building A, indicate that total petroleum hydrocarbons (TPH) were not detected above laboratory method reporting levels in any of the soil samples analyzed. Releases associated with the USTs or the potential backfilled excavation were not identified.

Laboratory testing of soil samples from borings advanced in the area of the filled ravine detected diesel- and oil-range petroleum hydrocarbons in near surface (one location) and subsurface (one location) soil at concentrations higher than the Level 2 Soil Matrix Cleanup Standard of 500 mg/kg. Expanded testing on each of these samples did not detect individual constituents of petroleum (VOCs, PAHs, PCBs, metals) at concentrations that would pose a potential unacceptable risk to human health given the paved nature and commercial use of the property.

Recommendations

Based on the results of the Phase II ESA testing activities, the following recommendations are presented:

1) Although contamination levels encountered in near-surface and subsurface soils do not appear to present a current unacceptable risk to human health based on the commercial use and paved nature of the property (preventing contact), residual petroleum-contaminated soils were identified within the filled ravine portion of the property and are possibly present beneath Building A (based on soil gas testing). If petroleum-contaminated soil is encountered during future site development activities, then special management of this soil will be necessary for removal and/or disposal purposes. Furthermore, certain uses of the contaminated soil may not be appropriate.

2) Because methane content was measured at levels greater than the LEL within subsurface soils in the former ravine area (Building B and immediate vicinity), a methane assessment within the basement of the former residence/office structure within Building B is recommended. As a guideline, and to incorporate a margin of safety, methane content within a structure that exceeds 25% of the LEL is generally considered a trigger level at which point mitigation would be deemed necessary.

3) If future site development activities are considered for the portion of the property above the former ravine, then such development should evaluate the need to incorporate methane mitigation measures into the design. Mitigation for methane hazards as related to new or existing structures typically consist of engineering controls such as incorporation of a low permeability membrane and/or a passive sub-slab ventilation system.

2.0 INTRODUCTION

On behalf of Lake Enterprises, LLC (the User), Bridgewater Group, Inc. (the Client) retained Hahn and Associates, Inc. (HAI) to conduct Phase II Environmental Site Assessment (ESA) activities at property located at 3610 SE 29th Avenue, Portland, Oregon (Figure 1).

The Phase II activities were conducted to evaluate the present condition of the property with regard to potential impacts relating to past uses and practices at the site. Specifically, Phase II ESA activities were completed to evaluate subsurface conditions at the location of two decommissioned (in-place) former vehicle fueling underground storage tanks (USTs); a former automotive maintenance shop inclusive of an adjacent backfilled excavation; as well as fill materials historically placed within a ravine that formerly traversed the subject property until approximately 1974.

3.0 BACKGROUND

3.1 Site Description

The approximate 1.62-acre property consists of three tax lots located in the NE 1/4 of the SW 1/4 of Section 12, Township 1 South, Range 1 East, Willamette Meridian (W.M.). The property is developed with an office/shop building (Building A), two open-sided outdoor storage warehouses (Buildings B and C), and a residence converted for use as office/storage space. The remainder of the property is predominantly covered with asphalt pavement.

The subject property is located in an area of mixed commercial and residential development in southeast Portland, Oregon. The property, zoned by the City of Portland as "General Commercial" is bounded to the north and east by a brewpub and associated paved parking, to the south and west by

residential development, including apartments, townhomes, and single family residences. SE 29th Avenue terminates at the northwestern portion of the subject property, beyond which are townhomes, as well as additional commercial development along SE Powell Boulevard, located approximately 140 feet north of the subject property (Figures 1 and 2).

3.2 Site History

In May 2013, HAI conducted a Phase I ESA[1] of the subject property. According to historical information as described in the Phase I ESA, the subject property was undeveloped prior to 1949, with an east-west trending ravine present across the central majority of the property. In 1951, Building A was constructed at its northern portion for mixed use as office space and a vehicle/equipment maintenance shop. Over time, the ravine received uncontrolled fill materials, including construction debris, tree parts, and possibly foundry sands, with filling completed at some time prior to 1974. The approximate boundaries of the former ravine, based on review of historical documents described in the Phase I ESA Report, is depicted on Figure 2.

In the mid-1980s, the site was graded and paved, and Buildings B and C were constructed for use as sheltered outdoor storage space. Property tenants have included construction companies (1950s-1970s), a commercial heating oil business (1970s-1980s), gasoline pump/equipment service providers (1985-1988) and building supplies wholesalers (1988-2012). Since 2012, Building A has been used for storage by the adjacent brewpub located immediately to the east. The remainder of the property has not been in use since the building supplies wholesalers vacated it in 2012.

The adjacent and nearby surrounding properties were undeveloped from at least 1925 through the late 1940s. The area located to the east was developed for commercial / light industrial use beginning in the early 1950s, while the surrounding areas located to the southeast, south, southwest, and west were developed for residential use.

Commercial / light industrial usages of the immediately adjacent property located to the east included tractor parts and repair (1950s) and a

[1] Hahn and Associates, Inc. (2013). *Phase I Environmental Site Assessment, ABC Supply Company Property, 3610 SE 29th Avenue, Portland, Multnomah County, Oregon*, May 20, 2013 (HAI Project No. 8427).

commercial heating oil business (1960s to mid-2000s). Site operations and features included several underground storage tanks used for storing gasoline, diesel fuel, and bulk heating oil; tank cleaning; hazardous waste storage; furnace repair and storage; fabrication and painting of ductwork and also small hydraulic lifts; and the distillation and evaporation of waste degreasing solvents from automotive repair shops, with the resulting residue disposed off-site as hazardous waste (early 1990s only).

3.3 Phase I ESA – Summary of Findings

The Phase I ESA (HAI, 2013) identified the following Recognized Environmental Conditions (REC), as defined by American Society for Testing and Materials (ASTM) Practice E1527-05, in which additional investigation would be necessary to document and further evaluate such condition:

1. **Fill Material:** A ravine historically extended across the subject property and the nearby areas located to the east and west, and was filled in over time, during and prior to the 1950s. Construction debris and tree parts have been identified in the ravine fill material onsite, and apparent foundry sands were also identified in the ravine fill material at a nearby site located to the west of the property. Metals and volatile organic compounds were identified in fill soil at this nearby site, as were elevated methane levels, at concentrations greater than Oregon Department of Environmental Quality (DEQ) action levels. Further, the fill material did not meet the agency's definition of clean fill and was determined to be subject to solid waste regulatory requirements if removed.

2. **Former Vehicle Maintenance Shop (Building A):** Two construction companies and a commercial fuel oil business reportedly operated at the site from about 1951 to the 1980s, during which time the eastern portion of Building A was used as a maintenance/repair shop for fleet trucks and heavy equipment. A 1994 subsurface investigation reportedly included soil sampling in the vicinity of two former USTs located to the south of Building A, and also in the vicinity of two former repair pits within the repair shop.

    a. **Former Maintenance Shop Fueling Tanks:** Two motor fuel underground storage tanks, located near the southwestern corner of Building A, were in use from the 1950s through the mid-1980s, at which time they were filled-in-place. The 1994 soil and sampling and

analysis did not detect petroleum hydrocarbons in the vicinity of the two tanks. The soil samples were reportedly collected at a depth of 15 feet below ground surface (bgs) at each tank location. Sampling was not reported to have been conducted at the location of the former fuel pump. Documentation regarding the sampling (other than sample depth), including accurate sample location information, was not available. The reported depth of sample collection (15 feet bgs) would appear too deep relative to the likely base of these tanks, based on their reported size (less than 2,000 gallon capacity). Further, the lack of documentation regarding the sampling does not allow further evaluation as to its adequacy.

b. **Lifts/Repair Pits:** The 1994 investigation of the shop area identified low levels of diesel fuel/heavy oil-range petroleum hydrocarbons (below the applicable regulatory cleanup standards) in soil samples collected from the vicinity of two pits associated with former automotive lifts. The soil sampling documentation did not include specific sample locations or depths. Further, potential impacts to the subsurface from historical auto repair activities at the Building A location, including possible releases of solvents, do not appear to have been assessed.

3. **Diesel Fuel UST Removal and Soil Excavation:** From the 1950s through the mid-1980s, a 4,000- to 5,000-gallon diesel fuel underground storage tank was in use at the central portion of the subject property, in the vicinity of Building B. In 1994, diesel fuel and heavy oil were detected in site soils in this vicinity. An area approximately 34 feet by 57 feet by 12-15 feet deep was excavated, and petroleum-contaminated soil was removed from the property for offsite disposal. However, a pocket of inaccessible petroleum-contaminated soil with concentrations exceeding the cleanup standard was left beneath the western portion of Building B. The adequacy of the cleanup and acceptability of the contamination left in place has not received regulatory review or closure.

4. **Adjacent Property - Historical Usage:** The immediately adjacent property located to the east and topographically up-gradient to cross-gradient of the subject property was reportedly used by a tractor parts and repair company (1950s) and a commercial heating oil business (1960s-mid-2000s). Site operations and features included several underground storage tanks used for storing gasoline, diesel fuel, and

bulk heating oil; tank cleaning; hazardous waste storage; furnace repair and storage; fabrication and painting of ductwork and also small hydraulic lifts; and the distillation and evaporation of waste degreasing solvents from automotive repair shops, with the resulting residue disposed as hazardous waste (early 1990s only). Investigation of the underground storage tanks has been conducted, and also a limited assessment of site soils at various locations, however residual contamination may exist.

Recommendation: A subsurface investigation should be performed at the subject property to determine whether the subsurface media at the property have been adversely impacted by historical site conditions and usages, including the presence of uncontrolled fill material; the current or former presence of underground fuel storage tanks (gasoline and diesel fuel); and former automotive repair activities. Additionally, the subsurface investigation should assess potential impacts, if any, related to historical usages of the immediately adjacent property located to the east.

3.4 Phase II ESA Scope of Work

The Phase II ESA described herein was conducted to address REC 1 (Fill Material) and 2 (Former Vehicle Maintenance Shop-Building A), as outlined in Section 3.3 above. At the request of Lake Enterprises, LLC (the User), investigation or evaluation as related to REC 3 (Pocket of Petroleum-Contaminated Soil) and REC 4 (Adjacent Property - Historical Usage) were not included as part of this Phase II ESA. Further, and also at the request of the User, an evaluation of groundwater quality beneath the subject property was not included within the scope of this Phase II ESA.

Specifically, the scope of the Phase II ESA activities included:

- A geophysical survey in the area immediately south of Building A to confirm the number and location of former fueling USTs. This was in part necessary because of apparent conflicting historical information related to USTs having been located near the southeastern corner of Building A and/or at the southwestern corner of Building A.

- A sub slab soil gas investigation beneath Building A to evaluate the potential for contamination to exist beneath the foundation of this structure to the extent that indoor air quality within the building could

be adversely impacted relative to its current and planned commercial use.

- Push probe or hand auger drilling activities to facilitate the collection and analysis of soil samples from within the former (filled) ravine; adjacent to two former (decommissioned in-place) USTs and a former fueling pump southwest of Building A; and adjacent to a suspected backfilled excavation of unknown function located southeast of Building A.

- Assessment of methane within soil gas to evaluate possible combustible gas content as may be related to natural degradation of the organic component (woody material) of fill within the boundaries of the former ravine.

4.0 **FIELD ACTIVITIES**

The completed Phase II ESA work activities can be subdivided into the following distinct investigations:

- Geophysical Survey: A tank locating / geophysical survey of the area immediately south of Building A to determine the location of the two filled in-place USTs.
- Soil Gas Sampling: Sub-slab soil gas sampling at 3 locations beneath the concrete slab for the former Shop portion of Building A with testing of soil gas samples for volatile organic compounds (VOCs), including chlorinated solvents. Also evaluation of methane content within the headspace of open borings installed within the area of the former (filled) ravine.
- Soil Boring Installation and Sampling: Soil boring installation with soil sampling and analysis at 3 locations adjacent to the filled in-place USTs near the southwestern corner Building A, and at 3 locations adjacent to a suspected backfilled excavation near the southeastern corner of Building A (based on the geophysical survey). Also, soil boring installation with soil sampling and analysis at 3 locations within the former (filled) ravine area.

4.1 Geophysical Survey

Geophysical survey activities were conducted at the subject property on April 16 and May 8, 2013 by GeoPotential, Inc. of Brightwood, Oregon and Locates Down Under, Inc., of Oregon City, Oregon, respectively.

All geophysical survey activities used a combination of magnetic and ground penetrating radar (GPR) in effort to locate USTs and/or former UST excavations. The area surveyed extended approximately 30 feet south of full southern face of Building A.

As depicted on Figure 2, one disturbed soil zone of unknown origin, identified as a possible backfilled excavation, was located south of the bay doors located near the southeastern portion of Building A. The zone of disturbed soil roughly coincided with a patch in the asphalt at this location. No suspect USTs or other features were identified as being present within this area of soil disturbance.

Further, the location and orientation of two previously known filled in-place USTs was confirmed as part of the geophysical survey activities, with these USTs being located near the southwestern corner of Building A, coinciding with two in-place fill ports (concrete filled).

The geophysical survey contractors marked the outlines of the features of interest (e.g., suspect backfilled excavation and in-place USTs) on the ground surface in white paint in order to support soil boring placement at each of these features. The GPR profile suggested the tops of the filled in-place USTs to both be at a depth of approximately 2 feet bgs, and extending eastward from the fill ports visible within the asphalt parking area. With regard to size, the northern UST was estimated to have a diameter of 4 feet and a length of 10 feet, correlating to a capacity of between 1,000 to 1,500 gallons. The southern UST was estimated to have a diameter of 5 feet and a length of 12 feet, correlating to a capacity of 2,000 gallons. The location of these filled in-place USTs is depicted on Figure 2.

4.2 Soil Gas Sampling

On April 18, 2013, three temporary sub-slab vapor monitoring points (SG-1 through SG-3) were installed within the former shop portion of the Building A interior. The three soil gas sample points were placed such that overall coverage beneath the former shop (eastern end of Building A) would be

provided and also to target the vicinity of the two apparent former hoist structures (Figure 2).

4.2.1 Sub-Slab Soil Gas Point Installation

All sub-slab soil gas sample points were installed by HAI through 1.5-inch diameter holes that were cored in the concrete floor (measured at 4- to 5-inches thick, depending on location) with a hammer drill. The hammer drill was also used to advance the hole into the underlying sub-grade soils to a total depth of 12 inches below the concrete floor surface.

The temporary soil gas sample points were constructed by placing ¼-inch diameter flexible Teflon tubing, which was open-ended and perforated on the lower 4 inches, into the borehole. Clean coarse sand was placed into the annular space within the hole to a depth of just above the base of the concrete foundation. Granular bentonite was placed in the annular space in lifts above the sand pack and hydrated to create an airtight seal at the floor surface to prevent atmospheric leakage.

The flexible Teflon tubing that protruded from the floor was connected to flexible tygon tubing. The tygon tubing was finished with a stainless steel Swagelok union. The union was then connected to a calibration tube supplied by the analytical lab and connected to a custom sample manifold that allows for purging and real-time leak testing. A leak detection enclosure was installed at the floor surface, and the sample train was then readied for purging and leak testing.

4.2.2 Soil Gas Sampling Procedures

The sub-slab soil gas samples were collected by connecting the sub-slab points to a custom sample manifold that allows for purging, leak testing, and sampling. A leak detection enclosure was installed at the connection point, and the sample train was then ready for purging, leak testing, and sampling as discussed below.

Purging

After installation, the soil gas sample points were purged of air through the sample manifold using a peristaltic pump at a low flow rate of less than 150 milliliters per minute (ml/min). The purge volume was the approximate equivalent of at least three system volumes (i.e. the volume of the open hole,

tubing, and sample manifold). Following purging, the flexible tygon tubing was pinched and closed, the calibration tube was disconnected, and the sampling port was closed with a Swagelok union and plug. The holes were allowed to set for at least two hours for equilibration before sampling. Additionally, a second purging was conducted just before sampling to remove the small volume of ambient air from the sampling manifold.

Leak Testing

Leak tests were conducted at each location to ensure that valid soil gas samples were collected and the test results are useable. The leak tests were conducted to verify that no breakthrough of atmospheric air occurred down the borehole or in the sample train. Two types of leak tests were conducted: 1) a vacuum tightness test of the sample manifold; and 2) a tracer test using helium at the surface borehole seal and at other connection points not covered by the vacuum test. The tracer leak check was conducted during both the purging and the sampling steps. A helium detector was used in the field to check for tracer gas present within the purged soil gas. The helium was detected in SS-1 at 0.01% and in SS-2 at 0.02%, both of which are well below the generally accepted leak rate of 10% (Table 1).

Soil Gas Sample Collection

Following purging, confirmation of an acceptable leak rate in the sample train, and equilibration, the soil gas samples were collected into laboratory-provided TO-17 sorbent tubes that were connected between the sample port and the manifold. Sample collection was conducted at a low-flow rate of approximately 130 ml/min. Vacuum pressure gauges on the manifold were monitored throughout the sampling process, and sample collection was terminated when the appropriate volume of air passed through the sorbent tube. All measurements, readings, and sampling information were recorded on Soil Gas Sampling Field Logs (Appendix A). Following sample collection, the sorbent tubes were appropriately capped and labeled for shipping to the analytical laboratory.

Decontamination

The soil gas sampling manifold, the only re-usable piece of equipment that comes in contact with the soil gas air flow, was decontaminated after each use by pumping ambient air through the sample manifold for over four minutes at a high rate (over 1 liter/min). This process allows for at least 100 manifold volumes of fresh air to pass through and decontaminate the

system. Prior equipment blank testing of this manifold after collection of highly-contaminated samples and manifold decontamination as described above shows that the this decontamination procedure reduces potential cross-contamination to below detectable levels.

Abandonment

After sampling the temporary sub-slab points, the tubing was pulled from the hole, the bentonite seal was compressed to seal the hole, and the core hole was patched with new concrete.

4.3 Soil Boring Installation

On April 17, 2013 six push probe soil borings were installed on the subject property, targeting the zone of soil disturbance near the southeastern corner of Building A (P-1 through P-3) and fill within the former ravine area (P-4 through P-6). The push probe borings were installed by Pacific Soil & Water, LLC, of Tigard, Oregon, with a track-mounted Power Probe hydraulic hammer unit, using 2-inch outside diameter (OD) hydraulically-driven steel rods.

Four hand auger borings (HA-1 through HA-4) were installed using a stainless steel hand auger by HAI with assistance from Soil Solutions, Inc. of Portland, Oregon on May 6 and May 10, 2013. The hand auger borings were installed in the area of the former fueling pump (HA-1) and adjacent to the two former (filled in-place) USTs (HA-2 through HA-4).

Boring installations were completed in accordance with the Oregon Groundwater Law (Oregon Revised Statute (ORS) Chapter 537) and the Rules for Construction and Maintenance of Monitoring Wells and Other Holes in Oregon (Oregon Administrative Rules (OAR) Chapter 690, Division 240).

4.4 Soil Sampling and Screening Procedures

An HAI field representative was present during investigation activities to observe and document drilling and sample collection procedures, obtain field samples, perform field screening activities, select and prepare samples for laboratory analysis, and prepare lithologic logs for each boring. A field estimate of the Unified Soil Classification System (USCS) is presented in the field logs (Appendix B).

Continuous soil cores were collected from push probe boring locations by advancing a 5-foot long, 1.5-inch inside diameter (ID) Macro-Core® sampler fitted with an acetate sleeve. Soils cuttings were removed from hand auger boring locations via the flights of the auger. All soils, either core or cuttings, were observed for soil type and the potential presence of contamination (i.e., odor, discoloration, staining, sheen, etc.). Discrete soil samples were selected from the cores or cuttings for field screening and possible laboratory analyses based on field observation of soil type or contaminant occurrence.

The soil samples were field-screened for the presence of potential contamination by the visual, olfactory, sheen test, and headspace vapor methods. The presence of sheen was assessed by placing clean tap water in a black pan and introducing approximately 5 grams of disaggregated soil into the water. Screening for the presence of organic vapors was conducted by the headspace method using a photoionization detector (PID) equipped with a 10.6 eV lamp. The results of the headspace screening are recorded on the boring log in parts per million (ppm). The headspace measurement results are intended for use as a qualitative indicator of the possible presence of contamination and used for relative comparison purposes.

Vapor headspace within push probe borings installed within the former ravine area (P4 through P-6) was monitored for methane content as a percentage of the lower explosive limit (LEL) using a Land-Tec GEM 500 landfill gas monitor. For monitoring methane content, the intake tube for the landfill gas monitor was placed within the upper foot of the open borehole after retrieval of each 5 foot section of soil core. Methane readings, recorded as % LEL are included on the field logs for borings P-4 through P-6 (Appendix B). LEL is defined as the minimum concentration of a gas or vapor necessary to support its combustion in air, with a reading of 100% LEL (or higher) indicating that the gas may be within the flammable range.

All soil samples were collected into pre-cleaned glass jars by hand using new disposable nitrile gloves. The jars were sealed with Teflon-lined lids. Sampling took place as rapidly as possible to minimize the loss of volatiles. The samples were assigned unique sample identification numbers and sealed in chilled coolers pending transport to the laboratory.

All soil boring locations are depicted on Figure 2.

4.5 Decontamination Procedures

To minimize the potential for cross-contamination between sampling locations, down-hole drilling and soil sampling equipment was thoroughly cleaned prior to initiating work and between each sampling location. All reusable drilling equipment was steam cleaned with potable water prior to use, and between boring locations. All soil sampling equipment was decontaminated after each sample using a detergent solution wash, followed by a double potable water rinse.

4.6 Investigation-Derived Waste

Decontamination water and soil sampling waste as generated at the P-6 boring location exhibited field screening evidence of contamination (sheen and odor), and therefore these materials have been containerized and are stored on-site pending a determination as to appropriate disposition. Specifically, these materials (soil and water) are being stored in two sealed and labeled plastic 5-gallon containers that have been placed at a covered and secured portion of the site (covered portion of Building B).

Decontamination water and soil sampling wastes generated at all other boring locations did not exhibit field screening evidence of contamination and therefore these materials were placed on a vegetated portion of the property.

Personnel protective equipment and disposable soil sampling equipment were disposed of as non-hazardous solid waste.

5.0 ANALYTICAL TESTS

The soil gas samples were transported under chain-of-custody documentation to ESC Lab Sciences, Inc. of Mt. Juliet, Tennessee for analysis.

The soil gas samples were analyzed for volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (EPA) Method TO-15. The results of the soil gas sample analytical testing are summarized on Table 1. The laboratory reports and chain-of-custody documentation for the soil gas testing are included in Appendix C.

The soil samples were transported with chain-of-custody documentation in sealed and chilled containers to Apex Laboratories, LLC of Tigard, Oregon for analytical testing.

In order to assess soil quality relating to potential petroleum impacts, initially a majority of selected soil samples were analyzed for hydrocarbon identification (HCID) of total petroleum hydrocarbons (TPH) by Northwest Method (NW) TPH-HCID.

Expanded testing was conducted on select soil samples to include analyses for one or more of the following:

- diesel- and oil-range petroleum hydrocarbons by NW Method TPH-Dx
- volatile organic compounds (VOCs) by EPA 8260B
- polynuclear aromatic hydrocarbons (PAHs) by EPA 8270D SIM
- polychlorinated biphenyls (PCBs) by EPA 8082A
- total Resource Conservation and Recovery Act (RCRA) metals by EPA Method 6020

The results of the soil sample analytical testing are summarized on Tables 2 through 4. The laboratory report and chain-of-custody documentation for the soil sampling and soil gas sampling activities are included in Appendix D.

6.0 RESULTS AND DISCUSSION

6.1 Subsurface Conditions

Soils within borings P-1 through P-3, installed adjacent to the southeastern portion of Building A (area of suspected backfilled excavation), encountered poorly graded fine-grained sand to the maximum depth explored at 20 feet bgs.

Soils within borings HA-1 through HA-3, installed adjacent to the southwestern portion of Building A (area of filled-in place USTs), encountered silt with less than 10% fine-grained sand to the maximum depth explored at 10 feet bgs.

Field screening of core or cuttings obtained from the soil borings described above (Building A area) did not identify field screening evidence of potential

contamination across any observed depth interval. Additionally, groundwater was not encountered to the maximum depth investigated (20 feet bgs) in borings installed in the Building A area.

With regard to the filled ravine area (borings P-4 through P-6), anthropogenic fill was encountered to depths ranging from between 20 to 23 feet bgs at all locations. Observed fill consisted predominantly of silts and sandy silts containing varying quantities of brick, concrete, glass, and organic matter such as wood fragments or matted leaves.

Field screening of soil core from borings installed within the filled ravine area suggested potential zones of contamination at the P-4 and P-6 boring locations. At boring P-4, the upper 1.5 feet of soil at this location exhibited a hydrocarbon odor and slight sheen, while at boring P-6 the core between 5 feet and the base of the boring at 25 feet bgs exhibited a hydrocarbon odor, discoloration, and sheen. Further, black sands (possible foundry sands) were observed at varying depth horizons at the boring P-6 location.

A thin zone of groundwater was encountered between a depth of 15 to 17 feet bgs at the P-6 boring location. No groundwater was encountered at the P-4 or P-5 boring locations to the maximum depth investigated at these locations of 25 and 20 feet bgs, respectively. As such, it would appear that the thin zone of saturated soil encountered at the P-6 boring is likely a laterally discontinuous zone of water perched within the fill materials.

6.2 Screening Levels

To provide a framework for evaluating the significance of findings, site data were compared to various established risk-screening levels. The screening levels discussed below are listed on Tables 1 through 5 for comparison purposes.

Exceeding one of the screening levels does not necessarily mean that cleanup is required or necessary, but would suggest that additional evaluation or investigation may be necessary to determine the need for remedial action. Only upon completion of full risk evaluation, where reasonably likely land and water uses, as well as complete exposure pathways, are considered is it determined whether unacceptable risks to human health or the environment are present that require corrective action.

With respect to human health, soil and soil gas testing results were compared to DEQ Risk-Based Concentrations (RBCs)[2]. Given the current and intended future use of the property (commercial), human health screening for soil gas and direct contact with soils was not conducted under a residential scenario. Instead, soil gas testing results were compared to occupational-based RBCs for potential vapor intrusion to indoor air, while soil testing results were compared to direct contact via occupational / commercial land use scenarios (current land use zoning), as well as construction and excavation worker scenarios since site redevelopment work may be conducted at the property in the future.

Soil testing results were also compared to indirect exposure via the leaching to groundwater pathway (residential use). This is a conservative measure since groundwater is not used on site for any purpose and nor is groundwater deemed likely used in the area of the site. However, the residential uses of properties near the site, in conjunction with the migratory nature of groundwater, suggests the need for such a comparison lacking the completion of a formal evaluation of groundwater uses (e.g., well survey) in the area.

Since RBCs are not established for oil-range petroleum hydrocarbons (except mineral oil), the testing results for the oil-range TPH in soils were compared to the DEQ Level 2 Soil Matrix Cleanup Standard of 500 milligrams per kilogram (mg/kg) (OAR 340-122-0335). These standards can be considered a "safe harbor" for cleanup purposes in soil, as no risk-based investigations or evaluation would generally be necessary for petroleum if below this level and groundwater is not impacted.

For metals in soil, concentrations were also compared to regional background concentrations as established by DEQ for the Portland Basin[3].

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[2] Oregon Department of Environmental Quality (2003). *Risk-Based Decision Making for the Remediation of Petroleum-Contaminated Sites*. September 22, 2003, RBCs updated June 2012.

[3] Oregon Department of Environmental Quality (2013). *Development of Oregon Background Metals Concentrations in Soil,* March 2013.

6.3 Soil Gas Testing Results

6.3.1 Volatile Organic Compounds

Analysis of soil gas samples collected from all three sub-slab monitoring points (SG-1 through SG-3) detected the presence of low levels of VOCs, including those typically associated with petroleum hydrocarbons and chlorinated solvents.

As summarized in Table 1, detectable concentrations of petroleum-related constituents, including benzene, toluene, ethylbenzene, and xylene (BTEX) compounds; naphthalene, trimethylbenzenes; and total gasoline-range petroleum hydrocarbons were detected in one or more of the samples. Further, the chlorinated compound tetrachloroethene (PCE) – commonly used as a drycleaning solvent, was detected at a low level in all three soil gas samples.

Although numerous VOCs were detected in soil gas immediately beneath the foundation of Building A, none of the detected concentrations were at levels higher than DEQ RBCs as established for commercially used structures.

Although the detected concentrations do not suggest an unacceptable risk to human health based on current and anticipated future uses of the property, the detections in soil gas are suggestive of the presence of contamination within soil or possibly groundwater beneath, or proximate to, the Building A structure.

6.3.2 Methane

Field measurements of methane within the open boreholes for borings P-4 through P-6, installed within the area of the former (filled) ravine, detected methane concentrations of up to 100% of the lower explosive limit (LEL) for methane (equivalent to 5% methane content in air). The highest methane concentrations were recorded within fill at the P-5 boring location, with lesser concentrations at P-6 (up to 19% of the LEL), and no detectable methane at the P-4 boring location.

The detected methane is likely attributable to the decay of organic debris buried with the soils used to fill the former ravine. The primary risks relating to methane are as an explosion hazard at concentrations at or above the

LEL, with at least 10% oxygen and in the presence of a heat source or spark; and as a risk as an asphyxiant because of its potential to displace oxygen in confined spaces.

Because methane content was measured at levels greater than the LEL within subsurface soils in the former ravine area (Building B and immediate vicinity), a methane assessment within the basement of the former residence/office structure within Building B is recommended. As a guideline, and to incorporate a margin of safety, methane content within a structure that exceeds 25% of the LEL is generally considered a trigger level at which point mitigation would be deemed necessary.

Lastly, if future site development activities are considered for the portion of the property above the former ravine, then such development should evaluate the need to incorporate methane mitigation measures into the design. Mitigation for methane hazards as related to new or existing structures typically consist of engineering controls such as incorporation of a low permeability membrane and/or a passive sub-slab ventilation system.

6.4 Soil Testing Results

6.4.1 Total Petroleum Hydrocarbons (TPH)

As summarized on Table 2, analytical testing of subsurface soil samples collected from borings installed at the suspected backfilled excavation (P-1 through P-3); and from borings installed at the former fuel pump (HA-1) and filled in-place USTs (HA-2 through HA-4) did not detect the presence of gasoline-, diesel-, or oil-range petroleum hydrocarbons at concentrations higher than the laboratory method reporting limits (MRLs). As such, no petroleum releases that would appear attributable to either the suspect backfilled excavation (southeast of Building A), or the former fuel pump and USTs (southwest of Building A) were identified through the Phase II ESA.

With regard to soil samples collected from borings installed within the filled ravine area, oil-range petroleum hydrocarbons were detected at the P-4 (southern ravine) boring location, with 5,370 mg/kg detected in near-surface soil (1 to 1.5 feet bgs) that had exhibited an odor/sheen, while 140.3 mg/kg combined diesel- and oil-range petroleum hydrocarbons were detected in a sample collected at the 7 to 7.5 foot depth interval at this location (Table 2).

Although more directly applicable evaluation of a UST release, as a general guideline because the sample collected at 7 to 7.5 feet bgs detected less the 500 mg/kg DEQ Level 2 Soil Matrix Cleanup Level, there does not appear to be concern as related to potential human health risks for soils at that depth. The near-surface detection of oil-range hydrocarbons at P-4 (5,370 mg/kg) exceeds the Soil Matrix Cleanup Level, and for that reason, and because DEQ has not established RBCs for oil-range petroleum hydrocarbons (other than mineral oil), additional characterization including constituent-specific testing was performed on this sample (described in following subsections).

Diesel-range petroleum hydrocarbons were detected at a concentration of 7,740 mg/kg in a soil sample collected from a depth of 6.5 to 7 feet bgs at the P-6 (northern ravine) boring location (Table 2). The detected diesel-range petroleum hydrocarbon concentration exceeds the 4,600 mg/kg DEQ RBC as established for protectiveness of the Construction Worker Exposure Pathway, a potentially relevant pathway if future development activities were to remove the existing paved surface and expose these soils.

Field screening of soils at boring P-6 (discoloration, sheen, petroleum odor) suggests that the vertical extent of the contaminated soil at this location may extend from depths between 5 feet through the base of the boring at 25 feet bgs.

Soil samples from boring P-4 and P-6 with the highest detected total petroleum hydrocarbon concentrations (described above) underwent expanded testing to better characterize the contamination at these locations such that a more complete evaluation of potential risks could be conducted. Results of the expanded testing are summarized in the following subsections.

6.4.2 Polychlorinated Biphenyls (PCBs)

As summarized on Table 2, analytical testing of the near-surface oil-contaminated soil sample collected from boring P-4 detected total PCBs at a concentration of 0.0294 mg/kg, which is well below the 0.56 mg/kg DEQ RBC as established for occupational exposure (the lowest RBC as established for non-residential land use). This result suggests that PCBs are not of concern with regard to the detected oil-range petroleum hydrocarbon contaminated soil at boring P-4.

6.4.3 Polynuclear Aromatic Hydrocarbons (PAHs)

As summarized on Table 3, analytical testing of the oil-contaminated near-surface soil sample from boring P-4 and the diesel-contaminated subsurface soil sample from boring P-6, detected only trace level concentrations of PAHs. The detected PAH concentrations were all below established DEQ RBCs for occupational, construction, and excavation worker exposure scenarios, as well as the leaching to residential tapwater pathway.

These data, based on current and anticipated future land use at the property, suggest that PAHs are not of concern with regard to the petroleum-impacted soil, where identified and sampled.

6.4.4 Volatile Organic Compounds (VOCs)

As summarized on Table 4, analytical testing of the oil-contaminated near-surface soil sample from boring P-4 did not detect the presence of VOCs at concentrations greater than laboratory MRLs. The diesel-contaminated subsurface soil sample from boring P-6 detected only trace level concentrations of VOCs (butylbenzenes and propylbenzenes). The detected VOC concentrations were all below established DEQ RBCs for occupational, construction, and excavation worker exposure scenarios, as well as the leaching to residential tapwater pathway.

These data, based on current and anticipated future land use at the property, suggest that VOCs are not of concern with regard to the petroleum-impacted soil, where identified and sampled.

6.4.5 Metals

As summarized on Table 5, testing for all eight Resource Conservation and Recovery Act (RCRA) metals was conducted on soil samples collected from all borings installed within the former ravine area (borings P-4 through P-6).

None of the 8 RCRA metals were detected in any sample at concentrations greater than those established by DEQ as being typical of naturally-occurring conditions.

These data suggest that metals are not of significant concern with regard to the fill material where identified and sampled within the former ravine,

including areas where petroleum contamination and suspected foundry sands were observed.

7.0 LIMITATIONS AND SIGNATURES

The information presented in this report was collected, analyzed, and interpreted following the standards of care, skill, and diligence ordinarily provided by a professional in the performance of similar services as of the time the services were performed. This report and the conclusions and/or recommendations contained in it are based solely upon research and/or observations, and physical sampling and analytical activities that were conducted.

The information presented in this report is based only upon activities witnessed by HAI or its contractors, and/or upon information provided to HAI by the Client and/or its contractors. The analytical data presented in this report document only the concentrations of the target analyte in the particular sample, and not the property as a whole.

Unless otherwise specified in writing, this report has been prepared solely for the use by the Client and for use only in connection with the evaluation of the subject property. Any other use by the Client or any use by any other person shall be at the user's sole risk, and HAI shall have neither liability nor responsibility with respect to such use.

Hahn and Associates, Inc.

Prepared by:

Rob Ede, R.G.
Principal

Date 5/28/2013

8.0 GLOSSARY OF ABBREVIATIONS

ASTM	American Society for Testing and Materials
BTEX	benzene, toluene, ethylbenzene, xylene
bgs	below existing ground surface
DEQ	Department of Environmental Quality
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
GPR	ground penetrating radar
HAI	Hahn and Associates, Inc.
HCID	hydrocarbon identification
ID	inside diameter
LEL	lower explosive limit
mg/kg	milligram per kilogram
ml/min	milliliter per minute
MRLs	method reporting limits
NW	Northwest Method
OAR	Oregon Administrative Rules
OD	outside diameter
ORS	Oregon Revised Statutes
PAHs	polyaromatic hydrocarbons
PCBs	polychlorinated biphenyls
PCE	tetrachloroethene
PID	photoionization detector
ppm	parts per million
RBCs	risk-based concentrations
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
TPH	total petroleum hydrocarbons
USCS	Unified Soil Classification System
UST	underground storage tank
VOCs	volatile organic compounds

TABLES

TABLE 1 – Summary of Soil Gas Testing Results (detections only): VOCs by EPA Method TO-15

	Sample Location ==>	SG-1	SG-2	SG-3
	Sample Depth (feet bgs) ==>	0.5 - 1.0	0.5 - 1.0	0.5 - 1.0
	Sample Number ==>	8426-130418-SG-1	8426-130418-SG-2	7695-091009-001
	Sample Date ==>	18-Apr-13	18-Apr-13	18-Apr-13
Analytical Parameters	**Screening Levels** [1] in ug/m^3 Occupational	**Laboratory Testing Results** ug/m^3		
Acetone	NE	310	380	310
Benzene	1,600.	1.28 U	1.4	1.28 U
Carbon Disulfide	NE	7.2	1.8	1.3
Chloroform	530.	11	18	14
1,4-Dichlorobenzene	1,100.	5	7.2	5.5
1,4-Dioxane	NV	47	1.44 U	4.3
Ethanol	NE	180	7.7	72
Ethylbenzene	4,900.	1.73 U	2.2	1.73 U
4-Ethyltoluene	NE	2.1	2.1	1.96 U
Dichlorodifluoromethane	NE	2.8	2.7	2.6
N-Hexane	NE	1.41 U	1.6	1.41 U
Methyl Butyl Ketone	NE	13	13	10
2-Butanone (MEK)	NE	88	120	94
4-Methyl-2-Pentanone (MIBK)	NE	19	29	19
Naphthalene	360.	19.	14.	6.6 U
2-Propanol	NE	14	6.15 U	6.15 U
Propene	NE	1.38 U	13	1.38 U
Tetrachloroethene (PCE)	47,000.	140.	140.	41.
Toluene	2.2E+07	6.8	9.8	6.
1,2,4-trimethylbenzene (TMB)	31,000.	12.	10.	7.9
1,3,5-TMB	>Pv	3.9	3.5	2.6
Xylenes	440,000.	8.2	11.4	8.5
Gasoline Range Organics	1,700,000.	990	1000	700

bgs = below ground surface
DEQ = Oregon Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
NE = DEQ RBC not established for this chemical
NV = This chemical is considered non-volatile and not a potential risk via vapor intrusion.
Pv = The air concentration for the RBC exceeds the vapor pressure for the pure chemical and therefore poses no risk via vapor intrusion.
U = Not detected above concentration indicated
1 = DEQ Risk-Based Concentration (RBC) for Soil Gas, June 2012

TABLE 2 – Soil Testing Results: Total Petroleum Hydrocarbons and PCBs

Risk-Screening Levels [1] in mg/kg (ppm)				HCID	Diesel-Range	Oil-Range	PCBs
Lowest Non-Residential RBC[2] ==>					4,600. [4]	**500.** [3]	0.56 [5]
Analytical Testing Results in mg/kg (ppm)							
Sample Location	Sample Number	Sample Date	Sample Depth (feet bgs)	NW TPH-HCID	NW-TPH-Dx		EPA 8082A
					Diesel-Range	Oil-Range	PCBs
Former Fueling USTs (decommissioned in-place)							
HA-1	8426-130506-031	6-May-13	2.0 - 2.5	Not Detected	-	-	-
HA-2	8426-130510-002	10-May-13	7.0 - 8.0	Not Detected	-	-	-
HA-3	8426-130510-004	10-May-13	7.0 - 8.0	Not Detected	-	-	-
HA-4	8426-130510-006	10-May-13	7.0 - 8.0	Not Detected	-	-	-
Backfilled Excavation - Southeast Corner Building A							
P-1	8426-130417-003	17-Apr-13	8.0 - 8.5	Not Detected	-	-	-
P-2	8426-130417-007	17-Apr-13	6.0 - 6.5	Not Detected	-	-	-
P-3	8426-130417-013	17-Apr-13	8.0 - 8.5	Not Detected	-	-	-
Filled Ravine Area							
P-4	8426-130417-016	17-Apr-13	1.0 - 1.5	-	1,080. U	**5,370.**	**0.0294**
	8426-130417-017	17-Apr-13	7.0 - 7.5	**Oil**	**58.4**	**81.9**	-
P-5	8426-130417-023	17-Apr-13	12.5 - 13.0	Not Detected	-	-	-
P-6	8426-130417-026	17-Apr-13	6.5 - 7.0	**Diesel**	**7,740.**	1,200. U	-

bgs = below ground surface
DEQ = Oregon Department of Environmental Quality
EPA = U.s. Environmental Protection Agency
mg/kg = milligrams/kilogram
NW = Northwest Method
PCBs = polychlorinated biphenyls
ppm = parts per million
TPH = total petroleum hydrocarbons
USTs = underground storage tanks
U = not detected above concentration indicated
- = Not Analyzed

1 = DEQ Risk-Based Concentration (RBC), June 2012, for indicated pathway (Non-Residential, except for Tapwater Exposure Scenario)
2 = Includes Occupational, Construction Worker, Excavation Worker, and Leaching to Residential Tapwater Pathways
3 = DEQ Level 2 Soil Matrix Cleanup Standard (OAR 340-122-0335)
4 = DEQ RBC for *Ingestion, Dermal Contact, and Inhalation - Construction Worker Exposure*
5 = DEQ RBC for *Ingestion, Dermal Contact, and Inhalation - Occupational Exposure*

Bold = Detected compound.
Bold and Highlighted = Detected concentration exceeds the lowest indicated screening level.

TABLE 3 – Soil Testing Results: PAHs by EPA 8270 SIM

Sample Location ==>	P-4	P-6
Sample Number ==>	8426-130417-016	8426-130417-026
Sample Date ==>	17-Apr-13	17-Apr-13
Sample Depth (feet bgs) ==>	1.0 - 1.5	6.5 - 7.0

Analytical Parameters	Risk Screening Levels [1] mg/kg (ppm)				Laboratory Testing Results mg/kg (ppm)	
	Leach to Tapwater (Residential)	Occupational Worker	Construction Worker	Excavation Worker	EPA Method 8270D SIM	
Acenaphthene	>Csat	61,000.	19,000.	520,000.	0.0111 U	1.66 U
Acenaphthylene	NE	NE	NE	NE	0.0122 U	0.734 U
Anthracene	>Csat	47,000.	93,000.	>MAX	0.0111 U	0.734 U
Benzo (a) anthracene	3.5	2.7	21.	590.	0.0178 U	0.118 U
Benzo (a) pyrene	0.9	0.27	2.1	59.	0.0711 U	0.118 U
Benzo (b+k) fluoranthene(s)	4.	2.7	21.	590.	0.07 U	0.118 U
Benzo (ghi) perylene	NE	NE	NE	NE	0.0489 U	0.118 U
Chrysene	>Csat	250.	2,100.	57,000.	0.0389 U	0.13 U
Dibenzo (a,h) anthracene	3.4	0.27	2.1	59.	0.0111 U	0.118 U
Fluoranthene	>Csat	29,000.	8,900.	250,000.	**0.0884**	0.178 U
Fluorene	>Csat	41,000.	12,000.	340,000.	**0.014**	**4.71**
Indeno (1,2,3-cd) pyrene	>Csat	2.7	21.	590.	0.0389 U	0.118 U
Naphthalene	0.087	23.	580.	16,000.	**0.0185**	0.213 U
Phenanthrene	NE	NE	NE	NE	0.0789 U	**10.7**
Pyrene	>Csat	21,000.	6,700.	190,000.	**0.112**	**0.383**

bgs = below ground surface
>Csat = The soil RBC exceeds the limit of three-phase partitioning.
DEQ = Oregon Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
mg/kg = milligrams/kilogram
NE = not established
PAHs = polynuclear aromatic hydrocarbons
ppm = parts per million
U = not detected above concentration indicated

1 = DEQ Risk-Based Concentration (RBC), June 2012, for indicated pathway (Non-Residential, except for Tapwater Exposure Scenario)
>Max = The RBC is greater than 1,000,000 mg/kg therefore, this substance is not a risk in the indicated scenario.

Bold = Detected compound
Bold and Highlighted = Detected concentration exceeds the lowest indicated screening level.

TABLE 4 – Soil Testing Results: VOCs by EPA Method 8260B

	Sample Location ==>	P-4	P-6
	Sample Number ==>	8426-130417-016	8426-130417-026
	Sample Date ==>	17-Apr-13	17-Apr-13
	Sample Depth (feet bgs) ==>	1.0 - 1.5	6.5 - 7.0
Analytical Parameters	**Risk Screening Levels** [1] mg/kg (ppm) Non-Residential [2]	**Laboratory Testing Results** mg/kg (ppm)	
VOCs by EPA Method 8260B			
Benzene	0.053 [4]	0.016 U	0.034 U
Toluene	140. [4]	0.064 U	0.044 U
Ethylbenzene	0.16 [4]	0.032 U	0.069 U
Xylenes	25. [4]	0.032 U	0.138 U
n-Butylbenzene	NE	0.064 U	**0.814**
sec-Butylbenzene	NE	0.064 U	**0.58**
Isopropylbenzene	24,000. [5]	0.064 U	**0.291**
n-Propylbenzene	NE	0.032 U	**0.478**
Naphthalene	0.087 [4]	0.127 U	0.579 U
Tetrachloroethene	0.64 [4]	0.032 U	0.275 U
Trichloroethene	0.02 [4]	0.032 U	0.069 U
Vinyl Chloride	0.00051 [4]	0.032 U	0.069 U
Other VOCs	varies	U	U

bgs = below ground surface
DEQ = Oregon Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
mg/kg = milligrams/kilogram
NE = DEQ RBC is not established for this parameter
ppm = parts per million
U = not detected above concentration indicated
VOCs = volatile organic compounds

Bold = Detected compound
1 = DEQ Risk-Based Concentration (RBC), June 2012, for indicated pathway (Non-Residential, except for Tapwater Exposure pathway - where a Residential tapwater pathway was evaluated
2 = Lowest RBC fo Non-Residential Land Use - includes Occupational, Construction Worker, Excavation Worker, and the Leaching to Residential Tapwater Pathways.
3 = DEQ RBC for Vapor Intrusion into Buildings
4 = DEQ RBC for Leaching to Residential Tapwater
5 = DEQ RBC for Ingestion, Dermal Contact, Inhalation - Construction Worker

TABLE 5 – Soil Testing Results: Total Metals by EPA Method 6020

	Sample Location ==>	P-4	P-5	P-6	
	Sample Number ==>	8426-130417-017	8426-130417-023	8426-130417-026	
	Sample Date ==>	17-Apr-13	17-Apr-13	17-Apr-13	
	Sample Depth (feet bgs) ==>	7.0 - 7.5	12.5 - 13.0	6.5 - 7.0	
Analytical Parameters	**Screening Levels** [1] – mg/kg (ppm)		**Laboratory Testing Results** mg/kg (ppm)		
	Non-Residential [2]	Background [6]			
Arsenic	1.7 [3]	8.8	4.21 U	5.38	5.72
Barium	60,000. [4]	790.	145.	189.	203.
Cadmium	150. [4]	0.63	1.33 U	1.27 U	1.39 U
Chromium	460,000. [4]	76.	15.2	18.3	16.4
Lead	30. [5]	79.	57.6	15.4	57.2
Mercury	93. [4]	0.23	0.106 U	0.102 U	0.111 U
Selenium	NE	0.71	2.66 U	2.54 U	2.78 U
Silver	1,500. [4]	0.82	1.33 U	1.27 U	1.39 U

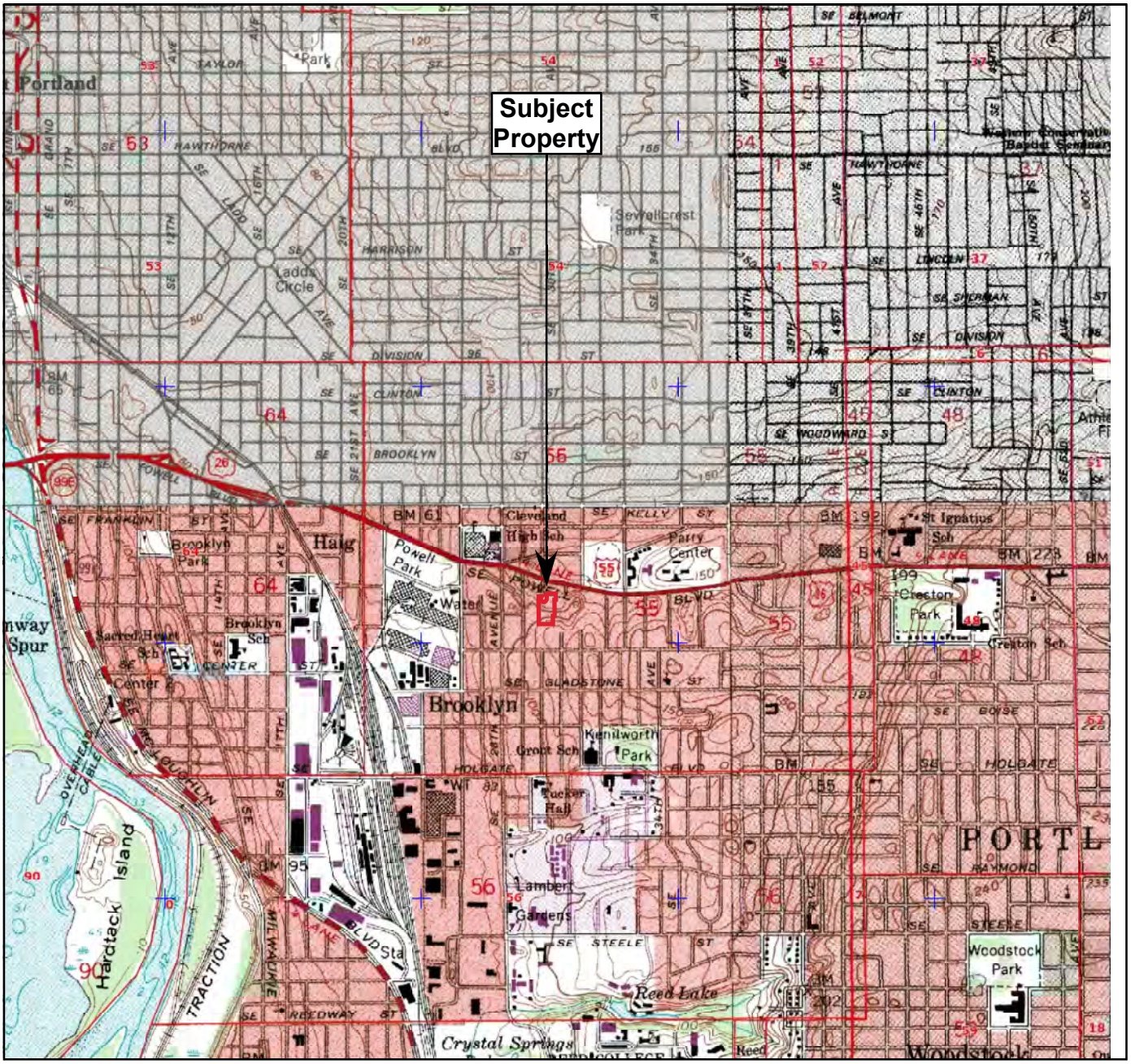
bgs = below ground surface
DEQ = Oregon Department of Environmental Quality
EPA = U.S. Environmental Protection Agency
mg/kg = milligrams/kilogram
mg/L = milligrams/liter
NE = Not Established
ppm = parts per million
RCRA = Resource Conservation and Recovery Act
TCLP = toxicity characteristic leaching procedure
U = not detected above concentration indicated

1 = DEQ Risk-Based Concentration (RBC), June 2012, for indicated pathway

2 = Lowest RBC for Non-Residential Land Use (includes Occupational, Construction Worker, and Excavation Worker), but includes Leaching to Residential Tapwater
3 = Occupational Exposure
4 = Construction Worker Exposure
5 = Leaching to Residential Tapwater
6 = DEQ Default Background Concentrations for Metals (95% Upper Prediction Limit Value - Portland Basin Region), March 2013

Bold = Detected concentration exceeds naturally-occurring background levels
Bold and Highlighted = Detected concentration Exceeds naturally-occurring background and the lowest indicated screening level.

FIGURES



Note:
Base Map from the Lake Oswego, Oregon (1984) and Portland (1990)
USGS 7.5-Minute Quadrangle
Contour Intervals: 10 Feet

NORTH

1"=2000'

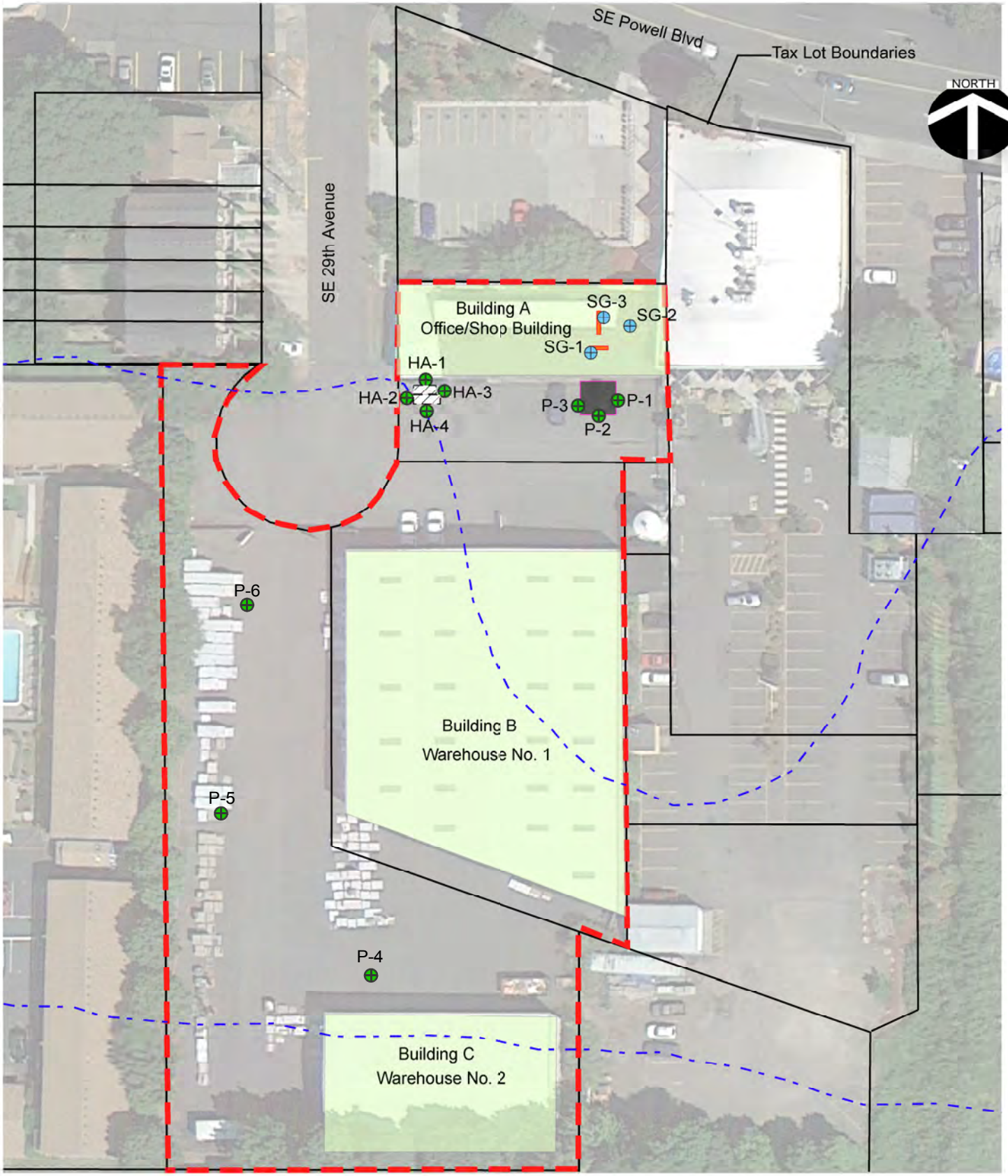
0 1000 2000 4000

Scale in Feet

FIGURE 1
Location Map

Phase II Environmental Site Assessment
Approximate 1.6-Acre Property
3610 SE 29th Avenue
Portland, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 8426 May 2013



LEGEND

- Subject Property
- Soil Boring
- Sub-Slab Vapor Monitoring Point
- Site Structure
- Limit of Filled Ravine
- Former Hoist Location
- In-Place UST (decommissioned)
- Backfilled Excavation

1"=60'

0 30 60 120

Approximate Scale 1 inch = 60 feet

FIGURE 2
Site Map
Phase II Environmental Site Assessment
3610 SE 29th Avenue
Portland, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 8426 May 2013

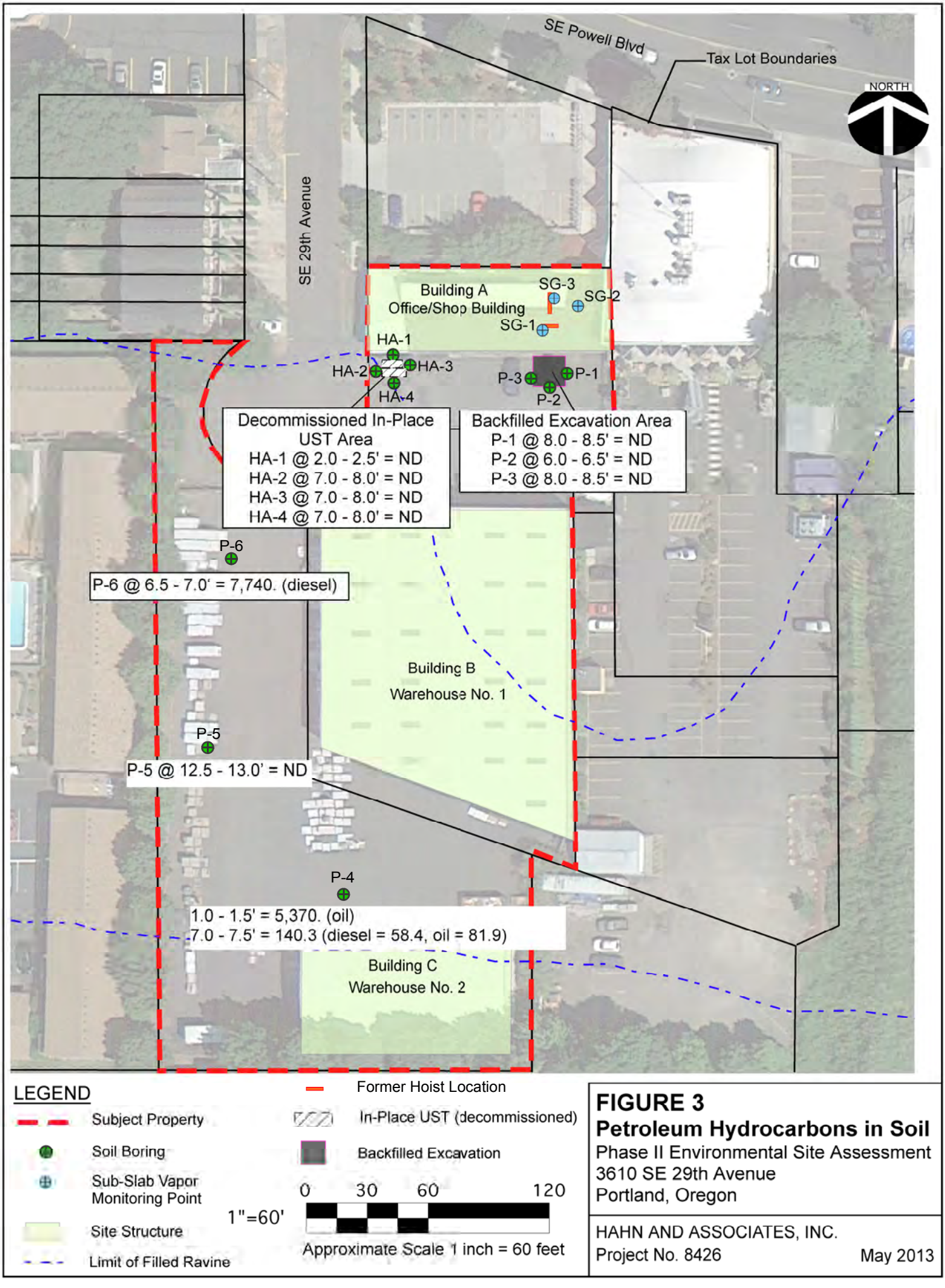


FIGURE 3
Petroleum Hydrocarbons in Soil
Phase II Environmental Site Assessment
3610 SE 29th Avenue
Portland, Oregon

HAHN AND ASSOCIATES, INC.
Project No. 8426 May 2013

APPENDICES

APPENDIX A

Soil Gas Sampling Field Logs

Soil Gas Sampling Field Log: From Direct Push Boring

Page 1 of 1

Location Number: SG- 1

Date: 4-18-13

Project Information	
Project Name:	ABC INV
HAI Project Number:	8426

Sampling Information	
Field Team:	JCK
Type of Sample:	Sub-Slab or Subsurface
Surface Seal:	Hydrated Bentonite
Downhole Sample System:	
Sample Manifold:	Custom by: HAI
Tubing (dia. & type):	1/4-inch Teflon-lined
Flow Rate (ml/min):	200
Purge Method:	Peristaltic Pump
Sample Method:	
Leak Detection Methods:	
1) Vacuum Test of Sample Train	
2) Real time leak check with tracer gas	
Leak Check Compound:	Helium
Decontamination Method:	100X Air Rinse

Borehole Information (SP = Sand Pack; OH = Open Hole)

Hole Diameter (in)	Borehole Depth (ft bgs)	SP or OH Interval (ft bgs)		SP or OH Length (feet)
1.25	1			0.0

Calculation of Purge Volume (1 = Assume sand pack is open hole)

SP or OH Volume[1] (ml)	Sample Train Vol (ml)	Purge Volumes (ml) 1X	Purge Volumes (ml) 2X	Purge Rate (ml/min)	Purge Duration (min)
350	50	400	800	200	4 ~~0.0~~

Calculation of Decontamination Volume for Air Rinse Method

Manifold Length (ft)	Purge Volumes (ml) 1X	Purge Volumes (ml) 100X	Decon. Rate (ml/min)	Decon. Duration (min)
4	40	4,000	1,000	4.0

1.5" hole = 350 ml/ft 2" hole = 620 ml/ft 1/4" tubing = 10 ml/ft

Sample Containers

No. of Containers	Container Type	Analytical Methods
1 (A8721)	1 L Summa	TO-15
Laboratory	ESC	

Purge and Sample Log (Note: all pressures are vacuum)

Time	Elapsed Time (min)	Pump-Side Vacuum (in Hg)	Sample-Side Vacuum (in Hg)	Ground-Side Vacuum (in Hg)	Flow Rate (ml/min)	Helium Level (%)	Task	Comment
8:23		0	0	0			Gauge Readings at Atmospheric (i.e. zero)	
8:24	0	13	12	10.5			Begin Vacuum Tightness Test on Manifold	
8:26	2	13	12	10.5			End Vacuum Tightness Test on Manifold	
8:35	1	2		2	180		Begin Purge	
8:36	2	2		3	180			
8:39	4	2		3	180		End Purge	
8:35 –	8:39	(check	throughout	Purge)	<	0.06%	Conduct Leak Check Tracer Test	
8:40	0		30	2	180-100		Begin Sample	Jumpy flow indicat
8:44	4		25	2	"			First
8:46	6		20	2	180-200			
8:47	7		15	3	180-200			
8:48	8		10	3	180-200			
8:49	9		5	3	160-180		End Sample	
							Sample Number:	8426-130418-SG-1
8:49	Check	after	summa	sampling		0.14%	Conduct Leak Check Tracer Test	
8:52	0				1,000		Begin Decontamination of Manifold	Air Rinse Method
8:56	4				1,000		End Decontamination of Manifold	

Soil Gas Sampling Field Log: From Direct Push Boring

Location Number: SG-2

Page 1 of 1

Date: 4-18-13

Project Information	
Project Name:	ABCINV
HAI Project Number:	8426
Sampling Information	
Field Team:	JCK
Type of Sample:	(Sub-Slab) or Subsurface
Surface Seal:	Hydrated Bentonite
Downhole Sample System:	Teflon-lined tubing
Sample Manifold:	Custom by: HAI
Tubing (dia. & type):	1/4-inch Teflon-lined
Flow Rate (ml/min):	200
Purge Method:	Peristaltic Pump
Sample Method:	1 L Summa
Leak Detection Methods:	
1) Vacuum Test of Sample Train	
2) Real time leak check with tracer gas	
Leak Check Compound:	Helium
Decontamination Method:	100X Air Rinse

Borehole Information (SP = Sand Pack, OH = Open Hole)

Hole Diameter (in)	Borehole Depth (ft bgs)	SP or OH Interval (ft bgs)		SP or OH Length (feet)
1.25	1			0.0

Calculation of Purge Volume (1 = Assume sand pack is open hole)

SP or OH Volume[1] (ml)	Sample Train Vol (ml)	Purge Volumes (ml) 1X	Purge Volumes (ml) 2X	Purge Rate (ml/min)	Purge Duration (min)
350	50	400	800	200	4 ~~6.0~~

Calculation of Decontamination Volume for Air Rinse Method

Manifold Length (ft)	Purge Volumes (ml) 1X	Purge Volumes (ml) 100X	Decon. Rate (ml/min)	Decon. Duration (min)
4	40	4,000	1,000	4.0

1.5" hole = 350 ml/ft 2" hole = 620 ml/ft 1/4" tubing = 10 ml/ft

Sample Containers

No. of Containers	Container Type	Analytical Methods
1 (A8559)	1 L Summa	TO-15
Laboratory	ESC	

Purge and Sample Log (Note: all pressures are vacuum)

Time	Elapsed Time (min)	Pump-Side Vacuum (in Hg)	Sample-Side Vacuum (in Hg)	Ground-Side Vacuum (in Hg)	Flow Rate (ml/min)	Helium Level (%)	Task	Comment
9:09		0	0	0			Gauge Readings at Atmospheric (i.e. zero)	
9:10	0	13.5	12.5	11			Begin Vacuum Tightness Test on Manifold	
9:12	2	13.5	12.5	11			End Vacuum Tightness Test on Manifold	
9:20	1	4		2	180-200		Begin Purge	
9:22	2	4		2	180-200			
9:24	4	4		2	180-200		End Purge	
9:20-9:24	(Checked while purging)					0.44%	Conduct Leak Check Tracer Test	
9:25	0		30	2	110-180		Begin Sample	Jumpy flow meter
9:29	4		25	2	160-180			
9:32	7		20	3	160-180			
9:33	8		15	3	180			
9:34	9		10	3	180			
9:35	10		5	3	180		End Sample	
							Sample Number:	8426-130418-SG-2
9:35						0.84%	Conduct Leak Check Tracer Test	
9:37	0				1,000		Begin Decontamination of Manifold	Air Rinse Method
9:41	4				1,000		End Decontamination of Manifold	

Soil Gas Sampling Field Log: From Direct Push Boring

Page 1 of ____

Location Number: SG- 3

Date: 4-18-13

Project Information	
Project Name:	ABC INV
HAI Project Number:	8426
Sampling Information	
Field Team:	JCK
Type of Sample:	(Sub-Slab) or Subsurface
Surface Seal:	Hydrated Bentonite
Downhole Sample System:	teflon-lined tubing
Sample Manifold:	Custom by: HAI
Tubing (dia. & type):	1/4-inch Teflon-lined
Flow Rate (ml/min):	200
Purge Method:	Peristaltic Pump
Sample Method:	1 L Summa
Leak Detection Methods:	
1) Vacuum Test of Sample Train	
2) Real time leak check with tracer gas	
Leak Check Compound:	Helium
Decontamination Method:	100X Air Rinse

Borehole Information — SP = Sand Pack — OH = Open Hole

Hole Diameter (in)	Borehole Depth (ft bgs)	SP or OH Interval (ft bgs)		SP or OH Length (feet)
1.25	1			0.0

Calculation of Purge Volume — 1 = Assume sand pack is open hole

SP or OH Volume[1] (ml)	Sample Train Vol (ml)	Purge Volumes (ml) 1X	Purge Volumes (ml) 2X	Purge Rate (ml/min)	Purge Duration (min)
350	50	400	800	200	4 ~~0.0~~

Calculation of Decontamination Volume for Air Rinse Method

Manifold Length (ft)	Purge Volumes (ml) 1X	Purge Volumes (ml) 100X	Decon. Rate (ml/min)	Decon. Duration (min)
4	40	4,000	1,000	4.0

1.5" hole = 350 ml/ft 2" hole = 620 ml/ft 1/4" tubing = 10 ml/ft

Sample Containers

No. of Containers	Container Type	Analytical Methods
1 (A8727)	1 L Summa	To-15
Laboratory	ESC	

Purge and Sample Log (Note: all pressures are vacuum)

Time	Elapsed Time (min)	Pump-Side Vacuum (in Hg)	Sample-Side Vacuum (in Hg)	Ground-Side Vacuum (in Hg)	Flow Rate (ml/min)	Helium Level (%)	Task	Comment
9:57		0	0	0			Gauge Readings at Atmospheric (i.e. zero)	
9:58	0	13	12	10.5			Begin Vacuum Tightness Test on Manifold	
10:00	2						End Vacuum Tightness Test on Manifold	
10:05	1	2		2	180		Begin Purge	
10:07	2	2		3	180			
10:09	4	2		2	180		End Purge	
10:05-10:09	(Monitored while purging)				<	0.04%	Conduct Leak Check Tracer Test	
10:10	0		30	3	110-180		Begin Sample	Jumpy flow meter
10:15	5		25	3	160-180			
10:17	7		20	3	180-200			
10:18	8		15	3	180-200			
10:19	9		10	3	180-200			
10:20	10		5	3	180-200		End Sample	
							Sample Number:	8426-130418-SG3
10:20						0.08%	Conduct Leak Check Tracer Test	
10:23	0				1,000		Begin Decontamination of Manifold	Air Rinse Method
10:27	4				1,000		End Decontamination of Manifold	

APPENDIX B

Soil Boring Field Logs

HAHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PROJECT: ABCINV

PROJECT No. 8426

PUSH PROBE NUMBER P-1

Page 1 of 1

HAI LOGGER: J. Kerin
SAMPLING METHOD: 1.5" ID, 5' long Macrocore
DRILLING METHOD: Direct Push
EQUIPMENT TYPE
DRILLER: Neil & Brad
DRILLING CONTRACTOR: P S+W

DRILL START	DRILL FINISH
Time: 8:23	Time: 8:51
Date: 4-17-13	Date: 4-17-13

BORING DIAMETER: 2.25"
CASING DIAMETER: N/A
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
ASPHALT							1			ASPHALT	0-0.5' bgs- Asphalt, Pea Gravel
							2			GW	0.5-1' bgs - Gravelly SILT, concrete bits, fill? dry, loose, no O,S,D
							3				1-5' bgs SAND - fine, brown poorly graded, packed, dry, no O,S,D
	001	8:30	ND				4				
							5				5-6 Slough
							6			SP	6-10' bgs- Same AA no O,S,D
	002	8:38	ND				7				
							8				
	003	8:40	ND				9				
							10				
							11				10-10.5' bgs- Slough
							12				10.5-15' bgs- Same AA, no O,S,D slightly moist
	004	8:43	ND				13				
							14				
3/8" Bentonite Chips							15				
							16				15-15.5' bgs- Slough
							17				15.5-19.8' bgs- Same AA No O,S,D
							18				19.8-20' bgs - sandy SILT/silty SAND brown w/ orange mottles, soft moist, NAN plastic, no O,S,D
							19				
	005	8:47	ND				20			ML/SM	

End of Boring

* Sample No. Prefix:

GW Sample Info: No GW Sampled

OSD = odor, sheen by sheen test, discoloration

8426-130417-

HAHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PROJECT: ABC INV

PROJECT No. 5426

PUSH PROBE NUMBER P- 2

Page 1 of 1

HAI LOGGER: J. Kerin
SAMPLING METHOD: 1.5" ID, 5' long Macrocore
DRILLING METHOD: Direct Push
EQUIPMENT TYPE
DRILLER: Neil & Brad
DRILLING CONTRACTOR: P S W

DRILL START	DRILL FINISH
Time: 9:00 ~~9:51~~	Time: 9:45
Date: 4-17-13	Date: 4-17-13

BORING DIAMETER: 2.25"
CASING DIAMETER: N/A
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
Asphalt							1			ASPHALT	0-0.5' bgs - Asphalt, Pea gravel
							2			GW	0.5-1' bgs - gravelly silt, Sand w/ concrete fragments (fill) s. moist no O,S,D
							3				1-5' bgs - SAND, fine-grained, brown, s. moist, poorly graded no O, S, D
							4				
	006	9:05	ND				5				5-5.5' bgs - Slough
							6				5.5-10' bgs - SAND (same AA) no O, S, D
	007	9:10	ND				7				
							8			SP	
	008	9:12	ND				9				
							10				
							11				10-10.5' bgs - Slough
	009	9:15	ND				12				10.5-15' bgs - Same AA no O,S,D
							13				
							14				
3/8" Bentonite Chips							15				
							16				15-15.5' bgs - Slough
							17				15.5-20' bgs - Same AA - No O,S,D
	010	9:30	0.1				18				
							19				
							20				

End of Boring

* Sample No. Prefix:

GW Sample Info:

OSD = odor, sheen by sheen test, discoloration

8426-130417-

NO GW Sampled

HAHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PROJECT: ABCINV

PROJECT No. 8426

PUSH PROBE NUMBER P-3

HAI LOGGER: J. Herm
SAMPLING METHOD: 1.5" ID, 5' long Macrocore
DRILLING METHOD: Direct Push
EQUIPMENT TYPE
DRILLER: Neil & Brad
DRILLING CONTRACTOR: PSW

DRILL START	DRILL FINISH
Time: 10:06	Time: 10:25
Date: 4-17-13	Date: 4-17-13

BORING DIAMETER: 2.25"
CASING DIAMETER: N/A
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
Asphalt							1			Asphalt	0-0.5' bgs Asphalt, Pea gravel
							2			GW	0.5-1' bgs - gravelly silty SAND w/ concrete fragments no O,S,D (fill)
							3				1-5' bgs - SAND, fine-grained, poorly graded, loose, brown, no O,S,D
	011	10:04	ND				4				
							5				
	012	10:08	ND				6				5-10' bgs - Same AA, no O,S,D
							7				
							8			SP	
	013	10:11	ND				9				
							10				10-10.5' bgs - Slough
							11				10.5-15' bgs - Same AA, except slightly moist, no O,S,D
	014	10:15	ND				12				
							13				
							14				
3/8" Bentonite Chips							15				
							16				15-20' bgs - Same AA no O,S,D
							17				
	015	10:18	ND				18				
							19				
							20				

End of Boring

* Sample No. Prefix:

GW Sample Info:

OSD = odor, sheen by sheen test, discoloration

8426-130417-

No GW Sampled

HAHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PUSH PROBE NUMBER P- 4

Page 1 of 2

PROJECT: ABCINV

PROJECT No. 8426

HAI LOGGER: J. Kerin
SAMPLING METHOD: 1.5" ID, 5' long Macrocore
DRILLING METHOD: Direct Push
EQUIPMENT TYPE
DRILLER: Neil & Brad
DRILLING CONTRACTOR: P S & W

DRILL START	DRILL FINISH
Time: 11:10	Time: 11:45
Date: 4-17-13	Date: 4-17-13

BORING DIAMETER: 2.25"
CASING DIAMETER: N/A
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)
ASPHALT										ASPHALT
							1			GW
	016	11:20	1.2							ML
	HCID	Dx w/ Silica Gel					2			ML
	TPH									Rock Fragments
							3			
		Methane 0% (0% LEL)								
							4			ML
							5			
							6			
							7			
	017	11:27	ND							
	HCID						8			
		Methane 0% (0% LEL)								
							9			
							10			
							11			
		Methane 0% (0% LEL)					12			
							13			
	018	11:30	0.4							
3/8" Bentonite Chips							14			
							15			
							16			
							17			
		Methane 0% (0% LEL)								
							18			
	019	11:34	ND							SM
							19			
							20			

SOIL DESCRIPTION

0-0.5' bgs - Asphalt, pea gravel
0.5-1' bgs - Sandy gravelly SILT, well-graded, loose, brick fragments, No O,S,D
1-1.5' bgs - Silt w/ gravel, wood fragments, gray color, hc odor, sheen by sheen test
1.5-2' bgs - SILT, brown w/ orange mottles, s. moist, plastic, soft, no O,S,D
2-3.5' bgs - pulverized rock, brick fragments, dry, powder, no O,S,D
3.5-4' bgs - SILT w/ some coarse sand, brown w/ orange mottles, s. moist, soft, mod. plastic, No O,S,D
5-5.5' bgs - Slough
5.5-10' bgs - SILT (Same AA), No O,S,D, some wood fragments, cement gravel
10-10.5' bgs - Slough
10.5-11.5' bgs - Same AA, no O,S,D
11-15' bgs - SILT w/ fine sands, dk. brown, soft, moist, non-plastic, No O,S,D
15-17.5' bgs - Same AA except more firm, No O,S,D
17.5-20' bgs - fine silty SAND, orange-brown, small wood fragments, brick, s. moist, loose, No O,S,D

* Sample No. Prefix: 8426-130417-

GW Sample Info: No GW Sampled

OSD = odor, sheen by sheen test, discoloration

HAHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PROJECT: ABC INV

PROJECT No. 8426

PUSH PROBE NUMBER P-4

HAI LOGGER: J. Kerin
SAMPLING METHOD: 1.5" ID, 5' long Macrocore
DRILLING METHOD: Direct Push
EQUIPMENT TYPE:
DRILLER: Neil & Brad
DRILLING CONTRACTOR: P S & W

DRILL START	DRILL FINISH
Time: 11:10	Time: 11:45
Date: 4-17-13	Date: 4-17-13

BORING DIAMETER: 2.25"
CASING DIAMETER: N/A
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
- 3/8" Bentonite Chips							20				20-21- Sloogh
							21				21-25' bgs- Sand w/ some silt, fine-grained, brown, poorly graded, dry, loose, No O.S.D - layering apparent (Native characteristic
							22			SW-SM	
	020	11:45	ND				23				
	Methane		0%	(0% LEL)			24				
							25				
							26			End of Boring	
							27				
							28				
							29				
							30				
							31				
							32				
							33				
							34				
							35				
							36				
							37				
							38				
							39				
							40				

* Sample No. Prefix:
8426-130417-

GW Sample Info:
NO GW Sampled

OSD = odor, sheen by sheen test, discoloration

HAHN AND ASSOCIATES, INC. 434 NW Sixth Avenue Portland, Oregon 97209 (503) 796-0717	PUSH PROBE NUMBER P-5	Page 1 of 1
PROJECT: ABC INV	HAI LOGGER: J. Kerin SAMPLING METHOD: 1.5" ID, 5' long Macrocore DRILLING METHOD: Direct Push EQUIPMENT TYPE DRILLER: Neil & Brad DRILLING CONTRACTOR: PSIW	DRILL START Time: 12:18 Date: 4-17-13 DRILL FINISH Time: 14:00 Date: 4-17-13
PROJECT No. 8426	BORING DIAMETER: 2.25" CASING DIAMETER: N/A SURFACE ELEVATION: Not Surveyed TOP OF CASING ELEVATION: N/A	

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
ASPHALT										ASPHALT	0-0.5' bgs - ASPHALT, Pea gravel
							1			GW	0.5-1.5' bgs - Gravel w/ sand, silt (fill) well graded, dry, loose, no O, S, D
3/8" Bentonite Chips	methane 1.6% (31% of LEL)						2				
		1.3% 27% of LEL									1.5-4' bgs - fine sandy SILT, dk. brown, wood fragments, s. moist, non-plastic, no O, S, D
							3				
	021	12:34	0.6								
							4			ML	
							5				
							6				5-10' bgs - Same AA no O, S, D
	methane 3.0% (60% of LEL)						7				
		2.3% (46% of LEL)									
	022	12:37	0.1				8				
							9				
							10				
							11				10-13.5' bgs - Same AA, except more moist, soft - glass fragments observed @ 12.8' bgs no O, S, D
	methane 2.3% (50% of LEL)						12				
		1.5% 31% of LEL									
	023 HC=ID	12:42	0.8				13				
							14				
							15				
							16				15-19.8' bgs - Same AA, more organic matter (wood, leaves), more moist, no O, S, D
	methane 3.5% (69% of LEL)										
		4.1% (84% of LEL)					17				
	024	12:50	ND				18				19.8'-20' bgs - SAND, dk-brown/grey, loose, s. moist, no O, S, D poorly Graded
							19				
	methane 4.5% (90% of LEL)										
	4 min after 1-hour "airing out"						20			SP	

└ End of Boring

* Sample No. Prefix: 8426-130417

GW Sample Info: No GW Sampled

OSD = odor, sheen by sheen test, discoloration

HAHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PUSH PROBE NUMBER P-6

PROJECT: ABC INV	HAI LOGGER: J. Kerin	DRILL START	DRILL FINISH
	SAMPLING METHOD: 1.5" ID, 5' long Macrocore	Time: 14:17	Time: 15:40
	DRILLING METHOD: Direct Push		
	EQUIPMENT TYPE		
	DRILLER: Neil & Brad	Date: 4-17-13	Date: 4-17-13
PROJECT No. 8426	DRILLING CONTRACTOR: PS & W		

BORING DIAMETER: 2.25"
CASING DIAMETER: N/A
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
Asphalt										ASPHALT	0-0.5' bgs - Asphalt, road gravel
							1			GW	0.5-2' bgs - gravelly silty sand,
	Methane	0%	(0% of	LEL)							(fill) loose, dry, no O,S,D
	025	14:25	0.2				2				
							3				
							4				
							5				
											5-10' bgs - SILT, grey, moist
	Methane	0%	(0% of	LEL)			6			ML	soft HC odor, some sand (black)
	026	14:35	86.1								sheen by sheen test
	HCID	Dx, Metals					7				
		↓ w/ Silica Gel Cleanup					8				
							9				
							10				10-13.5' bgs - same AA
											hc odor, grey, sheen by sheen test
							11				some sand/black
3/8" Bentonite Chips	Methane	0%	(0% of	LEL)			12				
	027	14:40	47.3								
							13				
							14			Refusal step NW 4' re-do	
							15				
							16				
							17				
							18				
							19				
							20				

* Sample No. Prefix: 8426-130417

GW Sample Info: NO GW Sample

OSD = odor, sheen by sheen test, discoloration

HAHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PUSH PROBE NUMBER P-6 (step-over)

PROJECT: ABCINV

PROJECT No. 8426

HAI LOGGER: J. Kerin

SAMPLING METHOD: 1.5" ID, 5' long Macrocore

DRILLING METHOD: Direct Push

EQUIPMENT TYPE

DRILLER: Neil & Brad

DRILLING CONTRACTOR: PS & W

DRILL START	DRILL FINISH
Time: 14:45	Time: 15:40
Date: 4-17-13	Date: 4-17-13

BORING DIAMETER: 2.25"

CASING DIAMETER: N/A

SURFACE ELEVATION: Not Surveyed

TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	% RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
3/8" Bentonite Chips							1				
							2				
							3				
							4				
							5			See p. 1	
							6				
							7				
							8				See other P-6 log for soils
							9				to 13.5' bgs
							10				1" cement, then 13.5-15 - SILT w/ sands, gravels, grey, moist, soft, mild hc odor, slight sheen by sheen test
	methane 028	0.2% (4% of LEL)					11				
							12				
							13			CEMENT	
							14			ML	
							15	▽			15-17' bgs - Same AA, except saturated, stronger sheen, hc odor, gray
	028	15:10	0.4				16				@17' some white granules w/in the sandy silt (1-inch thick interval)
							17				17-20' bgs - fine silty SAND, grey w/ red-brown mottles, fine laminations, hc odor (mild), mild/weak sheen by sheen test
	methane	0.9% (19% of LEL) 0.7% (14% of LEL)					18			SM	
	029	15:13	1.0				19				
							20				

* Sample No. Prefix: 8426-130417-

GW Sample Info: NO GW Sampled

AA = as above
OSD = odor, sheen by sheen test, discoloration

HAHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PROJECT: ABC INV

PROJECT No. 8426

PUSH PROBE NUMBER P-6 (Step over) 3

HAI LOGGER: J. Kern
SAMPLING METHOD: 1.5" ID, 5' long Macrocore
DRILLING METHOD: Direct Push
EQUIPMENT TYPE
DRILLER: Neil & Brad
DRILLING CONTRACTOR: PS & W

DRILL START	DRILL FINISH
Time: 14:45	Time: 15:40
Date: 4-17-13	Date: 4-17-13

BORING DIAMETER: 2.25"
CASING DIAMETER: N/A
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	LAB RESULT NWTPH-Dx (ppm)	CORE INTERVAL	RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
3/8" Bentonite Chips - 1'							21			SM	20-22.5' bgs - same AA, except more moist
							22				
							23				22.5-25' bgs - sandy SILT, brown w/ some grey spots,
							24			ML	no sheen, mild HC odor
	030	15:24	0.4				25				
							26			End of	Boring
							27				
							28				
							29				
							30				
							31				
							32				
							33				
							34				
							35				
							36				
							37				
							38				
							39				
							40				

* Sample No. Prefix: 8426-130417-

GW Sample Info: NO GW Sampled

OSD = odor, sheen by sheen test, discoloration

HAHN AND ASSOCIATES, INC. 434 NW Sixth Avenue Portland, Oregon 97209 (503) 796-0717	SOIL BORING NUMBER	HA-1	Page 1 of 1	
PROJECT: ABCINV	HAI LOGGER:	Corey Raspone	DRILL START	DRILL FINISH
	SAMPLING METHOD:	Grab	Time: 07:55	Time: 08:25
	DRILLING METHOD:	Auger		
	EQUIPMENT TYPE	Hand Driven Auger		
	DRILLER:	CR	Date: 5/6/13	Date: 5/6/13
PROJECT No. 8426	DRILLING CONTRACTOR:			

BORING DIAMETER:	2"
CASING DIAMETER:	NA
SURFACE ELEVATION:	Not Surveyed
TOP OF CASING ELEVATION:	N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	UV SCREEN (+ = fluorescence)	CORE INTERVAL	SAMPLE RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
ASPHALT							1			CONC.	(0.0 - 0.5 'bgs) CONCRETE (REBAR & PIPE PRESENT), <1" ASPHALT VENEAR COVER.
BACKFILL							2			SP	(0.5 - 1.0 'bgs) SAND, WHITE, MOIST, LOOSE, MG, POORLY GRADED, NO OSD
	0831	08:10					3			ML	
							4				(1.0 - 2.0 'bgs) SAND, GRAY, MOIST, LOOSE, POORLY GRADED FG → MG, NO OSD
							5				
							6				(2.0 - 3.5' bgs) GRAVELLY SILT WITH SAND, BROWN, MOIST, FIRM, NON-PLASTIC, NO OSD
							7				
							8				
							9				EOBH @ 3.5' DUE TO REFUSAL -TARGET SAMPLE DEPTH ACHIEVED -SURFACE RESTORED W/ ASPHALT TO MATCH PARKING LOT
							10				
							11				
							12				
							13				
							14				
							15				
							16				
							17				
							18				
							19				
							20				

* Sample No. Prefix: 8426-130506-

AA = as above

OSD = odor, sheen by sheen test, discoloration

...N AND ASSOCIATES, INC.
...NW Sixth Avenue
ortland, Oregon 97209
(503) 796-0717

PROJECT: ABCINV

PROJECT No. 8426

SOIL BORING NUMBER **HA-2**

Page 1 of 1

		DRILL START	DRILL FINISH
HAI LOGGER:	Corey Raspone		
SAMPLING METHOD:	Grab 1" LINER (ACETATE)		
DRILLING METHOD:	Hand Auger (2 PERSON)	Time: 08:30	Time: 08:50
EQUIPMENT TYPE	1.5" GEOPROBE RODS & BARREL		
DRILLER:		Date: 5/10/13	Date: 5/10/13
DRILLING CONTRACTOR:	[redacted] SOIL SOLUTIONS		

BORING DIAMETER:
CASING DIAMETER:
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	UV SCREEN (+ = fluorescence)	CORE INTERVAL	SAMPLE RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
							1				ASPHALT SURFACE ≈ 4-6"
							2				*NO REC. F/ 0.5 → 6', D.P. W/ CLOSED PIN SAMPLER. OPENED @ 6'
							3				(4.0-6.0' bgs) SILT w/S SAND, BROWN, MOIST, SOFT NON-PLASTIC, NO OSD
							4				(6.0-8.0' bgs) SILT w/SAND, BROWN, MOIST, SOFT, NON-PLASTIC, NO OSD
							5				
	1 (4oz)	08:40					6				*REC. W/ 1" LINER NOT SUFFICIENT TO FILL 4 oz. JAR. 1" ≈ 3 oz. SAMPLE VOLUME
							7				
	(1) 4oz.	08:45					8			ML	(8.0-10.0' bgs) SILT w/S SAND, A.A. NO OSD
							9				
	(1) 4oz.	08:55					10				
							11				EOBH @ 10' = TD
							12				SAMPLES SECURED
							13				
							14				
							15				
							16				
							17				
							18				
							19				
							20				

* Sample No. Prefix:

AA = as above

OSD = odor, sheen by sheen test, discoloration

AHN AND ASSOCIATES, INC.
434 NW Sixth Avenue
Portland, Oregon 97209
(503) 796-0717

PROJECT: ABCINV

PROJECT No. 8426

SOIL BORING NUMBER HA-3

Page 1 of 1

HAI LOGGER: Corey Raspone
SAMPLING METHOD: Grab 1" ACETATE SLEEVE
DRILLING METHOD: ~~Hand Auger~~ SPT DRIVE W/
EQUIPMENT TYPE 1.5" G.P. RODS & BARREL
DRILLER: ERIC & TRAVIS
DRILLING CONTRACTOR: ~~Boart Longyear~~ SOILS SOLUTIONS

DRILL START	DRILL FINISH
Time: 09:15	Time: 09:50
Date: 5/9/13	Date: 5/9/13

BORING DIAMETER: 1.5"
CASING DIAMETER: N/A
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	UV SCREEN (+ = fluorescence)	CORE INTERVAL	SAMPLE RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
							1				(
							2				
							3				
							4				
							5				(4.0 - 6.0 'bgs) SILT W/T OF SAND (90/10)
							6			ML	BROWN, MOIST, SOFT, NON-PLASTIC
							7				NO OSD
	(1) 402	09:45					8				(6.0 - 8.0 'bgs) SILT, A.A. NO OSD
							9				
	(1) 402	09:50					10				(8.0 - 10.0 'bgs) SILT A.A. NO OSD
							11				
							12				
							13				
							14				
							15				
							16				
							17				
							18				
							19				
							20				

* Sample No. Prefix:

AA = as above

OSD = odor, sheen by sheen test, discoloration

...N AND ASSOCIATES, INC.	**SOIL BORING NUMBER** HA-4
...NW Sixth Avenue	Page 1 of 1
...ortland, Oregon 97209	
(503) 796-0717	HAI LOGGER: Corey Raspone
PROJECT: ABCINV	SAMPLING METHOD: Grab - 1" ACETATE SLEEVE
	DRILLING METHOD: ~~Hand Auger~~ 1.5" G.P. Ross w/
	EQUIPMENT TYPE SPT SLIDE HAMMER
	DRILLER: (BY HAND)
PROJECT No. 8426	DRILLING CONTRACTOR: ~~Boart Longyear~~ SOIL SOLUTIONS

DRILL START	DRILL FINISH
Time: 10:05	Time: 10:30
Date: 5/10/13	Date: 5/10/13

BORING DIAMETER: 1.5"
CASING DIAMETER: NA
SURFACE ELEVATION: Not Surveyed
TOP OF CASING ELEVATION: N/A

ABANDONMENT DETAILS	SAMPLE NUMBER *	TIME	HEADSPACE (ppm)	UV SCREEN (+ = fluorescence)	CORE INTERVAL	SAMPLE RECOVERY	DEPTH (feet bgs)	GROUNDWATER	IMPACTED ZONE	STRATA (USCS)	SOIL DESCRIPTION
							1				
							2				
							3				
							4				
							5			ML	
							6				
							7				(6.0 - 8.0 'bgs) SILT w/T OF SAND (90/10) BROWN, MOIST, SOFT, N.P. NO OSD
	(1) 4oz.	10:20					8				
							9				(8.0 - 10.0 'bgs) SILT w/T OF SAND (90/10), BROWN, MOIST, SOFT, NON-PLASTIC NO OSD
	(1) 4oz.	10:35					10				
							11				
							12				
							13				
							14				
							15				
							16				
							17				
							18				
							19				
							20				

* Sample No. Prefix:

AA = as above

OSD = odor, sheen by sheen test, discoloration

APPENDIX C

Laboratory Analytical Reports and Chain-of-Custody Documentation
Soil Gas Samples

12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Jane-Clair Kerin
Hahn and Associates, Inc.
434 NW 6th Avenue, Suite 203
Portland, OR 97209-3651

Report Summary

Wednesday April 24, 2013

Report Number: L631498
Samples Received: 04/19/13
Client Project: 8426

Description: Sub-slab Soil Gas Sample

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

Jarred Willis , ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197, FL - E87487, GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375/DW21704/BIO041, ND - R-140. NJ - TN002, NJ NELAP - TN002, SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1, TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.
Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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Mt. Juliet, TN 37122
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Fax (615) 758-5859

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Est. 1970

REPORT OF ANALYSIS

Jane-Clair Kerin
Hahn & Associates, Inc.
434 NW 6th Avenue, Suite 203
Portland, OR 97209-3651

April 24, 2013

Date Received : April 19, 2013
Description : Sub-slab Soil Gas Sample

Sample ID : 8426-130418-SG-1 6-12 IN

Collected By : Jane Clair Kerin
Collection Date : 04/18/13 08:40

ESC Sample # : L631498-01

Site ID : ABCINV

Project # : 8426

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
Acetone	67-64-1	58.1	2.50	5.90	130	310	TO-15	04/23/13	2
Allyl chloride	107-05-1	76.53	0.400	1.30	< 0.40	< 1.3	TO-15	04/23/13	2
Benzene	71-43-2	78.1	0.400	1.30	< 0.40	< 1.3	TO-15	04/23/13	2
Benzyl Chloride	100-44-7	127	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
Bromodichloromethane	75-27-4	164	0.400	2.70	< 0.40	< 2.7	TO-15	04/23/13	2
Bromoform	75-25-2	253	1.20	12.0	< 1.2	< 12.	TO-15	04/23/13	2
Bromomethane	74-83-9	94.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,3-Butadiene	106-99-0	54.1	4.00	8.90	< 4.0	< 8.9	TO-15	04/23/13	2
Carbon disulfide	75-15-0	76.1	0.400	1.20	2.3	7.2	TO-15	04/23/13	2
Carbon tetrachloride	56-23-5	154	0.400	2.50	< 0.40	< 2.5	TO-15	04/23/13	2
Chlorobenzene	108-90-7	113	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
Chloroethane	75-00-3	64.5	0.400	1.10	< 0.40	< 1.1	TO-15	04/23/13	2
Chloroform	67-66-3	119	0.400	1.90	2.3	11.	TO-15	04/23/13	2
Chloromethane	74-87-3	50.5	0.400	0.830	< 0.40	< 0.83	TO-15	04/23/13	2
2-Chlorotoluene	95-49-8	126	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
Cyclohexane	110-82-7	84.2	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Dibromochloromethane	124-48-1	208	0.400	3.40	< 0.40	< 3.4	TO-15	04/23/13	2
1,2-Dibromoethane	106-93-4	188	0.400	3.10	< 0.40	< 3.1	TO-15	04/23/13	2
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	< 0.40	< 2.4	TO-15	04/23/13	2
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	< 0.40	< 2.4	TO-15	04/23/13	2
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	0.83	5.0	TO-15	04/23/13	2
1,2-Dichloroethane	107-06-2	99	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,1-Dichloroethane	75-34-3	98	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,1-Dichloroethene	75-35-4	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
cis-1,2-Dichloroethene	156-59-2	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
trans-1,2-Dichloroethene	156-60-5	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,2-Dichloropropane	78-87-5	113	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
1,4-Dioxane	123-91-1	88.1	0.400	1.40	13.	47.	TO-15	04/23/13	2
Ethanol	64-17-5	46.1	1.26	2.40	98.	180	TO-15	04/23/13	2
Ethylbenzene	100-41-4	106	0.400	1.70	< 0.40	< 1.7	TO-15	04/23/13	2
4-Ethyltoluene	622-96-8	120	0.400	2.00	0.42	2.1	TO-15	04/23/13	2
Trichlorofluoromethane	75-69-4	137.4	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
Dichlorodifluoromethane	75-71-8	120.92	0.400	2.00	0.56	2.8	TO-15	04/23/13	2
1,1,2-Trichlorotrifluoroethane	76-13-1	187.4	0.400	3.10	< 0.40	< 3.1	TO-15	04/23/13	2
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	< 0.40	< 2.8	TO-15	04/23/13	2
Heptane	142-82-5	100	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.0	< 1.3	< 13.	TO-15	04/23/13	2
n-Hexane	110-54-3	86.2	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Isopropylbenzene	98-82-8	120.2	0.400	2.00	< 0.40	< 2.0	TO-15	04/23/13	2
Methylene Chloride	75-09-2	84.9	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Methyl Butyl Ketone	591-78-6	100	2.50	10.0	3.3	13.	TO-15	04/23/13	2

RDL1 = ppbv , RDL2 = ug/m3
Note:
Units are based on (STP) - Standard Temperature and Pressure
The reported analytical results relate only to the sample submitted.

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Reported: 04/24/13 12:02 Printed: 04/24/13 12:02

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REPORT OF ANALYSIS

Jane-Clair Kerin
Hahn & Associates, Inc.
434 NW 6th Avenue, Suite 203
Portland, OR 97209-3651

April 24, 2013

Date Received : April 19, 2013
Description : Sub-slab Soil Gas Sample

Sample ID : 8426-130418-SG-1 6-12 IN

Collected By : Jane Clair Kerin
Collection Date : 04/18/13 08:40

ESC Sample # : L631498-01

Site ID : ABCINV

Project # : 8426

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
2-Butanone (MEK)	78-93-3	72.1	2.50	7.40	30.	88.	TO-15	04/23/13	2
4-Methyl-2-pentanone (MIBK)	108-10-1	100.1	2.50	10.0	4.7	19.	TO-15	04/23/13	2
Methyl methacrylate	80-62-6	100.12	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
MTBE	1634-04-4	88.1	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Naphthalene	91-20-3	128	1.26	6.60	3.7	19.	TO-15	04/23/13	2
2-Propanol	67-63-0	60.1	2.50	6.10	5.6	14.	TO-15	04/23/13	2
Propene	115-07-1	42.1	0.800	1.40	< 0.80	< 1.4	TO-15	04/23/13	2
Styrene	100-42-5	104	0.400	1.70	< 0.40	< 1.7	TO-15	04/23/13	2
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.70	< 0.40	< 2.7	TO-15	04/23/13	2
Tetrachloroethylene	127-18-4	166	0.400	2.70	20.	140	TO-15	04/23/13	2
Tetrahydrofuran	109-99-9	72.1	0.400	1.20	< 0.40	< 1.2	TO-15	04/23/13	2
Toluene	108-88-3	92.1	0.400	1.50	1.8	6.8	TO-15	04/23/13	2
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.30	< 1.3	< 9.3	TO-15	04/23/13	2
1,1,1-Trichloroethane	71-55-6	133	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
1,1,2-Trichloroethane	79-00-5	133	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
Trichloroethylene	79-01-6	131	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
1,2,4-Trimethylbenzene	95-63-6	120	0.400	2.00	2.5	12.	TO-15	04/23/13	2
1,3,5-Trimethylbenzene	108-67-8	120	0.400	2.00	0.80	3.9	TO-15	04/23/13	2
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.90	< 0.40	< 1.9	TO-15	04/23/13	2
Vinyl chloride	75-01-4	62.5	0.400	1.00	< 0.40	< 1.0	TO-15	04/23/13	2
Vinyl Bromide	593-60-2	106.95	0.400	1.70	< 0.40	< 1.7	TO-15	04/23/13	2
Vinyl acetate	108-05-4	86.1	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
m&p-Xylene	1330-20-7	106	0.800	3.50	1.3	5.6	TO-15	04/23/13	2
o-Xylene	95-47-6	106	0.400	1.70	0.60	2.6	TO-15	04/23/13	2
TPH (GC/MS) Low Fraction	8006-61-9	101	100.	410.	240	990	TO-15	04/23/13	2
1,4-Bromofluorobenzene	460-00-4				108.11	% Rec.	TO-15	04/23/13	2

RDL1 = ppbv , RDL2 = ug/m3
Note:
Units are based on (STP) - Standard Temperature and Pressure
The reported analytical results relate only to the sample submitted.

.
Reported: 04/24/13 12:02 Printed: 04/24/13 12:02

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REPORT OF ANALYSIS

Jane-Clair Kerin
Hahn & Associates, Inc.
434 NW 6th Avenue, Suite 203
Portland, OR 97209-3651

April 24, 2013

Date Received : April 19, 2013
Description : Sub-slab Soil Gas Sample

Sample ID : 8426-130418-SG-2 6-12 IN

Collected By : Jane Clair Kerin
Collection Date : 04/18/13 09:25

ESC Sample # : L631498-02

Site ID : ABCINV

Project # : 8426

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
Acetone	67-64-1	58.1	25.0	59.0	160	380	TO-15	04/23/13	20
Allyl chloride	107-05-1	76.53	0.400	1.30	< 0.40	< 1.3	TO-15	04/23/13	2
Benzene	71-43-2	78.1	0.400	1.30	0.43	1.4	TO-15	04/23/13	2
Benzyl Chloride	100-44-7	127	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
Bromodichloromethane	75-27-4	164	0.400	2.70	< 0.40	< 2.7	TO-15	04/23/13	2
Bromoform	75-25-2	253	1.20	12.0	< 1.2	< 12.	TO-15	04/23/13	2
Bromomethane	74-83-9	94.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,3-Butadiene	106-99-0	54.1	4.00	8.90	< 4.0	< 8.9	TO-15	04/23/13	2
Carbon disulfide	75-15-0	76.1	0.400	1.20	0.57	1.8	TO-15	04/23/13	2
Carbon tetrachloride	56-23-5	154	0.400	2.50	< 0.40	< 2.5	TO-15	04/23/13	2
Chlorobenzene	108-90-7	113	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
Chloroethane	75-00-3	64.5	0.400	1.10	< 0.40	< 1.1	TO-15	04/23/13	2
Chloroform	67-66-3	119	0.400	1.90	3.6	18.	TO-15	04/23/13	2
Chloromethane	74-87-3	50.5	0.400	0.830	< 0.40	< 0.83	TO-15	04/23/13	2
2-Chlorotoluene	95-49-8	126	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
Cyclohexane	110-82-7	84.2	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Dibromochloromethane	124-48-1	208	0.400	3.40	< 0.40	< 3.4	TO-15	04/23/13	2
1,2-Dibromoethane	106-93-4	188	0.400	3.10	< 0.40	< 3.1	TO-15	04/23/13	2
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	< 0.40	< 2.4	TO-15	04/23/13	2
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	< 0.40	< 2.4	TO-15	04/23/13	2
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	1.2	7.2	TO-15	04/23/13	2
1,2-Dichloroethane	107-06-2	99	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,1-Dichloroethane	75-34-3	98	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,1-Dichloroethene	75-35-4	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
cis-1,2-Dichloroethene	156-59-2	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
trans-1,2-Dichloroethene	156-60-5	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,2-Dichloropropane	78-87-5	113	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
1,4-Dioxane	123-91-1	88.1	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Ethanol	64-17-5	46.1	1.26	2.40	4.1	7.7	TO-15	04/23/13	2
Ethylbenzene	100-41-4	106	0.400	1.70	0.50	2.2	TO-15	04/23/13	2
4-Ethyltoluene	622-96-8	120	0.400	2.00	0.43	2.1	TO-15	04/23/13	2
Trichlorofluoromethane	75-69-4	137.4	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
Dichlorodifluoromethane	75-71-8	120.92	0.400	2.00	0.54	2.7	TO-15	04/23/13	2
1,1,2-Trichlorotrifluoroethane	76-13-1	187.4	0.400	3.10	< 0.40	< 3.1	TO-15	04/23/13	2
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	< 0.40	< 2.8	TO-15	04/23/13	2
Heptane	142-82-5	100	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.0	< 1.3	< 13.	TO-15	04/23/13	2
n-Hexane	110-54-3	86.2	0.400	1.40	0.44	1.6	TO-15	04/23/13	2
Isopropylbenzene	98-82-8	120.2	0.400	2.00	< 0.40	< 2.0	TO-15	04/23/13	2
Methylene Chloride	75-09-2	84.9	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Methyl Butyl Ketone	591-78-6	100	2.50	10.0	3.2	13.	TO-15	04/23/13	2

RDL1 = ppbv , RDL2 = ug/m3
Note:
Units are based on (STP) - Standard Temperature and Pressure
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Jane-Clair Kerin
Hahn & Associates, Inc.
434 NW 6th Avenue, Suite 203
Portland, OR 97209-3651

April 24, 2013

Date Received : April 19, 2013
Description : Sub-slab Soil Gas Sample

Sample ID : 8426-130418-SG-2 6-12 IN

Collected By : Jane Clair Kerin
Collection Date : 04/18/13 09:25

ESC Sample # : L631498-02

Site ID : ABCINV

Project # : 8426

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
2-Butanone (MEK)	78-93-3	72.1	25.0	74.0	41.	120	TO-15	04/23/13	20
4-Methyl-2-pentanone (MIBK)	108-10-1	100.1	2.50	10.0	7.0	29.	TO-15	04/23/13	2
Methyl methacrylate	80-62-6	100.12	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
MTBE	1634-04-4	88.1	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Naphthalene	91-20-3	128	1.26	6.60	2.6	14.	TO-15	04/23/13	2
2-Propanol	67-63-0	60.1	2.50	6.10	< 2.5	< 6.1	TO-15	04/23/13	2
Propene	115-07-1	42.1	0.800	1.40	7.6	13.	TO-15	04/23/13	2
Styrene	100-42-5	104	0.400	1.70	< 0.40	< 1.7	TO-15	04/23/13	2
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.70	< 0.40	< 2.7	TO-15	04/23/13	2
Tetrachloroethylene	127-18-4	166	0.400	2.70	20.	140	TO-15	04/23/13	2
Tetrahydrofuran	109-99-9	72.1	0.400	1.20	< 0.40	< 1.2	TO-15	04/23/13	2
Toluene	108-88-3	92.1	0.400	1.50	2.6	9.8	TO-15	04/23/13	2
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.30	< 1.3	< 9.3	TO-15	04/23/13	2
1,1,1-Trichloroethane	71-55-6	133	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
1,1,2-Trichloroethane	79-00-5	133	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
Trichloroethylene	79-01-6	131	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
1,2,4-Trimethylbenzene	95-63-6	120	0.400	2.00	2.1	10.	TO-15	04/23/13	2
1,3,5-Trimethylbenzene	108-67-8	120	0.400	2.00	0.71	3.5	TO-15	04/23/13	2
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.90	< 0.40	< 1.9	TO-15	04/23/13	2
Vinyl chloride	75-01-4	62.5	0.400	1.00	< 0.40	< 1.0	TO-15	04/23/13	2
Vinyl Bromide	593-60-2	106.95	0.400	1.70	< 0.40	< 1.7	TO-15	04/23/13	2
Vinyl acetate	108-05-4	86.1	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
m&p-Xylene	1330-20-7	106	0.800	3.50	1.9	8.2	TO-15	04/23/13	2
o-Xylene	95-47-6	106	0.400	1.70	0.73	3.2	TO-15	04/23/13	2
TPH (GC/MS) Low Fraction	8006-61-9	101	100.	410.	250	1000	TO-15	04/23/13	2
1,4-Bromofluorobenzene	460-00-4				99.82	% Rec.	TO-15	04/23/13	2

RDL1 = ppbv , RDL2 = ug/m3
Note:
Units are based on (STP) - Standard Temperature and Pressure
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Jane-Clair Kerin
Hahn & Associates, Inc.
434 NW 6th Avenue, Suite 203
Portland, OR 97209-3651

April 24, 2013

Date Received : April 19, 2013
Description : Sub-slab Soil Gas Sample

Sample ID : 8426-130418-SG-3 6-12 IN

Collected By : Jane Clair Kerin
Collection Date : 04/18/13 10:10

ESC Sample # : L631498-03

Site ID : ABCINV

Project # : 8426

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
Volatile Organics									
Acetone	67-64-1	58.1	2.50	5.90	130	310	TO-15	04/23/13	2
Allyl chloride	107-05-1	76.53	0.400	1.30	< 0.40	< 1.3	TO-15	04/23/13	2
Benzene	71-43-2	78.1	0.400	1.30	< 0.40	< 1.3	TO-15	04/23/13	2
Benzyl Chloride	100-44-7	127	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
Bromodichloromethane	75-27-4	164	0.400	2.70	< 0.40	< 2.7	TO-15	04/23/13	2
Bromoform	75-25-2	253	1.20	12.0	< 1.2	< 12.	TO-15	04/23/13	2
Bromomethane	74-83-9	94.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,3-Butadiene	106-99-0	54.1	4.00	8.90	< 4.0	< 8.9	TO-15	04/23/13	2
Carbon disulfide	75-15-0	76.1	0.400	1.20	0.42	1.3	TO-15	04/23/13	2
Carbon tetrachloride	56-23-5	154	0.400	2.50	< 0.40	< 2.5	TO-15	04/23/13	2
Chlorobenzene	108-90-7	113	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
Chloroethane	75-00-3	64.5	0.400	1.10	< 0.40	< 1.1	TO-15	04/23/13	2
Chloroform	67-66-3	119	0.400	1.90	2.8	14.	TO-15	04/23/13	2
Chloromethane	74-87-3	50.5	0.400	0.830	< 0.40	< 0.83	TO-15	04/23/13	2
2-Chlorotoluene	95-49-8	126	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
Cyclohexane	110-82-7	84.2	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Dibromochloromethane	124-48-1	208	0.400	3.40	< 0.40	< 3.4	TO-15	04/23/13	2
1,2-Dibromoethane	106-93-4	188	0.400	3.10	< 0.40	< 3.1	TO-15	04/23/13	2
1,2-Dichlorobenzene	95-50-1	147	0.400	2.40	< 0.40	< 2.4	TO-15	04/23/13	2
1,3-Dichlorobenzene	541-73-1	147	0.400	2.40	< 0.40	< 2.4	TO-15	04/23/13	2
1,4-Dichlorobenzene	106-46-7	147	0.400	2.40	0.91	5.5	TO-15	04/23/13	2
1,2-Dichloroethane	107-06-2	99	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,1-Dichloroethane	75-34-3	98	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,1-Dichloroethene	75-35-4	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
cis-1,2-Dichloroethene	156-59-2	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
trans-1,2-Dichloroethene	156-60-5	96.9	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
1,2-Dichloropropane	78-87-5	113	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
cis-1,3-Dichloropropene	10061-01-5	111	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
trans-1,3-Dichloropropene	10061-02-6	111	0.400	1.80	< 0.40	< 1.8	TO-15	04/23/13	2
1,4-Dioxane	123-91-1	88.1	0.400	1.40	1.2	4.3	TO-15	04/23/13	2
Ethanol	64-17-5	46.1	1.26	2.40	38.	72.	TO-15	04/23/13	2
Ethylbenzene	100-41-4	106	0.400	1.70	< 0.40	< 1.7	TO-15	04/23/13	2
4-Ethyltoluene	622-96-8	120	0.400	2.00	< 0.40	< 2.0	TO-15	04/23/13	2
Trichlorofluoromethane	75-69-4	137.4	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
Dichlorodifluoromethane	75-71-8	120.92	0.400	2.00	0.52	2.6	TO-15	04/23/13	2
1,1,2-Trichlorotrifluoroethane	76-13-1	187.4	0.400	3.10	< 0.40	< 3.1	TO-15	04/23/13	2
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.400	2.80	< 0.40	< 2.8	TO-15	04/23/13	2
Heptane	142-82-5	100	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
Hexachloro-1,3-butadiene	87-68-3	261	1.26	13.0	< 1.3	< 13.	TO-15	04/23/13	2
n-Hexane	110-54-3	86.2	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Isopropylbenzene	98-82-8	120.2	0.400	2.00	< 0.40	< 2.0	TO-15	04/23/13	2
Methylene Chloride	75-09-2	84.9	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Methyl Butyl Ketone	591-78-6	100	2.50	10.0	2.5	10.	TO-15	04/23/13	2

RDL1 = ppbv , RDL2 = ug/m3
Note:
Units are based on (STP) - Standard Temperature and Pressure
The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Jane-Clair Kerin
Hahn & Associates, Inc.
434 NW 6th Avenue, Suite 203
Portland, OR 97209-3651

April 24, 2013

Date Received : April 19, 2013
Description : Sub-slab Soil Gas Sample

Sample ID : 8426-130418-SG-3 6-12 IN

Collected By : Jane Clair Kerin
Collection Date : 04/18/13 10:10

ESC Sample # : L631498-03

Site ID : ABCINV

Project # : 8426

Parameter	Cas#	Mol Wght	RDL1	RDL2	ppbv	ug/m3	Method	Date	Dil.
2-Butanone (MEK)	78-93-3	72.1	2.50	7.40	32.	94.	TO-15	04/23/13	2
4-Methyl-2-pentanone (MIBK)	108-10-1	100.1	2.50	10.0	4.6	19.	TO-15	04/23/13	2
Methyl methacrylate	80-62-6	100.12	0.400	1.60	< 0.40	< 1.6	TO-15	04/23/13	2
MTBE	1634-04-4	88.1	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
Naphthalene	91-20-3	128	1.26	6.60	< 1.3	< 6.6	TO-15	04/23/13	2
2-Propanol	67-63-0	60.1	2.50	6.10	< 2.5	< 6.1	TO-15	04/23/13	2
Propene	115-07-1	42.1	0.800	1.40	< 0.80	< 1.4	TO-15	04/23/13	2
Styrene	100-42-5	104	0.400	1.70	< 0.40	< 1.7	TO-15	04/23/13	2
1,1,2,2-Tetrachloroethane	79-34-5	168	0.400	2.70	< 0.40	< 2.7	TO-15	04/23/13	2
Tetrachloroethylene	127-18-4	166	0.400	2.70	6.0	41.	TO-15	04/23/13	2
Tetrahydrofuran	109-99-9	72.1	0.400	1.20	< 0.40	< 1.2	TO-15	04/23/13	2
Toluene	108-88-3	92.1	0.400	1.50	1.6	6.0	TO-15	04/23/13	2
1,2,4-Trichlorobenzene	120-82-1	181	1.26	9.30	< 1.3	< 9.3	TO-15	04/23/13	2
1,1,1-Trichloroethane	71-55-6	133	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
1,1,2-Trichloroethane	79-00-5	133	0.400	2.20	< 0.40	< 2.2	TO-15	04/23/13	2
Trichloroethylene	79-01-6	131	0.400	2.10	< 0.40	< 2.1	TO-15	04/23/13	2
1,2,4-Trimethylbenzene	95-63-6	120	0.400	2.00	1.6	7.9	TO-15	04/23/13	2
1,3,5-Trimethylbenzene	108-67-8	120	0.400	2.00	0.53	2.6	TO-15	04/23/13	2
2,2,4-Trimethylpentane	540-84-1	114.22	0.400	1.90	< 0.40	< 1.9	TO-15	04/23/13	2
Vinyl chloride	75-01-4	62.5	0.400	1.00	< 0.40	< 1.0	TO-15	04/23/13	2
Vinyl Bromide	593-60-2	106.95	0.400	1.70	< 0.40	< 1.7	TO-15	04/23/13	2
Vinyl acetate	108-05-4	86.1	0.400	1.40	< 0.40	< 1.4	TO-15	04/23/13	2
m&p-Xylene	1330-20-7	106	0.800	3.50	1.4	6.1	TO-15	04/23/13	2
o-Xylene	95-47-6	106	0.400	1.70	0.56	2.4	TO-15	04/23/13	2
TPH (GC/MS) Low Fraction	8006-61-9	101	100.	410.	170	700	TO-15	04/23/13	2
1,4-Bromofluorobenzene	460-00-4				96.41	% Rec.	TO-15	04/23/13	2

RDL1 = ppbv , RDL2 = ug/m3
Note:
Units are based on (STP) - Standard Temperature and Pressure
The reported analytical results relate only to the sample submitted.

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Reported: 04/24/13 12:02 Printed: 04/24/13 12:03

Attachment A
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L631498-01	WG657650	SAMP	Acetone	R2632701	E
	WG657650	SAMP	Ethanol	R2632701	E
L631498-03	WG657650	SAMP	Acetone	R2632701	E

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
E	GTL (EPA) - Greater than upper calibration limit: Actual value is known to be greater than the upper calibration range.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
04/24/13 at 12:03:07

TSR Signing Reports: 358

Sample: L631498-01 Account: HAHNPOR Received: 04/19/13 09:00 Due Date: 04/26/13 00:00 RPT Date: 04/24/13 12:02
1L summa can
Sample: L631498-02 Account: HAHNPOR Received: 04/19/13 09:00 Due Date: 04/26/13 00:00 RPT Date: 04/24/13 12:02
1L summa can
Sample: L631498-03 Account: HAHNPOR Received: 04/19/13 09:00 Due Date: 04/26/13 00:00 RPT Date: 04/24/13 12:02
1L summa can

ESC LAB SCIENCES
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12065 Lebanon Rd.
Mt. Juliet, TN 37122
(615) 758-5858
1-800-767-5859
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Hahn and Associates, Inc.
Jane-Clair Kerin
434 NW 6th Avenue, Suite 203
Portland, OR 97209-3651

Quality Assurance Report
Level II

L631498

April 24, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
1,1,1-Trichloroethane	< .2	ppb			WG657650	04/22/13 19:15
1,1,2,2-Tetrachloroethane	< .2	ppb			WG657650	04/22/13 19:15
1,1,2-Trichloroethane	< .2	ppb			WG657650	04/22/13 19:15
1,1,2-Trichlorotrifluoroethane	< .2	ppb			WG657650	04/22/13 19:15
1,1-Dichloroethane	< .2	ppb			WG657650	04/22/13 19:15
1,1-Dichloroethene	< .2	ppb			WG657650	04/22/13 19:15
1,2,4-Trichlorobenzene	< .63	ppb			WG657650	04/22/13 19:15
1,2,4-Trimethylbenzene	< .2	ppb			WG657650	04/22/13 19:15
1,2-Dibromoethane	< .2	ppb			WG657650	04/22/13 19:15
1,2-Dichlorobenzene	< .2	ppb			WG657650	04/22/13 19:15
1,2-Dichloroethane	< .2	ppb			WG657650	04/22/13 19:15
1,2-Dichloropropane	< .2	ppb			WG657650	04/22/13 19:15
1,2-Dichlorotetrafluoroethane	< .2	ppb			WG657650	04/22/13 19:15
1,3,5-Trimethylbenzene	< .2	ppb			WG657650	04/22/13 19:15
1,3-Butadiene	< 2	ppb			WG657650	04/22/13 19:15
1,3-Dichlorobenzene	< .2	ppb			WG657650	04/22/13 19:15
1,4-Dichlorobenzene	< .2	ppb			WG657650	04/22/13 19:15
1,4-Dioxane	< .2	ppb			WG657650	04/22/13 19:15
2,2,4-Trimethylpentane	< .2	ppb			WG657650	04/22/13 19:15
2-Butanone (MEK)	< 1.25	ppb			WG657650	04/22/13 19:15
2-Chlorotoluene	< .2	ppb			WG657650	04/22/13 19:15
2-Propanol	< 1.25	ppb			WG657650	04/22/13 19:15
4-Ethyltoluene	< .2	ppb			WG657650	04/22/13 19:15
4-Methyl-2-pentanone (MIBK)	< 1.25	ppb			WG657650	04/22/13 19:15
Acetone	< 1.25	ppb			WG657650	04/22/13 19:15
Allyl chloride	< .2	ppb			WG657650	04/22/13 19:15
Benzene	< .2	ppb			WG657650	04/22/13 19:15
Benzyl Chloride	< .2	ppb			WG657650	04/22/13 19:15
Bromodichloromethane	< .2	ppb			WG657650	04/22/13 19:15
Bromoform	< .6	ppb			WG657650	04/22/13 19:15
Bromomethane	< .2	ppb			WG657650	04/22/13 19:15
Carbon disulfide	< .2	ppb			WG657650	04/22/13 19:15
Carbon tetrachloride	< .2	ppb			WG657650	04/22/13 19:15
Chlorobenzene	< .2	ppb			WG657650	04/22/13 19:15
Dibromochloromethane	< .2	ppb			WG657650	04/22/13 19:15
Chloroethane	< .2	ppb			WG657650	04/22/13 19:15
Chloroform	< .2	ppb			WG657650	04/22/13 19:15
Chloromethane	< .2	ppb			WG657650	04/22/13 19:15
cis-1,2-Dichloroethene	< .2	ppb			WG657650	04/22/13 19:15
cis-1,3-Dichloropropene	< .2	ppb			WG657650	04/22/13 19:15
Cyclohexane	< .2	ppb			WG657650	04/22/13 19:15
Dichlorodifluoromethane	< .2	ppb			WG657650	04/22/13 19:15
Ethanol	< .63	ppb			WG657650	04/22/13 19:15
Ethylbenzene	< .2	ppb			WG657650	04/22/13 19:15
Heptane	< .2	ppb			WG657650	04/22/13 19:15
Hexachloro-1,3-butadiene	< .63	ppb			WG657650	04/22/13 19:15
Isopropylbenzene	< .2	ppb			WG657650	04/22/13 19:15
m&p-Xylene	< .4	ppb			WG657650	04/22/13 19:15
Methyl Butyl Ketone	< 1.25	ppb			WG657650	04/22/13 19:15
Methyl methacrylate	< .2	ppb			WG657650	04/22/13 19:15
MTBE	< .2	ppb			WG657650	04/22/13 19:15
Methylene Chloride	< .2	ppb			WG657650	04/22/13 19:15
n-Hexane	< .2	ppb			WG657650	04/22/13 19:15
Naphthalene	< .63	ppb			WG657650	04/22/13 19:15
o-Xylene	< .2	ppb			WG657650	04/22/13 19:15
Propene	< .4	ppb			WG657650	04/22/13 19:15
Styrene	< .2	ppb			WG657650	04/22/13 19:15
Tetrachloroethylene	< .2	ppb			WG657650	04/22/13 19:15
Tetrahydrofuran	< .2	ppb			WG657650	04/22/13 19:15

* Performance of this Analyte is outside of established criteria.
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Quality Assurance Report
Level II

L631498

April 24, 2013

Laboratory Blank

Analyte	Result	Units	% Rec	Limit	Batch	Date Analyzed
Toluene	< .2	ppb			WG657650	04/22/13 19:15
TPH (GC/MS) Low Fraction	< 50	ppb			WG657650	04/22/13 19:15
trans-1,2-Dichloroethene	< .2	ppb			WG657650	04/22/13 19:15
trans-1,3-Dichloropropene	< .2	ppb			WG657650	04/22/13 19:15
Trichloroethylene	< .2	ppb			WG657650	04/22/13 19:15
Trichlorofluoromethane	< .2	ppb			WG657650	04/22/13 19:15
Vinyl acetate	< .2	ppb			WG657650	04/22/13 19:15
Vinyl Bromide	< .2	ppb			WG657650	04/22/13 19:15
Vinyl chloride	< .2	ppb			WG657650	04/22/13 19:15
1,4-Bromofluorobenzene		% Rec.	99.92	60-140	WG657650	04/22/13 19:15
2-Butanone (MEK)	< 1.25	ppb			WG657779	04/23/13 15:05
Acetone	< 1.25	ppb			WG657779	04/23/13 15:05
1,4-Bromofluorobenzene		% Rec.	103.3	60-140	WG657779	04/23/13 15:05

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
1,1,1-Trichloroethane	ppb	3.75	3.94	105.	70-130	WG657650
1,1,2,2-Tetrachloroethane	ppb	3.75	3.83	102.	70-130	WG657650
1,1,2-Trichloroethane	ppb	3.75	4.03	107.	70-130	WG657650
1,1,2-Trichlorotrifluoroethane	ppb	3.75	3.94	105.	70-130	WG657650
1,1-Dichloroethane	ppb	3.75	3.95	105.	70-130	WG657650
1,1-Dichloroethene	ppb	3.75	3.93	105.	70-130	WG657650
1,2,4-Trichlorobenzene	ppb	3.75	4.00	107.	54-153	WG657650
1,2,4-Trimethylbenzene	ppb	3.75	3.92	105.	70-130	WG657650
1,2-Dibromoethane	ppb	3.75	4.09	109.	70-130	WG657650
1,2-Dichlorobenzene	ppb	3.75	3.83	102.	70-130	WG657650
1,2-Dichloroethane	ppb	3.75	3.90	104.	70-130	WG657650
1,2-Dichloropropane	ppb	3.75	3.97	106.	70-130	WG657650
1,2-Dichlorotetrafluoroethane	ppb	3.75	3.89	104.	70-130	WG657650
1,3,5-Trimethylbenzene	ppb	3.75	3.83	102.	70-130	WG657650
1,3-Butadiene	ppb	3.75	3.93	105.	70-130	WG657650
1,3-Dichlorobenzene	ppb	3.75	3.84	102.	70-130	WG657650
1,4-Dichlorobenzene	ppb	3.75	3.82	102.	70-130	WG657650
2,2,4-Trimethylpentane	ppb	3.75	4.05	108.	70-130	WG657650
2-Butanone (MEK)	ppb	3.75	4.08	109.	70-130	WG657650
2-Chlorotoluene	ppb	3.75	3.81	101.	70-130	WG657650
2-Propanol	ppb	3.75	4.01	107.	70-130	WG657650
4-Ethyltoluene	ppb	3.75	3.98	106.	70-130	WG657650
4-Methyl-2-pentanone (MIBK)	ppb	3.75	3.85	103.	36-158	WG657650
Acetone	ppb	3.75	3.82	102.	70-130	WG657650
Allyl chloride	ppb	3.75	4.00	107.	70-130	WG657650
Benzene	ppb	3.75	3.91	104.	70-130	WG657650
Benzyl Chloride	ppb	3.75	4.03	107.	70-130	WG657650
Bromodichloromethane	ppb	3.75	4.04	108.	70-130	WG657650
Bromoform	ppb	3.75	4.08	109.	70-130	WG657650
Bromomethane	ppb	3.75	3.81	102.	70-130	WG657650
Carbon disulfide	ppb	3.75	3.87	103.	70-130	WG657650
Carbon tetrachloride	ppb	3.75	3.97	106.	70-130	WG657650
Chlorobenzene	ppb	3.75	4.05	108.	70-130	WG657650
Dibromochloromethane	ppb	3.75	4.16	111.	70-130	WG657650
Chloroethane	ppb	3.75	3.87	103.	70-130	WG657650
Chloroform	ppb	3.75	3.94	105.	70-130	WG657650
Chloromethane	ppb	3.75	3.91	104.	70-130	WG657650
cis-1,2-Dichloroethene	ppb	3.75	4.01	107.	70-130	WG657650
cis-1,3-Dichloropropene	ppb	3.75	4.21	112.	70-130	WG657650
Cyclohexane	ppb	3.75	4.06	108.	70-130	WG657650

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Level II

L631498

April 24, 2013

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Dichlorodifluoromethane	ppb	3.75	3.80	101.	70-130	WG657650
Ethanol	ppb	3.75	3.50	93.3	70-130	WG657650
Ethylbenzene	ppb	3.75	3.88	103.	70-130	WG657650
Heptane	ppb	3.75	4.08	109.	70-130	WG657650
Hexachloro-1,3-butadiene	ppb	3.75	3.97	106.	50-149	WG657650
Isopropylbenzene	ppb	3.75	3.93	105.	70-130	WG657650
m&p-Xylene	ppb	7.5	7.76	103.	70-130	WG657650
Methyl Butyl Ketone	ppb	3.75	3.77	101.	38-153	WG657650
Methyl methacrylate	ppb	3.75	3.88	104.	70-130	WG657650
MTBE	ppb	3.75	3.97	106.	70-130	WG657650
Methylene Chloride	ppb	3.75	3.65	97.5	70-130	WG657650
n-Hexane	ppb	3.75	4.07	109.	70-130	WG657650
Naphthalene	ppb	3.75	4.17	111.	54-154	WG657650
o-Xylene	ppb	3.75	3.95	105.	70-130	WG657650
Propene	ppb	3.75	3.82	102.	70-130	WG657650
Styrene	ppb	3.75	4.06	108.	70-130	WG657650
Tetrachloroethylene	ppb	3.75	4.00	107.	70-130	WG657650
Tetrahydrofuran	ppb	3.75	3.93	105.	70-130	WG657650
Toluene	ppb	3.75	4.10	109.	70-130	WG657650
TPH (GC/MS) Low Fraction	ppb	150	146.	97.3	70-130	WG657650
trans-1,2-Dichloroethene	ppb	3.75	3.94	105.	70-130	WG657650
trans-1,3-Dichloropropene	ppb	3.75	4.28	114.	70-130	WG657650
Trichloroethylene	ppb	3.75	4.00	107.	70-130	WG657650
Trichlorofluoromethane	ppb	3.75	3.87	103.	70-130	WG657650
Vinyl acetate	ppb	3.75	4.34	116.	70-130	WG657650
Vinyl Bromide	ppb	3.75	3.88	104.	70-130	WG657650
Vinyl chloride	ppb	3.75	3.91	104.	70-130	WG657650
1,4-Bromofluorobenzene				100.0	60-140	WG657650
2-Butanone (MEK)	ppb	3.75	4.16	111.	70-130	WG657779
Acetone	ppb	3.75	4.16	111.	70-130	WG657779
1,4-Bromofluorobenzene				99.30	60-140	WG657779

Laboratory Control Sample Duplicate

Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
1,1,1-Trichloroethane	ppb	3.70	3.94	99.0	70-130	6.19	25	WG657650
1,1,2,2-Tetrachloroethane	ppb	3.24	3.83	86.0	70-130	16.6	25	WG657650
1,1,2-Trichloroethane	ppb	3.38	4.03	90.0	70-130	17.4	25	WG657650
1,1,2-Trichlorotrifluoroethane	ppb	3.67	3.94	98.0	70-130	7.25	25	WG657650
1,1-Dichloroethane	ppb	3.65	3.95	97.0	70-130	7.93	25	WG657650
1,1-Dichloroethene	ppb	3.72	3.93	99.0	70-130	5.63	25	WG657650
1,2,4-Trichlorobenzene	ppb	3.42	4.00	91.0	54-153	15.8	25	WG657650
1,2,4-Trimethylbenzene	ppb	3.29	3.92	88.0	70-130	17.5	25	WG657650
1,2-Dibromoethane	ppb	3.41	4.09	91.0	70-130	18.1	25	WG657650
1,2-Dichlorobenzene	ppb	3.20	3.83	85.0	70-130	18.1	25	WG657650
1,2-Dichloroethane	ppb	3.37	3.90	90.0	70-130	14.6	25	WG657650
1,2-Dichloropropane	ppb	3.46	3.97	92.0	70-130	13.7	25	WG657650
1,2-Dichlorotetrafluoroethane	ppb	3.74	3.89	100.	70-130	4.17	25	WG657650
1,3,5-Trimethylbenzene	ppb	3.23	3.83	86.0	70-130	17.0	25	WG657650
1,3-Butadiene	ppb	3.80	3.93	101.	70-130	3.38	25	WG657650
1,3-Dichlorobenzene	ppb	3.19	3.84	85.0	70-130	18.3	25	WG657650
1,4-Dichlorobenzene	ppb	3.17	3.82	84.0	70-130	18.5	25	WG657650
2,2,4-Trimethylpentane	ppb	3.77	4.05	101.	70-130	7.06	25	WG657650
2-Butanone (MEK)	ppb	3.54	4.08	94.0	70-130	14.1	25	WG657650
2-Chlorotoluene	ppb	3.23	3.81	86.0	70-130	16.5	25	WG657650
2-Propanol	ppb	3.40	4.01	91.0	70-130	16.4	25	WG657650
4-Ethyltoluene	ppb	3.28	3.98	88.0	70-130	19.3	25	WG657650

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April 24, 2013

		Laboratory Control Sample Duplicate						
Analyte	Units	Result	Ref	%Rec	Limit	RPD	Limit	Batch
4-Methyl-2-pentanone (MIBK)	ppb	3.06	3.85	82.0	36-158	22.7	25	WG657650
Acetone	ppb	3.53	3.82	94.0	70-130	8.13	25	WG657650
Allyl chloride	ppb	3.72	4.00	99.0	70-130	7.27	25	WG657650
Benzene	ppb	3.43	3.91	92.0	70-130	13.0	25	WG657650
Benzyl Chloride	ppb	3.33	4.03	89.0	70-130	19.1	25	WG657650
Bromodichloromethane	ppb	3.44	4.04	92.0	70-130	16.0	25	WG657650
Bromoform	ppb	3.40	4.08	91.0	70-130	18.2	25	WG657650
Bromomethane	ppb	3.68	3.81	98.0	70-130	3.45	25	WG657650
Carbon disulfide	ppb	3.69	3.87	98.0	70-130	4.53	25	WG657650
Carbon tetrachloride	ppb	3.70	3.97	99.0	70-130	7.05	25	WG657650
Chlorobenzene	ppb	3.35	4.05	89.0	70-130	18.8	25	WG657650
Dibromochloromethane	ppb	3.48	4.16	93.0	70-130	17.7	25	WG657650
Chloroethane	ppb	3.78	3.87	101.	70-130	2.54	25	WG657650
Chloroform	ppb	3.62	3.94	96.0	70-130	8.50	25	WG657650
Chloromethane	ppb	3.74	3.91	100.	70-130	4.48	25	WG657650
cis-1,2-Dichloroethene	ppb	3.67	4.01	98.0	70-130	8.94	25	WG657650
cis-1,3-Dichloropropene	ppb	3.52	4.21	94.0	70-130	17.8	25	WG657650
Cyclohexane	ppb	3.84	4.06	102.	70-130	5.68	25	WG657650
Dichlorodifluoromethane	ppb	3.61	3.80	96.0	70-130	5.14	25	WG657650
Ethanol	ppb	2.91	3.50	77.0	70-130	18.5	25	WG657650
Ethylbenzene	ppb	3.23	3.88	86.0	70-130	18.1	25	WG657650
Heptane	ppb	3.55	4.08	95.0	70-130	13.8	25	WG657650
Hexachloro-1,3-butadiene	ppb	3.38	3.97	90.0	50-149	15.9	25	WG657650
Isopropylbenzene	ppb	3.33	3.93	89.0	70-130	16.4	25	WG657650
m&p-Xylene	ppb	6.44	7.76	86.0	70-130	18.6	25	WG657650
Methyl Butyl Ketone	ppb	2.98	3.77	79.0	38-153	23.6	25	WG657650
Methyl methacrylate	ppb	3.25	3.88	86.0	70-130	17.9	25	WG657650
MTBE	ppb	3.62	3.97	96.0	70-130	9.22	25	WG657650
Methylene Chloride	ppb	3.42	3.65	91.0	70-130	6.65	25	WG657650
n-Hexane	ppb	3.78	4.07	101.	70-130	7.47	25	WG657650
Naphthalene	ppb	3.57	4.17	95.0	54-154	15.3	26	WG657650
o-Xylene	ppb	3.35	3.95	89.0	70-130	16.5	25	WG657650
Propene	ppb	3.63	3.82	97.0	70-130	5.13	25	WG657650
Styrene	ppb	3.37	4.06	90.0	70-130	18.7	25	WG657650
Tetrachloroethylene	ppb	3.43	4.00	92.0	70-130	15.3	25	WG657650
Tetrahydrofuran	ppb	3.60	3.93	96.0	70-130	8.89	25	WG657650
Toluene	ppb	3.46	4.10	92.0	70-130	16.9	25	WG657650
TPH (GC/MS) Low Fraction	ppb	126.	146.	84.0	70-130	15.0	25	WG657650
trans-1,2-Dichloroethene	ppb	3.68	3.94	98.0	70-130	6.90	25	WG657650
trans-1,3-Dichloropropene	ppb	3.52	4.28	94.0	70-130	19.5	25	WG657650
Trichloroethylene	ppb	3.45	4.00	92.0	70-130	14.7	25	WG657650
Trichlorofluoromethane	ppb	3.69	3.87	98.0	70-130	4.77	25	WG657650
Vinyl acetate	ppb	3.83	4.34	102.	70-130	12.4	25	WG657650
Vinyl Bromide	ppb	3.71	3.88	99.0	70-130	4.61	25	WG657650
Vinyl chloride	ppb	3.77	3.91	100.	70-130	3.75	25	WG657650
1,4-Bromofluorobenzene				99.84	60-140			WG657650
2-Butanone (MEK)	ppb	4.25	4.16	113.	70-130	2.26	25	WG657779
Acetone	ppb	4.16	4.16	111.	70-130	0.0800	25	WG657779
1,4-Bromofluorobenzene				100.2	60-140			WG657779

Batch number /Run number / Sample number cross reference

WG657650: R2632701: L631498-01 02 03
WG657779: R2634042: L631498-02

* * Calculations are performed prior to rounding of reported values.
* Performance of this Analyte is outside of established criteria.
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'

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Mt. Juliet, TN 37122
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Est. 1970

Hahn and Associates, Inc.
Jane-Clair Kerin
434 NW 6th Avenue, Suite 203

Portland, OR 97209-3651

Quality Assurance Report
Level II

L631498

April 24, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

APPENDIX D

Laboratory Analytical Reports and Chain-of-Custody Documentation
Soil Samples

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, May 15, 2013

Jane-Clair Kerin
Hahn and Associates
434 NW 6th Ave. Suite 203
Portland, OR 97209

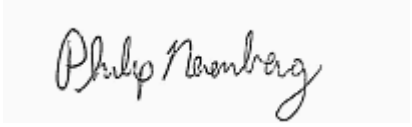
RE: ABCINV / 8426

Enclosed are the results of analyses for work order A3D0446, which was received by the laboratory on 4/18/2013 at 4:20:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
8426-130417-003	A3D0446-03	Soil	04/17/13 08:40	04/18/13 16:20
8426-130417-007	A3D0446-07	Soil	04/17/13 09:10	04/18/13 16:20
8426-130417-013	A3D0446-13	Soil	04/17/13 10:11	04/18/13 16:20
8426-130417-016	A3D0446-16	Soil	04/17/13 11:20	04/18/13 16:20
8426-130417-017	A3D0446-17	Soil	04/17/13 11:27	04/18/13 16:20
8426-130417-023	A3D0446-23	Soil	04/17/13 12:42	04/18/13 16:20
8426-130417-026	A3D0446-26	Soil	04/17/13 14:35	04/18/13 16:20

Apex Laboratories

Philip Nerenberg

Philip Nerenberg, Lab Director

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Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-003 (A3D0446-03)			**Matrix: Soil**		**Batch: 3040512**			
Gasoline Range Organics	ND	---	22.1	mg/kg dry	1	04/23/13 01:36	NWTPH-HCID	
Diesel Range Organics	ND	---	55.3	"	"	"	"	
Oil Range Organics	ND	---	111	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 96 %*	*Limits: 50-150 %*	"	"	"	
8426-130417-007 (A3D0446-07)			**Matrix: Soil**		**Batch: 3040512**			
Gasoline Range Organics	ND	---	22.9	mg/kg dry	1	04/23/13 02:04	NWTPH-HCID	
Diesel Range Organics	ND	---	57.2	"	"	"	"	
Oil Range Organics	ND	---	114	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 94 %*	*Limits: 50-150 %*	"	"	"	
8426-130417-013 (A3D0446-13)			**Matrix: Soil**		**Batch: 3040512**			
Gasoline Range Organics	ND	---	23.0	mg/kg dry	1	04/23/13 02:33	NWTPH-HCID	
Diesel Range Organics	ND	---	57.5	"	"	"	"	
Oil Range Organics	ND	---	115	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 76 %*	*Limits: 50-150 %*	"	"	"	
8426-130417-017 (A3D0446-17)			**Matrix: Soil**		**Batch: 3040512**			
Gasoline Range Organics	ND	---	22.5	mg/kg dry	1	04/23/13 03:02	NWTPH-HCID	
Diesel Range Organics	ND	---	56.1	"	"	"	"	
Oil Range Organics	DET	---	112	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*	"	"	"	
8426-130417-023 (A3D0446-23)			**Matrix: Soil**		**Batch: 3040512**			
Gasoline Range Organics	ND	---	24.1	mg/kg dry	1	04/23/13 03:59	NWTPH-HCID	
Diesel Range Organics	ND	---	60.1	"	"	"	"	
Oil Range Organics	ND	---	120	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 77 %*	*Limits: 50-150 %*	"	"	"	
8426-130417-026 (A3D0446-26)			**Matrix: Soil**		**Batch: 3040512**			
Gasoline Range Organics	ND	---	25.5	mg/kg dry	1	04/23/13 04:27	NWTPH-HCID	
Diesel Range Organics	DET	---	63.6	"	"	"	"	
Oil Range Organics	ND	---	127	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*	"	"	"	

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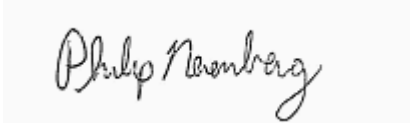

Philip Nerenberg, Lab Director

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Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx with Silica Gel Cleanup

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-016 (A3D0446-16RE1)			**Matrix: Soil**		**Batch: 3040531**			
Diesel	ND	---	1080	mg/kg dry	40	04/23/13 12:53	NWTPH-Dx/SG	
Oil	**5370**	---	2150	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: %*	*Limits: 50-150 %*	"	"	"	*S-01*
8426-130417-017 (A3D0446-17)			**Matrix: Soil**		**Batch: 3050025**			
Diesel	**58.4**	---	27.3	mg/kg dry	1	05/03/13 02:51	NWTPH-Dx/SG	F-11, Q-42
Oil	**81.9**	---	54.6	"	"	"	"	Q-42
Surrogate: o-Terphenyl (Surr)			*Recovery: 83 %*	*Limits: 50-150 %*	"	"	"	
8426-130417-026 (A3D0446-26RE1)			**Matrix: Soil**		**Batch: 3040531**			
Diesel	**7740**	---	600	mg/kg dry	20	04/23/13 12:53	NWTPH-Dx/SG	
Oil	ND	---	1200	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: %*	*Limits: 50-150 %*	"	"	"	*S-01*

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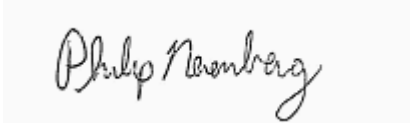

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Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-016 (A3D0446-16)			**Matrix: Soil**		**Batch: 3050005**			**V-16**
Acetone	ND	---	1270	ug/kg dry	50	05/01/13 15:15	5035/8260B	
Benzene	ND	---	15.9	"	"	"	"	
Bromobenzene	ND	---	31.8	"	"	"	"	
Bromochloromethane	ND	---	63.6	"	"	"	"	
Bromodichloromethane	ND	---	63.6	"	"	"	"	
Bromoform	ND	---	63.6	"	"	"	"	
Bromomethane	ND	---	636	"	"	"	"	
2-Butanone (MEK)	ND	---	636	"	"	"	"	
n-Butylbenzene	ND	---	63.6	"	"	"	"	
sec-Butylbenzene	ND	---	63.6	"	"	"	"	
tert-Butylbenzene	ND	---	63.6	"	"	"	"	
Carbon tetrachloride	ND	---	31.8	"	"	"	"	
Chlorobenzene	ND	---	31.8	"	"	"	"	
Chloroethane	ND	---	636	"	"	"	"	
Chloroform	ND	---	63.6	"	"	"	"	
Chloromethane	ND	---	318	"	"	"	"	
2-Chlorotoluene	ND	---	63.6	"	"	"	"	
4-Chlorotoluene	ND	---	63.6	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	---	318	"	"	"	"	
Dibromochloromethane	ND	---	127	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	31.8	"	"	"	"	
Dibromomethane	ND	---	63.6	"	"	"	"	
1,2-Dichlorobenzene	ND	---	31.8	"	"	"	"	
1,3-Dichlorobenzene	ND	---	31.8	"	"	"	"	
1,4-Dichlorobenzene	ND	---	31.8	"	"	"	"	
Dichlorodifluoromethane	ND	---	127	"	"	"	"	
1,1-Dichloroethane	ND	---	31.8	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	31.8	"	"	"	"	
1,1-Dichloroethene	ND	---	31.8	"	"	"	"	
cis-1,2-Dichloroethene	ND	---	31.8	"	"	"	"	
trans-1,2-Dichloroethene	ND	---	31.8	"	"	"	"	
1,2-Dichloropropane	ND	---	31.8	"	"	"	"	
1,3-Dichloropropane	ND	---	31.8	"	"	"	"	
2,2-Dichloropropane	ND	---	63.6	"	"	"	"	
1,1-Dichloropropene	ND	---	63.6	"	"	"	"	

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Philip Nerenberg, Lab Director

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503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-016 (A3D0446-16)			**Matrix: Soil**		**Batch: 3050005**			**V-16**
cis-1,3-Dichloropropene	ND	---	63.6	ug/kg dry	50	"	5035/8260B	
trans-1,3-Dichloropropene	ND	---	63.6	"	"	"	"	
Ethylbenzene	ND	---	31.8	"	"	"	"	
Hexachlorobutadiene	ND	---	127	"	"	"	"	
2-Hexanone	ND	---	636	"	"	"	"	
Isopropylbenzene	ND	---	63.6	"	"	"	"	
4-Isopropyltoluene	ND	---	63.6	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	---	636	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	63.6	"	"	"	"	
Methylene chloride	ND	---	318	"	"	"	"	
Naphthalene	ND	---	127	"	"	"	"	
n-Propylbenzene	ND	---	31.8	"	"	"	"	
Styrene	ND	---	63.6	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	---	31.8	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	---	31.8	"	"	"	"	
Tetrachloroethene (PCE)	ND	---	31.8	"	"	"	"	
Toluene	ND	---	63.6	"	"	"	"	
1,2,3-Trichlorobenzene	ND	---	318	"	"	"	"	
1,2,4-Trichlorobenzene	ND	---	318	"	"	"	"	
1,1,1-Trichloroethane	ND	---	31.8	"	"	"	"	
1,1,2-Trichloroethane	ND	---	31.8	"	"	"	"	
Trichloroethene (TCE)	ND	---	31.8	"	"	"	"	
Trichlorofluoromethane	ND	---	127	"	"	"	"	
1,2,3-Trichloropropane	ND	---	63.6	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	63.6	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	63.6	"	"	"	"	
Vinyl chloride	ND	---	31.8	"	"	"	"	
m,p-Xylene	ND	---	63.6	"	"	"	"	
o-Xylene	ND	---	31.8	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 105 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*109 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*99 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*101 %*	*Limits: 70-130 %*	"	"	"	

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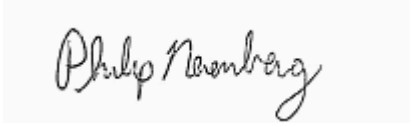

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Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-026 (A3D0446-26)			**Matrix: Soil**		**Batch: 3050005**			**V-16**
Acetone	ND	---	2750	ug/kg dry	100	05/01/13 15:41	5035/8260B	
Benzene	ND	---	34.4	"	"	"	"	
Bromobenzene	ND	---	68.9	"	"	"	"	
Bromochloromethane	ND	---	138	"	"	"	"	
Bromodichloromethane	ND	---	138	"	"	"	"	
Bromoform	ND	---	138	"	"	"	"	
Bromomethane	ND	---	1380	"	"	"	"	
2-Butanone (MEK)	ND	---	1380	"	"	"	"	
n-Butylbenzene	**814**	---	138	"	"	"	"	
sec-Butylbenzene	**580**	---	138	"	"	"	"	
tert-Butylbenzene	ND	---	138	"	"	"	"	
Carbon tetrachloride	ND	---	68.9	"	"	"	"	
Chlorobenzene	ND	---	68.9	"	"	"	"	
Chloroethane	ND	---	1380	"	"	"	"	
Chloroform	ND	---	138	"	"	"	"	
Chloromethane	ND	---	689	"	"	"	"	
2-Chlorotoluene	ND	---	138	"	"	"	"	
4-Chlorotoluene	ND	---	138	"	"	"	"	
1,2-Dibromo-3-chloropropane	ND	---	689	"	"	"	"	
Dibromochloromethane	ND	---	275	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	68.9	"	"	"	"	
Dibromomethane	ND	---	138	"	"	"	"	
1,2-Dichlorobenzene	ND	---	68.9	"	"	"	"	
1,3-Dichlorobenzene	ND	---	68.9	"	"	"	"	
1,4-Dichlorobenzene	ND	---	68.9	"	"	"	"	
Dichlorodifluoromethane	ND	---	275	"	"	"	"	
1,1-Dichloroethane	ND	---	68.9	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	68.9	"	"	"	"	
1,1-Dichloroethene	ND	---	68.9	"	"	"	"	
cis-1,2-Dichloroethene	ND	---	68.9	"	"	"	"	
trans-1,2-Dichloroethene	ND	---	68.9	"	"	"	"	
1,2-Dichloropropane	ND	---	68.9	"	"	"	"	
1,3-Dichloropropane	ND	---	68.9	"	"	"	"	
2,2-Dichloropropane	ND	---	138	"	"	"	"	
1,1-Dichloropropene	ND	---	138	"	"	"	"	

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Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-026 (A3D0446-26)			**Matrix: Soil**		**Batch: 3050005**			**V-16**
cis-1,3-Dichloropropene	ND	---	138	ug/kg dry	100	"	5035/8260B	
trans-1,3-Dichloropropene	ND	---	138	"	"	"	"	
Ethylbenzene	ND	---	68.9	"	"	"	"	
Hexachlorobutadiene	ND	---	275	"	"	"	"	
2-Hexanone	ND	---	1380	"	"	"	"	
Isopropylbenzene	**291**	---	138	"	"	"	"	
4-Isopropyltoluene	ND	---	138	"	"	"	"	
4-Methyl-2-pentanone (MiBK)	ND	---	1380	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	138	"	"	"	"	
Methylene chloride	ND	---	689	"	"	"	"	
Naphthalene	ND	---	579	"	"	"	"	R-01
n-Propylbenzene	**478**	---	68.9	"	"	"	"	
Styrene	ND	---	138	"	"	"	"	
1,1,1,2-Tetrachloroethane	ND	---	68.9	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	---	138	"	"	"	"	R-01
Tetrachloroethene (PCE)	ND	---	68.9	"	"	"	"	
Toluene	ND	---	138	"	"	"	"	
1,2,3-Trichlorobenzene	ND	---	689	"	"	"	"	
1,2,4-Trichlorobenzene	ND	---	689	"	"	"	"	
1,1,1-Trichloroethane	ND	---	68.9	"	"	"	"	
1,1,2-Trichloroethane	ND	---	68.9	"	"	"	"	
Trichloroethene (TCE)	ND	---	68.9	"	"	"	"	
Trichlorofluoromethane	ND	---	275	"	"	"	"	
1,2,3-Trichloropropane	ND	---	138	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	138	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	138	"	"	"	"	
Vinyl chloride	ND	---	68.9	"	"	"	"	
m,p-Xylene	ND	---	138	"	"	"	"	
o-Xylene	ND	---	68.9	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 105 %*	*Limits: 70-130 %*	1	"	"	
1,4-Difluorobenzene (Surr)			*110 %*	*Limits: 70-130 %*	"	"	"	
Toluene-d8 (Surr)			*96 %*	*Limits: 70-130 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*101 %*	*Limits: 70-130 %*	"	"	"	

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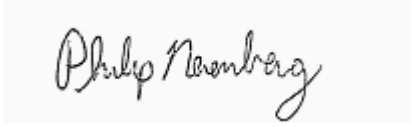

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503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-016 (A3D0446-16RE2)			**Matrix: Soil**		**Batch: 3050079**			**C-07**
Aroclor 1016	ND	---	11.6	ug/kg dry	1	05/07/13 20:47	EPA 8082A	
Aroclor 1221	ND	---	11.6	"	"	"	"	
Aroclor 1232	ND	---	11.6	"	"	"	"	
Aroclor 1242	ND	---	11.6	"	"	"	"	
Aroclor 1248	ND	---	11.6	"	"	"	"	
Aroclor 1254	**14.0**	---	11.6	"	"	"	"	EST, Q-42
Aroclor 1260	**15.4**	---	11.6	"	"	"	"	EST
Surrogate: Decachlorobiphenyl (Surr)			*Recovery: 79 %*	*Limits: 60-125 %*	"	"	"	

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-016 (A3D0446-16RE1)			**Matrix: Soil**		**Batch: 3050020**			
Acenaphthene	ND	---	11.1	ug/kg dry	1	05/02/13 11:12	EPA 8270D (SIM)	
Acenaphthylene	ND	---	12.2	"	"	"	"	R-02
Anthracene	ND	---	11.1	"	"	"	"	
Benz(a)anthracene	ND	---	17.8	"	"	"	"	R-02
Benzo(a)pyrene	ND	---	71.1	"	"	"	"	R-02
Benzo(b+k)fluoranthene(s)	ND	---	70.0	"	"	"	"	Q-26, R-02
Benzo(g,h,i)perylene	ND	---	48.9	"	"	"	"	R-02
Chrysene	ND	---	38.9	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	---	11.1	"	"	"	"	
Fluoranthene	**88.4**	---	11.1	"	"	"	"	
Fluorene	**14.0**	---	11.1	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	---	38.9	"	"	"	"	R-02
Naphthalene	**18.5**	---	11.1	"	"	"	"	
Phenanthrene	ND	---	78.9	"	"	"	"	R-02
Pyrene	**112**	---	11.1	"	"	"	"	M-02
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 87 %*	*Limits: 45-120 %*	"	"	"	
p-Terphenyl-d14 (Surr)			*93 %*	*Limits: 30-120 %*	"	"	"	
8426-130417-026 (A3D0446-26)			**Matrix: Soil**		**Batch: 3050020**			
Acenaphthene	ND	---	1660	ug/kg dry	10	05/01/13 17:37	EPA 8270D (SIM)	R-02
Acenaphthylene	ND	---	734	"	"	"	"	R-02
Anthracene	ND	---	734	"	"	"	"	R-02
Benz(a)anthracene	ND	---	118	"	"	"	"	
Benzo(a)pyrene	ND	---	118	"	"	"	"	
Benzo(b)fluoranthene	ND	---	118	"	"	"	"	
Benzo(k)fluoranthene	ND	---	118	"	"	"	"	
Benzo(g,h,i)perylene	ND	---	118	"	"	"	"	
Chrysene	ND	---	130	"	"	"	"	R-02
Dibenz(a,h)anthracene	ND	---	118	"	"	"	"	
Fluoranthene	ND	---	178	"	"	"	"	R-02
Fluorene	**4710**	---	118	"	"	"	"	
Indeno(1,2,3-cd)pyrene	ND	---	118	"	"	"	"	
Naphthalene	ND	---	213	"	"	"	"	R-02
Phenanthrene	**10700**	---	118	"	"	"	"	
Pyrene	**383**	---	118	"	"	"	"	
Surrogate: 2-Fluorobiphenyl (Surr)			*Recovery: 99 %*	*Limits: 45-120 %*	"	"	"	

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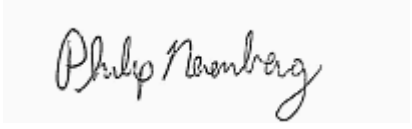

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-026 (A3D0446-26)			**Matrix: Soil**		**Batch: 3050020**			
Surrogate: p-Terphenyl-d14 (Surr)			*Recovery: 104 %*	*Limits: 30-120 %*	10	"	EPA 8270D (SIM)	

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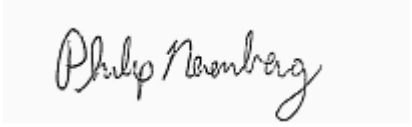

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Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-017 (A3D0446-17)			**Matrix: Soil**					
Batch: 3040592								
Arsenic	**4.21**	---	2.66	mg/kg dry	10	04/24/13 18:33	EPA 6020A	
Barium	**145**	---	1.33	"	"	"	"	
Cadmium	ND	---	1.33	"	"	"	"	
Chromium	**15.2**	---	2.66	"	"	"	"	
Lead	**57.6**	---	1.33	"	"	"	"	
Mercury	ND	---	0.106	"	"	"	"	
Selenium	ND	---	2.66	"	"	"	"	
Silver	ND	---	1.33	"	"	"	"	
8426-130417-023 (A3D0446-23)			**Matrix: Soil**					
Batch: 3040592								
Arsenic	**5.38**	---	2.54	mg/kg dry	10	04/24/13 18:36	EPA 6020A	
Barium	**189**	---	1.27	"	"	"	"	
Cadmium	ND	---	1.27	"	"	"	"	
Chromium	**18.3**	---	2.54	"	"	"	"	
Lead	**15.4**	---	1.27	"	"	"	"	
Mercury	ND	---	0.102	"	"	"	"	
Selenium	ND	---	2.54	"	"	"	"	
Silver	ND	---	1.27	"	"	"	"	
8426-130417-026 (A3D0446-26)			**Matrix: Soil**					
Batch: 3040592								
Arsenic	**5.72**	---	2.78	mg/kg dry	10	04/24/13 18:40	EPA 6020A	
Barium	**203**	---	1.39	"	"	"	"	
Cadmium	ND	---	1.39	"	"	"	"	
Chromium	**16.4**	---	2.78	"	"	"	"	
Lead	**57.2**	---	1.39	"	"	"	"	
Mercury	ND	---	0.111	"	"	"	"	
Selenium	ND	---	2.78	"	"	"	"	
Silver	ND	---	1.39	"	"	"	"	

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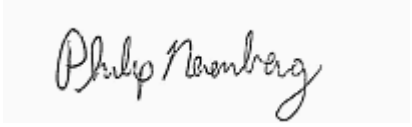

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130417-003 (A3D0446-03)			**Matrix: Soil**		**Batch: 3040497**			
% Solids	**87.1**	---	1.00	% by Weight	1	04/22/13 09:47	Apex SOP	
8426-130417-007 (A3D0446-07)			**Matrix: Soil**		**Batch: 3040497**			
% Solids	**87.1**	---	1.00	% by Weight	1	04/22/13 09:47	Apex SOP	
8426-130417-013 (A3D0446-13)			**Matrix: Soil**		**Batch: 3040497**			
% Solids	**86.5**	---	1.00	% by Weight	1	04/22/13 09:47	Apex SOP	
8426-130417-016 (A3D0446-16)			**Matrix: Soil**		**Batch: 3040497**			
% Solids	**84.0**	---	1.00	% by Weight	1	04/22/13 09:47	Apex SOP	
8426-130417-017 (A3D0446-17)			**Matrix: Soil**		**Batch: 3040497**			
% Solids	**81.8**	---	1.00	% by Weight	1	04/22/13 09:47	Apex SOP	
8426-130417-023 (A3D0446-23)			**Matrix: Soil**		**Batch: 3040497**			
% Solids	**78.0**	---	1.00	% by Weight	1	04/22/13 09:47	Apex SOP	
8426-130417-026 (A3D0446-26)			**Matrix: Soil**		**Batch: 3040497**			
% Solids	**77.1**	---	1.00	% by Weight	1	04/22/13 09:47	Apex SOP	

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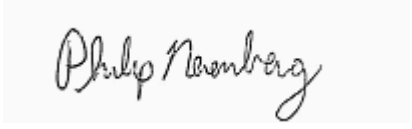

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040512 - NWTPH-HCID (Soil)							**Soil**					
Blank (3040512-BLK1)					Prepared: 04/22/13 07:07 Analyzed: 04/23/13 01:07							
NWTPH-HCID												
Gasoline Range Organics	ND	---	16.7	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	41.7	"	"	---	---	---	---	---	---	
Oil Range Organics	ND	---	83.3	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 89 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (3040512-DUP1)					Prepared: 04/22/13 07:07 Analyzed: 04/23/13 04:56							
QC Source Sample: 8426-130417-026 (A3D0446-26)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	25.3	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	**DET**	---	63.3	"	"	---	DET	---	---	14	30%	
Oil Range Organics	ND	---	127	"	"	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx with Silica Gel Cleanup

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040531 - EPA 3546 (Fuels)							**Soil**					
Blank (3040531-BLK1)					Prepared: 04/22/13 13:11 Analyzed: 04/22/13 19:30							
NWTPH-Dx/SG												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 102 %*		*Limits: 50-150 %*			*Dilution: 1x*					
LCS (3040531-BS1)					Prepared: 04/22/13 13:11 Analyzed: 04/22/13 19:54							
NWTPH-Dx/SG												
Diesel	133	---	25.0	mg/kg wet	1	125	---	107	70-130%	---	---	
Surr: o-Terphenyl (Surr)		*Recovery: 103 %*		*Limits: 50-150 %*			*Dilution: 1x*					

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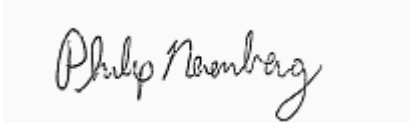

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx with Silica Gel Cleanup

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050025 - EPA 3546 (Fuels)							**Soil**					
Blank (3050025-BLK1)					Prepared: 05/01/13 13:37 Analyzed: 05/03/13 01:50							
NWTPH-Dx/SG												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (3050025-BS1)					Prepared: 05/01/13 13:37 Analyzed: 05/03/13 02:21							
NWTPH-Dx/SG												
Diesel	128	---	25.0	mg/kg wet	1	125	---	103	70-130%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (3050025-DUP1)					Prepared: 05/01/13 13:37 Analyzed: 05/03/13 03:22							
QC Source Sample: 8426-130417-017 (A3D0446-17)												
NWTPH-Dx/SG												
Diesel	ND	---	29.1	mg/kg dry	1	---	58.4	---	---	***	30%	Q-05
Oil	**158**	---	58.3	"	"	---	81.9	---	---	63	30%	Q-05
Surr: o-Terphenyl (Surr)			*Recovery: 85 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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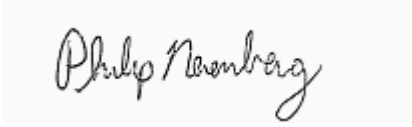

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050005 - EPA 5035A							**Soil**					
Blank (3050005-BLK1)					Prepared: 05/01/13 09:00 Analyzed: 05/01/13 11:48							
5035/8260B												
Acetone	ND	---	667	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	8.33	"	"	---	---	---	---	---	---	
Bromobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Bromochloromethane	ND	---	33.3	"	"	---	---	---	---	---	---	
Bromodichloromethane	ND	---	33.3	"	"	---	---	---	---	---	---	
Bromoform	ND	---	33.3	"	"	---	---	---	---	---	---	
Bromomethane	ND	---	333	"	"	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	333	"	"	---	---	---	---	---	---	
n-Butylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	16.7	"	"	---	---	---	---	---	---	
Chlorobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Chloroethane	ND	---	333	"	"	---	---	---	---	---	---	
Chloroform	ND	---	33.3	"	"	---	---	---	---	---	---	
Chloromethane	ND	---	167	"	"	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	33.3	"	"	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	33.3	"	"	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	167	"	"	---	---	---	---	---	---	
Dibromochloromethane	ND	---	66.7	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	16.7	"	"	---	---	---	---	---	---	
Dibromomethane	ND	---	33.3	"	"	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	66.7	"	"	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	16.7	"	"	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	16.7	"	"	---	---	---	---	---	---	

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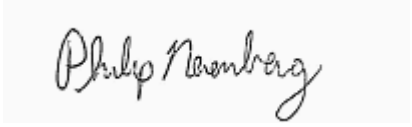

Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050005 - EPA 5035A							**Soil**					
Blank (3050005-BLK1)					Prepared: 05/01/13 09:00 Analyzed: 05/01/13 11:48							
cis-1,2-Dichloroethene	ND	---	16.7	ug/kg wet	"	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	16.7	"	"	---	---	---	---	---	---	
1,2-Dichloropropane	ND	---	16.7	"	"	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	16.7	"	"	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	33.3	"	"	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	33.3	"	"	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	33.3	"	"	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	33.3	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	66.7	"	"	---	---	---	---	---	---	
2-Hexanone	ND	---	333	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	33.3	"	"	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	333	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	33.3	"	"	---	---	---	---	---	---	
Methylene chloride	ND	---	167	"	"	---	---	---	---	---	---	
Naphthalene	ND	---	66.7	"	"	---	---	---	---	---	---	
n-Propylbenzene	ND	---	16.7	"	"	---	---	---	---	---	---	
Styrene	ND	---	33.3	"	"	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	16.7	"	"	---	---	---	---	---	---	
Toluene	ND	---	33.3	"	"	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	167	"	"	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	167	"	"	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	16.7	"	"	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	16.7	"	"	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	66.7	"	"	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	33.3	"	"	---	---	---	---	---	---	

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Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050005 - EPA 5035A							**Soil**					
Blank (3050005-BLK1)					Prepared: 05/01/13 09:00 Analyzed: 05/01/13 11:48							
1,2,4-Trimethylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	33.3	"	"	---	---	---	---	---	---	
Vinyl chloride	ND	---	16.7	"	"	---	---	---	---	---	---	
m,p-Xylene	ND	---	33.3	"	"	---	---	---	---	---	---	
o-Xylene	ND	---	16.7	"	"	---	---	---	---	---	---	
Surr: Dibromofluoromethane (Surr)		*Recovery:*	*104 %*	*Limits:*	*70-130 %*		*Dilution:*	*1x*				
1,4-Difluorobenzene (Surr)			*109 %*		*70-130 %*			*"*				
Toluene-d8 (Surr)			*98 %*		*70-130 %*			*"*				
4-Bromofluorobenzene (Surr)			*103 %*		*70-130 %*			*"*				
LCS (3050005-BS1)					Prepared: 05/01/13 09:00 Analyzed: 05/01/13 10:57							
5035/8260B												
Acetone	2330	---	1000	ug/kg wet	50	2000	---	117	65-135%	---	---	
Benzene	1100	---	12.5	"	"	1000	---	110	"	---	---	
Bromobenzene	917	---	25.0	"	"	"	---	92	"	---	---	
Bromochloromethane	1040	---	50.0	"	"	"	---	104	"	---	---	
Bromodichloromethane	1090	---	50.0	"	"	"	---	109	"	---	---	
Bromoform	903	---	50.0	"	"	"	---	90	"	---	---	
Bromomethane	780	---	500	"	"	"	---	78	"	---	---	
2-Butanone (MEK)	2230	---	500	"	"	2000	---	112	"	---	---	
n-Butylbenzene	884	---	50.0	"	"	1000	---	88	"	---	---	
sec-Butylbenzene	890	---	50.0	"	"	"	---	89	"	---	---	
tert-Butylbenzene	843	---	50.0	"	"	"	---	84	"	---	---	
Carbon tetrachloride	1030	---	25.0	"	"	"	---	103	"	---	---	
Chlorobenzene	908	---	25.0	"	"	"	---	91	"	---	---	
Chloroethane	860	---	500	"	"	"	---	86	"	---	---	
Chloroform	1060	---	50.0	"	"	"	---	106	"	---	---	
Chloromethane	927	---	250	"	"	"	---	93	"	---	---	
2-Chlorotoluene	934	---	50.0	"	"	"	---	93	"	---	---	
4-Chlorotoluene	966	---	50.0	"	"	"	---	97	"	---	---	
1,2-Dibromo-3-chloropropane	824	---	250	"	"	"	---	82	"	---	---	

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503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050005 - EPA 5035A							**Soil**					
LCS (3050005-BS1)					Prepared: 05/01/13 09:00 Analyzed: 05/01/13 10:57							
Dibromochloromethane	976	---	100	ug/kg wet	"	"	---	98	"	---	---	
1,2-Dibromoethane (EDB)	931	---	25.0	"	"	"	---	93	"	---	---	
Dibromomethane	1060	---	50.0	"	"	"	---	106	"	---	---	
1,2-Dichlorobenzene	894	---	25.0	"	"	"	---	89	"	---	---	
1,3-Dichlorobenzene	920	---	25.0	"	"	"	---	92	"	---	---	
1,4-Dichlorobenzene	900	---	25.0	"	"	"	---	90	"	---	---	
Dichlorodifluoromethane	1010	---	100	"	"	"	---	101	"	---	---	
1,1-Dichloroethane	1030	---	25.0	"	"	"	---	103	"	---	---	
1,2-Dichloroethane (EDC)	1040	---	25.0	"	"	"	---	104	"	---	---	
1,1-Dichloroethene	940	---	25.0	"	"	"	---	94	"	---	---	
cis-1,2-Dichloroethene	1090	---	25.0	"	"	"	---	109	"	---	---	
trans-1,2-Dichloroethene	1030	---	25.0	"	"	"	---	103	"	---	---	
1,2-Dichloropropane	1040	---	25.0	"	"	"	---	104	"	---	---	
1,3-Dichloropropane	973	---	25.0	"	"	"	---	97	"	---	---	
2,2-Dichloropropane	1080	---	50.0	"	"	"	---	108	"	---	---	
1,1-Dichloropropene	1030	---	50.0	"	"	"	---	103	"	---	---	
cis-1,3-Dichloropropene	947	---	50.0	"	"	"	---	95	"	---	---	
trans-1,3-Dichloropropene	1020	---	50.0	"	"	"	---	102	"	---	---	
Ethylbenzene	904	---	25.0	"	"	"	---	90	"	---	---	
Hexachlorobutadiene	754	---	100	"	"	"	---	75	"	---	---	
2-Hexanone	1880	---	500	"	"	2000	---	94	"	---	---	
Isopropylbenzene	885	---	50.0	"	"	1000	---	88	"	---	---	
4-Isopropyltoluene	872	---	50.0	"	"	"	---	87	"	---	---	
4-Methyl-2-pentanone (MiBK)	1690	---	500	"	"	2000	---	85	"	---	---	
Methyl tert-butyl ether (MTBE)	948	---	50.0	"	"	1000	---	95	"	---	---	
Methylene chloride	1110	---	250	"	"	"	---	111	"	---	---	
Naphthalene	894	---	100	"	"	"	---	89	"	---	---	
n-Propylbenzene	914	---	25.0	"	"	"	---	91	"	---	---	
Styrene	942	---	50.0	"	"	"	---	94	"	---	---	
1,1,1,2-Tetrachloroethane	966	---	25.0	"	"	"	---	97	"	---	---	

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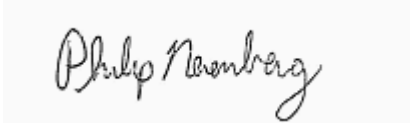

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Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050005 - EPA 5035A							**Soil**					
LCS (3050005-BS1)					Prepared: 05/01/13 09:00 Analyzed: 05/01/13 10:57							
1,1,2,2-Tetrachloroethane	839	---	25.0	"	"	"	---	84	"	---	---	
Tetrachloroethene (PCE)	874	---	25.0	"	"	"	---	87	"	---	---	
Toluene	906	---	50.0	"	"	"	---	91	"	---	---	
1,2,3-Trichlorobenzene	832	---	250	"	"	"	---	83	"	---	---	
1,2,4-Trichlorobenzene	919	---	250	"	"	"	---	92	"	---	---	
1,1,1-Trichloroethane	988	---	25.0	"	"	"	---	99	"	---	---	
1,1,2-Trichloroethane	944	---	25.0	"	"	"	---	94	"	---	---	
Trichloroethene (TCE)	1030	---	25.0	"	"	"	---	103	"	---	---	
Trichlorofluoromethane	1770	---	100	"	"	"	---	177	"	---	---	ESTa
1,2,3-Trichloropropane	840	---	50.0	"	"	"	---	84	"	---	---	
1,2,4-Trimethylbenzene	939	---	50.0	"	"	"	---	94	"	---	---	
1,3,5-Trimethylbenzene	934	---	50.0	"	"	"	---	93	"	---	---	
Vinyl chloride	914	---	25.0	"	"	"	---	91	"	---	---	
m,p-Xylene	1810	---	50.0	"	"	2000	---	90	"	---	---	
o-Xylene	878	---	25.0	"	"	1000	---	88	"	---	---	

Surr: Dibromofluoromethane (Surr)	*Recovery: 107 %*	*Limits: 70-130 %*	*Dilution: 1x*	
1,4-Difluorobenzene (Surr)	*111 %*	*70-130 %*	*"*	
Toluene-d8 (Surr)	*95 %*	*70-130 %*	*"*	
4-Bromofluorobenzene (Surr)	*98 %*	*70-130 %*	*"*	

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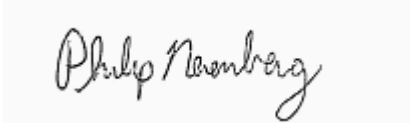

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503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050079 - EPA 3546							**Soil**					
Blank (3050079-BLK1)					Prepared: 05/03/13 07:29 Analyzed: 05/03/13 17:05							**C-07**
EPA 8082A												
Aroclor 1016	ND	---	3.23	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	3.23	"	"	---	---	---	---	---	---	
Aroclor 1232	ND	---	3.23	"	"	---	---	---	---	---	---	
Aroclor 1242	ND	---	3.23	"	"	---	---	---	---	---	---	
Aroclor 1248	ND	---	3.23	"	"	---	---	---	---	---	---	
Aroclor 1254	ND	---	3.23	"	"	---	---	---	---	---	---	
Aroclor 1260	ND	---	3.23	"	"	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 94 %*	*Limits: 60-125 %*			*Dilution: 1x*					
LCS (3050079-BS1)					Prepared: 05/03/13 07:29 Analyzed: 05/03/13 17:23							**C-07**
EPA 8082A												
Aroclor 1016	209	---	10.0	ug/kg wet	1	250	---	84	40-140%	---	---	
Aroclor 1260	193	---	10.0	"	"	"	---	77	60-130%	---	---	
Surr: Decachlorobiphenyl (Surr)			*Recovery: 92 %*	*Limits: 60-125 %*			*Dilution: 1x*					
Duplicate (3050079-DUP3)					Prepared: 05/03/13 07:29 Analyzed: 05/07/13 21:23							**C-07**
QC Source Sample: 8426-130417-016 (A3D0446-16RE2)												
EPA 8082A												
Aroclor 1016	ND	---	11.6	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1221	ND	---	11.6	"	"	---	ND	---	---	---	30%	
Aroclor 1232	ND	---	11.6	"	"	---	ND	---	---	---	30%	
Aroclor 1242	ND	---	11.6	"	"	---	ND	---	---	---	30%	
Aroclor 1248	ND	---	11.6	"	"	---	ND	---	---	---	30%	
Aroclor 1254	**22.8**	---	11.6	"	"	---	14.0	---	---	48	30%	EST, Q-01
Aroclor 1260	**18.0**	---	11.6	"	"	---	15.4	---	---	15	30%	EST
Surr: Decachlorobiphenyl (Surr)			*Recovery: 84 %*	*Limits: 60-125 %*			*Dilution: 1x*					

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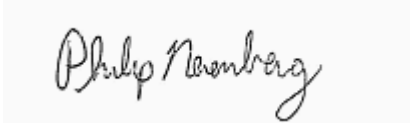

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503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050020 - EPA 3546							**Soil**					
Blank (3050020-BLK1)					Prepared: 05/01/13 13:09 Analyzed: 05/01/13 15:53							
EPA 8270D (SIM)												
Acenaphthene	ND	---	9.09	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	9.09	"	"	---	---	---	---	---	---	
Anthracene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	9.09	"	"	---	---	---	---	---	---	
Benzo(b+k)fluoranthene(s)	ND	---	18.2	"	"	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	9.09	"	"	---	---	---	---	---	---	
Chrysene	ND	---	9.09	"	"	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	9.09	"	"	---	---	---	---	---	---	
Dibenzofuran	ND	---	9.09	"	"	---	---	---	---	---	---	
Fluoranthene	ND	---	9.09	"	"	---	---	---	---	---	---	
Fluorene	ND	---	9.09	"	"	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	9.09	"	"	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	9.09	"	"	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	9.09	"	"	---	---	---	---	---	---	
Naphthalene	ND	---	9.09	"	"	---	---	---	---	---	---	
Phenanthrene	ND	---	9.09	"	"	---	---	---	---	---	---	
Pyrene	ND	---	9.09	"	"	---	---	---	---	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 91 %*	*Limits: 45-120 %*			*Dilution: 1x*					
p-Terphenyl-d14 (Surr)			*104 %*	*30-120 %*			*"*					
LCS (3050020-BS1)					Prepared: 05/01/13 13:09 Analyzed: 05/01/13 16:19							
EPA 8270D (SIM)												
Acenaphthene	714	---	10.0	ug/kg wet	1	800	---	89	45-125%	---	---	
Acenaphthylene	728	---	10.0	"	"	"	---	91	"	---	---	
Anthracene	759	---	10.0	"	"	"	---	95	55-125%	---	---	
Benz(a)anthracene	703	---	10.0	"	"	"	---	88	50-125%	---	---	
Benzo(a)pyrene	772	---	10.0	"	"	"	---	97	"	---	---	
Benzo(b)fluoranthene	764	---	10.0	"	"	"	---	95	45-125%	---	---	

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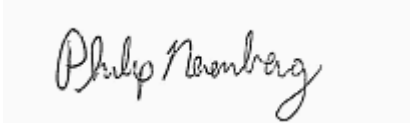

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050020 - EPA 3546							**Soil**					
LCS (3050020-BS1)					Prepared: 05/01/13 13:09		Analyzed: 05/01/13 16:19					
Benzo(k)fluoranthene	724	---	10.0	"	"	"	---	90	"	---	---	
Benzo(b+k)fluoranthene(s)	1480	---	20.0	"	"	1600	---	92	"	---	---	
Benzo(g,h,i)perylene	728	---	10.0	"	"	800	---	91	40-125%	---	---	
Chrysene	682	---	10.0	"	"	"	---	85	55-125%	---	---	
Dibenz(a,h)anthracene	714	---	10.0	"	"	"	---	89	40-125%	---	---	
Dibenzofuran	711	---	10.0	"	"	"	---	89	50-125%	---	---	
Fluoranthene	762	---	10.0	"	"	"	---	95	55-125%	---	---	
Fluorene	715	---	10.0	"	"	"	---	89	50-125%	---	---	
Indeno(1,2,3-cd)pyrene	696	---	10.0	"	"	"	---	87	40-125%	---	---	
1-Methylnaphthalene	702	---	10.0	"	"	"	---	88	45-125%	---	---	
2-Methylnaphthalene	707	---	10.0	"	"	"	---	88	"	---	---	
Naphthalene	674	---	10.0	"	"	"	---	84	40-125%	---	---	
Phenanthrene	710	---	10.0	"	"	"	---	89	50-125%	---	---	
Pyrene	758	---	10.0	"	"	"	---	95	45-125%	---	---	
Surr: 2-Fluorobiphenyl (Surr)			*Recovery: 88 %*		*Limits: 45-120 %*				*Dilution: 1x*			
p-Terphenyl-d14 (Surr)			*98 %*		*30-120 %*				*"*			
Duplicate (3050020-DUP2)					Prepared: 05/01/13 13:09		Analyzed: 05/02/13 21:46					
QC Source Sample: 8426-130417-016 (A3D0446-16RE1)												
EPA 8270D (SIM)												
Acenaphthene	ND	---	13.5	ug/kg dry	1	---	ND	---	---	---	30%	R-02
Acenaphthylene	ND	---	11.2	"	"	---	ND	---	---	---	30%	
Anthracene	ND	---	11.2	"	"	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	---	14.6	"	"	---	ND	---	---	---	30%	R-02
Benzo(a)pyrene	ND	---	60.7	"	"	---	ND	---	---	---	30%	R-02
Benzo(b+k)fluoranthene(s)	ND	---	51.7	"	"	---	ND	---	---	---	30%	Q-26, R-02
Benzo(g,h,i)perylene	ND	---	37.1	"	"	---	ND	---	---	---	30%	R-02
Chrysene	ND	---	22.5	"	"	---	ND	---	---	---	30%	R-02
Dibenz(a,h)anthracene	ND	---	11.2	"	"	---	ND	---	---	---	30%	
Dibenzofuran	ND	---	11.2	"	"	---	ND	---	---	---	30%	
Fluoranthene	**60.4**	---	11.2	"	"	---	88.4	---	---	38	30%	Q-17
Fluorene	**11.8**	---	11.2	"	"	---	14.0	---	---	17	30%	

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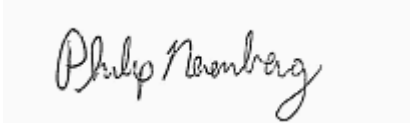

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050020 - EPA 3546							**Soil**					
Duplicate (3050020-DUP2)					Prepared: 05/01/13 13:09 Analyzed: 05/02/13 21:46							
QC Source Sample: 8426-130417-016 (A3D0446-16RE1)												
Indeno(1,2,3-cd)pyrene	ND	---	25.9	"	"	---	ND	---	---	---	30%	R-02
1-Methylnaphthalene	ND	---	11.2	"	"	---	7.72	---	---	***	30%	
2-Methylnaphthalene	**12.0**	---	11.2	"	"	---	16.3	---	---	31	30%	Q-17
Naphthalene	**12.1**	---	11.2	"	"	---	18.5	---	---	42	30%	Q-17
Phenanthrene	ND	---	51.7	"	"	---	ND	---	---	---	30%	R-02
Pyrene	**76.3**	---	11.2	"	"	---	112	---	---	38	30%	M-02, Q-17

Surr: 2-Fluorobiphenyl (Surr) *Recovery: 83 %* *Limits: 45-120 %* *Dilution: 1x*
p-Terphenyl-d14 (Surr) *91 %* *30-120 %* *"*

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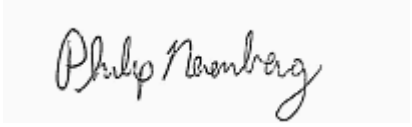

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020 (ICPMS)

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040592 - EPA 3051A							**Soil**					
Blank (3040592-BLK1)					Prepared: 04/24/13 10:59 Analyzed: 04/24/13 17:51							
EPA 6020A												
Arsenic	ND	---	2.00	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	---	1.00	"	"	---	---	---	---	---	---	
Cadmium	ND	---	1.00	"	"	---	---	---	---	---	---	
Chromium	ND	---	2.00	"	"	---	---	---	---	---	---	
Lead	ND	---	1.00	"	"	---	---	---	---	---	---	
Mercury	ND	---	0.0800	"	"	---	---	---	---	---	---	
Selenium	ND	---	2.00	"	"	---	---	---	---	---	---	
Silver	ND	---	1.00	"	"	---	---	---	---	---	---	
LCS (3040592-BS1)					Prepared: 04/24/13 10:59 Analyzed: 04/24/13 17:54							
EPA 6020A												
Arsenic	56.0	---	2.00	mg/kg wet	10	50.0	---	112	80-120%	---	---	
Barium	54.3	---	1.00	"	"	"	---	109	"	---	---	
Cadmium	52.6	---	1.00	"	"	"	---	105	"	---	---	
Chromium	49.7	---	2.00	"	"	"	---	99	"	---	---	
Lead	52.8	---	1.00	"	"	"	---	105	"	---	---	
Mercury	1.11	---	0.0800	"	"	1.00	---	111	"	---	---	
Selenium	28.9	---	2.00	"	"	25.0	---	116	"	---	---	
Silver	26.0	---	1.00	"	"	"	---	104	"	---	---	
Post Spike (3040592-PS1)					Prepared: 04/25/13 11:34 Analyzed: 04/25/13 11:39							
Barium	1640	---		ug/L	50	877	763	100	80-120%		---	
Lead	4520	---		"	"	"	3370	131	"		---	PS-02
Silver	348	---		"	"	351	1.32	99	"		---	
Post Spike (3040592-PS2)					Prepared: 04/25/13 11:34 Analyzed: 04/25/13 11:42							
Barium	1720	---		ug/L	10	909	930	87	80-120%		---	

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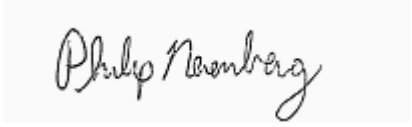

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3040497 - Total Solids (Dry Weight)												**Soil**

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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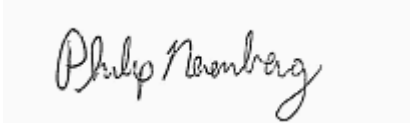

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: NWTPH-HCID (Soil)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3040512							
A3D0446-03	Soil	NWTPH-HCID	04/17/13 08:40	04/22/13 07:07	10.38g/10mL	10g/10mL	0.96
A3D0446-07	Soil	NWTPH-HCID	04/17/13 09:10	04/22/13 07:07	10.03g/10mL	10g/10mL	1.00
A3D0446-13	Soil	NWTPH-HCID	04/17/13 10:11	04/22/13 07:07	10.06g/10mL	10g/10mL	0.99
A3D0446-17	Soil	NWTPH-HCID	04/17/13 11:27	04/22/13 07:07	10.89g/10mL	10g/10mL	0.92
A3D0446-23	Soil	NWTPH-HCID	04/17/13 12:42	04/22/13 07:07	10.66g/10mL	10g/10mL	0.94
A3D0446-26	Soil	NWTPH-HCID	04/17/13 14:35	04/22/13 07:07	10.19g/10mL	10g/10mL	0.98

Diesel and Oil Hydrocarbons by NWTPH-Dx with Silica Gel Cleanup

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3040531							
A3D0446-16RE1	Soil	NWTPH-Dx/SG	04/17/13 11:20	04/22/13 13:11	11.05g/5mL	10g/5mL	0.91
A3D0446-26RE1	Soil	NWTPH-Dx/SG	04/17/13 14:35	04/22/13 13:11	10.8g/5mL	10g/5mL	0.93
Batch: 3050025							
A3D0446-17	Soil	NWTPH-Dx/SG	04/17/13 11:27	05/01/13 13:37	11.19g/5mL	10g/5mL	0.89

Volatile Organic Compounds by EPA 8260B

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3050005							
A3D0446-16	Soil	5035/8260B	04/17/13 11:20	05/01/13 12:10	11.001g/10mL	10g/10mL	0.91
A3D0446-26	Soil	5035/8260B	04/17/13 14:35	05/01/13 12:10	12.005g/10mL	10g/10mL	0.83

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3050079							
A3D0446-16RE2	Soil	EPA 8082A	04/17/13 11:20	05/03/13 07:29	10.23g/5mL	10g/5mL	0.98

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

SAMPLE PREPARATION INFORMATION

Polyaromatic Hydrocarbons (PAHs) by EPA 8270D SIM

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3050020							
A3D0446-16RE1	Soil	EPA 8270D (SIM)	04/17/13 11:20	05/01/13 13:09	10.71g/5mL	10g/5mL	0.93
A3D0446-26	Soil	EPA 8270D (SIM)	04/17/13 14:35	05/01/13 13:09	10.95g/5mL	10g/5mL	0.91

Total Metals by EPA 6020 (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3040592							
A3D0446-17	Soil	EPA 6020A	04/17/13 11:27	04/24/13 10:59	0.46g/50mL	0.5g/50mL	1.09
A3D0446-23	Soil	EPA 6020A	04/17/13 12:42	04/24/13 10:59	0.505g/50mL	0.5g/50mL	0.99
A3D0446-26	Soil	EPA 6020A	04/17/13 14:35	04/24/13 10:59	0.466g/50mL	0.5g/50mL	1.07

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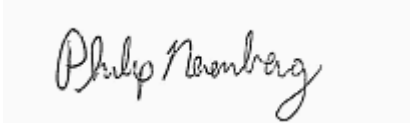

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

Notes and Definitions

Qualifiers:

C-07	Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
EST	Result reported as an Estimated Value. Multiple aroclors present
ESTa	Result reported as an Estimated Value. Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
F-11	The hydrocarbon pattern indicates possible weathered diesel, or a contribution from a related component.
M-02	Due to matrix interference, this analyte cannot be accurately quantified. The reported result is estimated.
Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-05	Analyses are not controlled on RPD values from sample or duplicate concentrations below 5 times the reporting level.
Q-17	RPD between original and duplicate sample is outside of established control limits.
Q-26	Peak separation for Benzo(b) and Benzo(k)fluoranthenes does not meet method specified criteria. Reported result includes the combined area of the two isomers and should be considered the total of Benzo(b+k)Fluoranthenes.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
R-01	The Reporting Limit for this analyte has been raised to account for matrix interference.
R-02	The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
S-01	Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
V-16	Sample aliquot was subsampled from the sample container in the laboratory . The subsampled aliquot was not preserved within 48 hours of sampling.

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.

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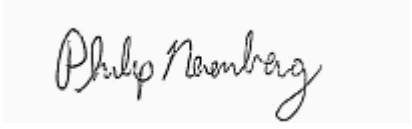

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Blank Policy — Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses.

For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor.

Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.

--- QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.

*** Used to indicate a possible discrepency with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

A3D0446 Rev. 1 Dust 4/19/13

HAHN AND ASSOCIATES, INC.
Environmental Management
434 NW Sixth Avenue, Suite 203 • Portland OR 97209
(503) 796-0717 • Fax (503) 227-2209

Laboratory: Apex

Lab Project No.

CHAIN OF CUSTODY
Chain of Custody No. 1 of 1

Project Manager: J. Kerin
Project No.: 8426
Project Name: ABCINV
Collected by: J. Kerin

Liquid with Sediment Sample: Test Phase / Test Sediment / Test Both
Multi Phase Sample: Test One (which) / Test Separately / Data
Samples Received at 4C (Y or N)
Appropriate Containers Used (Y or N)
Provide Verbal Results (Y or N)
Provide Preliminary Fax Results

Sample Number Prefix: 8426-130417-

5 Day Turn *w/o Surcharge please! thank-you

Lab ID	Sample #	Date	Time	Sample Description	Soil	Water	Other	Number of Containers	NW TPH-HCID w/ silica gel cleanup	NW TPH-Dx and Silica Gel Cleanup	RCRA 8 Metals							RUSH	Remarks
	001	4/17/013	8:20	P-1 3.5'-4' bgs	x			2											
	002	17-Apr-13	8:36	P-1 6'-6.5' bgs	x			2											
	003	17-Apr-13	8:40	P-1 8'-8.5' bgs	x			2	x		(X) No							X	5-day TAT
	004	17-Apr-13	8:43	P-1 11.5'-12' bgs	x			2											
	005	17-Apr-13	8:47	P-1 19.5'-20' bgs	x			2											
	006	17-Apr-13	9:05	P-2 4.5'-5' bgs	x			2											
	007	17-Apr-13	9:10	P-2 6'-6.5' bgs	x			2	x		(X) No							X	5-day TAT
	008	17-Apr-13	9:12	P-2 8'-8.5' bgs	x			2											
	009	17-Apr-13	9:15	P-2 11.5'-12' bgs	x			2											
	010	17-Apr-13	9:30	P-2 17'-17.5' bgs	x			2											
	011	17-Apr-13	10:04	P-3 3'-3.5' bgs	x			2											
	012	17-Apr-13	10:08	P-3 6.5'-7' bgs	x			2											
	013	17-Apr-13	10:11	P-3 8'-8.5' bgs	x			2	x		(X) No							X	5-day TAT
	014	17-Apr-13	10:15	P-3 11.5'-12' bgs	x			2											
	015	17-Apr-13	10:18	P-3 17'-17.5' bgs	x			2											
	016	17-Apr-13	11:20	P-4 1'-1.5' bgs	x			2		x								X	5-day TAT
	017	17-Apr-13	11:27	P-4 7'-7.5' bgs	x			2	x		(X) 4/19							X	5-day TAT
	018	17-Apr-13	11:30	P-4 13'-13.5' bgs	x			2											
	019	17-Apr-13	11:34	P-4 15'-15.5' bgs	x			2											
	020	17-Apr-13	11:46	P-4 22'-22.5' bgs	x			2											
	021	17-Apr-13	12:34	P-5 3'-3.5' bgs	x			2											
	022	17-Apr-13	12:37	P-5 7.5'-8' bgs	x			2											
	023	17-Apr-13	12:42	P-5 12.5'-13' bgs	x			2	x		(X) 4/19							X	5-day TAT
	024	17-Apr-13	12:50	P-5 17.5'-18' bgs	x			2											
	025	17-Apr-13	14:25	P-6 1.5'-2' bgs	x			2											
	026	17-Apr-13	14:35	P-6 6.5'-7' bgs	x			2	x	x	x							X	5-day TAT *
	027	17-Apr-13	14:40	P-6 11'-11.5' bgs	x			2											
	028	17-Apr-13	15:10	P-6 16'-16.5' bgs	x			2											
	029	17-Apr-13	15:13	P-6 19'-19.5' bgs	x			2											
	030	17-Apr-13	15:24	P-6 24'-24.5' bgs	x			2											

Relinquished by	Company	Date	Time	Received by	Company
Jane-Clair Kerin	HAHN & ASSOC	4-18-13	1620	[illegible]	Apex
Relinquished by	Company	Date	Time	Received by	Company
Relinquished by	Company	Date	Time	Received by	Company

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Jane-Clair Kerin	05/15/13 16:28

A3D0446

HAHN AND ASSOCIATES, INC. — Laboratory: Apex — **CHAIN OF CUSTODY**

Environmental Management

434 NW Sixth Avenue, Suite 203 - Portland OR 97209 — Lab Project No. — Chain of Custody No. 1 of 1

(503) 796-0717 • Fax (503) 227-2209

Project Manager: J. Kerin
Project No.: 8426
Project Name: ABCINV
Collected by: J. Kerin

Liquid with Sediment Sample — Test Filtrate — Test Sediment — Test Both
Multi-Phase Sample — Test One (which) — Test Separately — Blanks
Samples Received at 4C (Y or N)
Appropriate Containers Used (Y or N)
Provide Verbal Results (Y or N)
Provide Preliminary Fax Results

Sample Number Prefix: 8426-130417-

5 Day Turn
w/o Surcharge please! Thank-ku

Lab ID	Sample #	Date	Time	Sample Description	Matrix: Soil	Matrix: Water	Matrix: Other	Number of Containers	Analyses to be Performed: NW TPH-HCID	NW TPH-Dx w/ Silica Gel Cleanup	RCRA 8 Metals	RUSH	Remarks
	001	4/17/13	8:30	P-1 3.5'-4' bgs	x			2					
	002	17-Apr-13	8:38	P-1 6'-6.5' bgs	x			2					
	003	17-Apr-13	8:40	P-1 8'-8.5' bgs	x			2	x				X 5-day TAT
	004	17-Apr-13	8:43	P-1 11.5'-12' bgs	x			2					
	005	17-Apr-13	8:47	P-1 19.5'-20' bgs	x			2					
	006	17-Apr-13	9:05	P-2 4.5'-5' bgs	x			2					
	007	17-Apr-13	9:10	P-2 6'-6.5' bgs	x			2	x				X 5-day TAT
	008	17-Apr-13	9:12	P-2 8'-8.5' bgs	x			2					
	009	17-Apr-13	9:15	P-2 11.5'-12' bgs	x			2					
	010	17-Apr-13	9:30	P-2 17'-17.5' bgs	x			2					
	011	17-Apr-13	10:04	P-3 3'-3.5' bgs	x			2					
	012	17-Apr-13	10:08	P-3 5.5'-6' bgs	x			2					
	013	17-Apr-13	10:11	P-3 8'-8.5' bgs	x			2	x				X 5-day TAT
	014	17-Apr-13	10:15	P-3 11.5'-12' bgs	x			2					
	015	17-Apr-13	10:18	P-3 17'-17.5' bgs	x			2					
	016	17-Apr-13	11:20	P-4 1'-1.5' bgs	x			2		x			X 5-day TAT
	017	17-Apr-13	11:27	P-4 7'-7.5' bgs	x			2	x				X 5-day TAT
	018	17-Apr-13	11:30	P-4 13'-13.5' bgs	x			2					
	019	17-Apr-13	11:34	P-4 18'-18.5' bgs	x			2					
	020	17-Apr-13	11:45	P-4 22'-22.5' bgs	x			2					
	021	17-Apr-13	12:34	P-5 3'-3.5' bgs	x			2					
	022	17-Apr-13	12:37	P-5 7.5'-8' bgs	x			2					
	023	17-Apr-13	12:42	P-5 12.5'-13' bgs	x			2	x				X 5-day TAT
	024	17-Apr-13	12:50	P-5 17.5'-18' bgs	x			2					
	025	17-Apr-13	14:28	P-6 1.5'-2' bgs	x			2					
	026	17-Apr-13	14:35	P-6 6.5'-7' bgs	x			2	x	x	x		X 5-day TAT
	027	17-Apr-13	14:40	P-6 11'-11.5' bgs	x			2					
	028	17-Apr-13	15:10	P-6 16'-16.5' bgs	x			2					
	029	17-Apr-13	15:13	P-6 19'-19.5' bgs	x			2					
	030	17-Apr-13	15:24	P-6 24'-24.5' bgs	x			2					

Relinquished by	Company	Date	Time	Received by	Company
Jane-Clair Kerin	HAHN & ASSOC	4-18-13	1120	[signature]	Apex
Relinquished by	Company	Date	Time	Received by	Company
Relinquished by	Company	Date	Time	Received by	Company

Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, May 15, 2013

Rob Ede
Hahn and Associates
434 NW 6th Ave. Suite 203
Portland, OR 97209

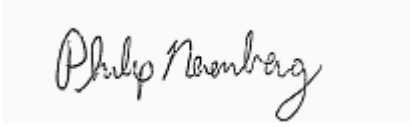
RE: ABCINV / 8426

Enclosed are the results of analyses for work order A3E0268, which was received by the laboratory on 5/10/2013 at 1:56:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

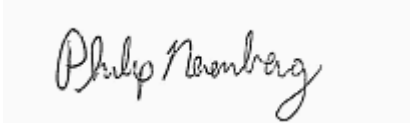
Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 16:32

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
8426-130510-002	A3E0268-02	Soil	05/10/13 08:45	05/10/13 13:56
8426-130510-004	A3E0268-04	Soil	05/10/13 09:45	05/10/13 13:56
8426-130510-006	A3E0268-06	Soil	05/10/13 10:20	05/10/13 13:56

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-0333 Fax

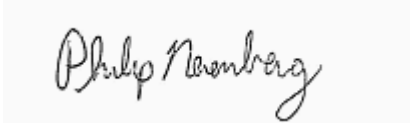
Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 16:32

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130510-002 (A3E0268-02)			**Matrix: Soil**		**Batch: 3050303**			
Gasoline Range Organics	ND	---	24.0	mg/kg dry	1	05/14/13 08:24	NWTPH-HCID	
Diesel Range Organics	ND	---	59.9	"	"	"	"	
Oil Range Organics	ND	---	120	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 89 %*	*Limits: 50-150 %*	"	"	"	
8426-130510-004 (A3E0268-04)			**Matrix: Soil**		**Batch: 3050303**			
Gasoline Range Organics	ND	---	25.0	mg/kg dry	1	05/14/13 09:21	NWTPH-HCID	
Diesel Range Organics	ND	---	62.4	"	"	"	"	
Oil Range Organics	ND	---	125	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 85 %*	*Limits: 50-150 %*	"	"	"	
8426-130510-006 (A3E0268-06)			**Matrix: Soil**		**Batch: 3050303**			
Gasoline Range Organics	ND	---	24.4	mg/kg dry	1	05/14/13 09:50	NWTPH-HCID	
Diesel Range Organics	ND	---	61.1	"	"	"	"	
Oil Range Organics	ND	---	122	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 82 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories



Philip Nerenberg, Lab Director

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12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

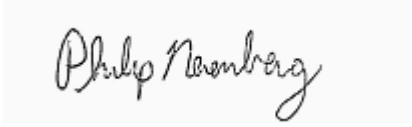
Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 16:32

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130510-002 (A3E0268-02)			**Matrix: Soil**		**Batch: 3050322**			
% Solids	**78.5**	---	1.00	% by Weight	1	05/14/13 09:48	Apex SOP	
8426-130510-004 (A3E0268-04)			**Matrix: Soil**		**Batch: 3050322**			
% Solids	**76.7**	---	1.00	% by Weight	1	05/14/13 09:48	Apex SOP	
8426-130510-006 (A3E0268-06)			**Matrix: Soil**		**Batch: 3050322**			
% Solids	**79.9**	---	1.00	% by Weight	1	05/14/13 09:48	Apex SOP	

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
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503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 16:32

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050303 - NWTPH-HCID (Soil)							Soil					
Blank (3050303-BLK1)					Prepared: 05/13/13 07:09 Analyzed: 05/14/13 07:55							
NWTPH-HCID												
Gasoline Range Organics	ND	---	18.2	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	45.5	"	"	---	---	---	---	---	---	
Oil Range Organics	ND	---	90.9	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 102 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (3050303-DUP1)					Prepared: 05/13/13 07:09 Analyzed: 05/14/13 08:53							
QC Source Sample: 8426-130510-002 (A3E0268-02)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	24.7	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	61.7	"	"	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	123	"	"	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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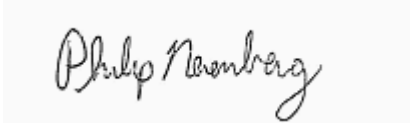

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 16:32

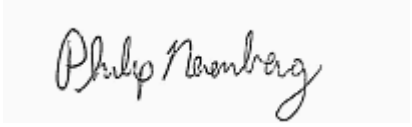
QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050322 - Total Solids (Dry Weight)												**Soil**

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

Apex Laboratories



Philip Nerenberg, Lab Director

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503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 16:32

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: NWTPH-HCID (Soil)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3050303							
A3E0268-02	Soil	NWTPH-HCID	05/10/13 08:45	05/13/13 07:09	10.63g/10mL	10g/10mL	0.94
A3E0268-04	Soil	NWTPH-HCID	05/10/13 09:45	05/13/13 07:09	10.44g/10mL	10g/10mL	0.96
A3E0268-06	Soil	NWTPH-HCID	05/10/13 10:20	05/13/13 07:09	10.25g/10mL	10g/10mL	0.98

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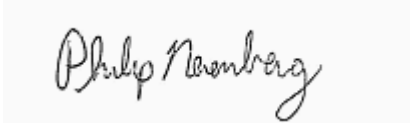

Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 16:32

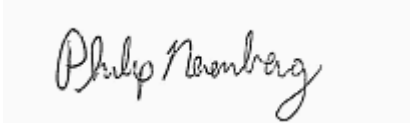
Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepency with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 16:32

A3E0208

HAHN AND ASSOCIATES, INC.
Environmental Consultants
434 NW Sixth Avenue, Suite 203 • Portland OR 97209
(503) 796-0717 • Fax (503) 227-2209

CHAIN OF CUSTODY

Laboratory: Apex
Lab Project No.:
Chain of Custody No.:

Project Manager: Rob Ede
Project No.: 8426
Project Name: ABCINV
Collected by: Corey Rasponi

Liquid with Sediment Sample — Test Filtrate / Test Sediment / Test Both
Multi-Phase Sample — Test Separately / Shake
Test One (Which)

Samples Received at 4C (Y or N)
Appropriate Containers Used (Y or N)
Provide Verbal Results (Y or N)
Provide Preliminary Fax Results

Comments:
Sample Number Prefix: 8426-130510-
results to Rob Ede
2-day TAT for HCIDs

Lab ID	Sample #	Date	Time	Sample Description	Matrix: Soil	Water	Other	Number of Containers	NWTPH- HCID	Analyses to be Performed	RUSH	Remarks
	001	10-May-13	8:40	HA-2 @ 5-6'	X			1				
	002	10-May-13	8:45	HA-2 @ 7-8'	X			1	X		X	
	003	10-May-13	8:55	HA-2 @ 9-10'	X			1				
	004	10-May-13	9:45	HA-3 @ 7-8'	X			1	X		X	
	005	10-May-13	9:50	HA-3 @ 9-10'	X			1				
	006	10-May-13	10:20	HA-4 @ 7-8'	X			1	X		X	
	007	10-May-13	10:35	HA-4 @ 9-10'	X			1				

Relinquished by: Company: HAH — Date: 5/10/13 — Time: 1356 — Received by: Company: Apex
Relinquished by: Company: — Date: — Time: — Received by: Company:

Apex Laboratories

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Philip Nerenberg

Philip Nerenberg, Lab Director

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, May 15, 2013

Rob Ede
Hahn and Associates
434 NW 6th Ave. Suite 203
Portland, OR 97209

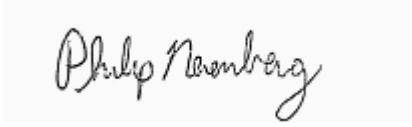
RE: ABCINV / 8426

Enclosed are the results of analyses for work order A3E0122, which was received by the laboratory on 5/6/2013 at 11:20:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories



Philip Nerenberg, Lab Director

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

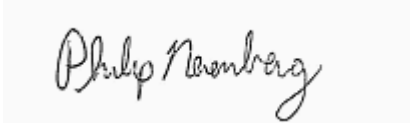
Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 17:26

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
8426-130506-031	A3E0122-01	Soil	05/06/13 08:10	05/06/13 11:20

Apex Laboratories



Philip Nerenberg, Lab Director

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Apex Labs

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Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 17:26

ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130506-031 (A3E0122-01)			**Matrix: Soil**		**Batch: 3050143**			
Gasoline Range Organics	ND	---	21.5	mg/kg dry	1	05/06/13 23:11	NWTPH-HCID	
Diesel Range Organics	ND	---	53.9	"	"	"	"	
Oil Range Organics	DET	---	108	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 107 %*	*Limits: 50-150 %*	"	"	"	

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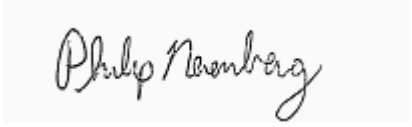

Philip Nerenberg, Lab Director

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Hahn and Associates	Project: **ABCINV**	
434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 17:26

ANALYTICAL SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx with Silica Gel Cleanup

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130506-031 (A3E0122-01)			**Matrix: Soil**		**Batch: 3050302**			
Diesel	ND	---	27.8	mg/kg dry	1	05/14/13 02:07	NWTPH-Dx/SG	
Oil	**251**	---	55.7	"	"	"	"	
Surrogate: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*	"	"	"	

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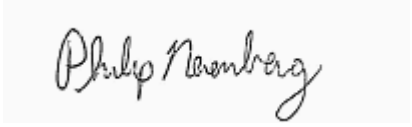

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Portland, OR 97209	Project Manager: Rob Ede	05/15/13 17:26

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
8426-130506-031 (A3E0122-01)			**Matrix: Soil**		**Batch: 3050138**			
% Solids	**84.7**	---	1.00	% by Weight	1	05/07/13 12:59	Apex SOP	

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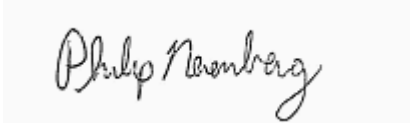

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Portland, OR 97209	Project Manager: Rob Ede	05/15/13 17:26

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050143 - NWTPH-HCID (Soil)							Soil					
Blank (3050143-BLK1)					Prepared: 05/06/13 14:50 Analyzed: 05/06/13 22:47							
NWTPH-HCID												
Gasoline Range Organics	ND	---	18.2	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	45.5	"	"	---	---	---	---	---	---	
Oil Range Organics	ND	---	90.9	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 100 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (3050143-DUP1)					Prepared: 05/06/13 14:50 Analyzed: 05/06/13 23:36							
QC Source Sample: 8426-130506-031 (A3E0122-01)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	22.3	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	55.8	"	"	---	ND	---	---	---	30%	
Oil Range Organics	**DET**	---	112	"	"	---	DET	---	---	22	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 103 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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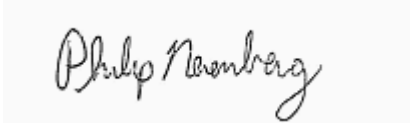

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434 NW 6th Ave. Suite 203	Project Number: 8426	**Reported:**
Portland, OR 97209	Project Manager: Rob Ede	05/15/13 17:26

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and Oil Hydrocarbons by NWTPH-Dx with Silica Gel Cleanup

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050302 - EPA 3546 (Fuels)							**Soil**					
Blank (3050302-BLK1)					Prepared: 05/13/13 07:08 Analyzed: 05/14/13 00:40							
NWTPH-Dx/SG												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	"	"	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (3050302-BS1)					Prepared: 05/13/13 07:08 Analyzed: 05/14/13 01:09							
NWTPH-Dx/SG												
Diesel	126	---	25.0	mg/kg wet	1	125	---	101	70-130%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 101 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (3050302-DUP1)					Prepared: 05/13/13 07:08 Analyzed: 05/14/13 03:05							
QC Source Sample: 8426-130506-031 (A3E0122-01)												
NWTPH-Dx/SG												
Diesel	ND	---	27.8	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	**228**	---	55.6	"	"	---	251	---	---	10	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 91 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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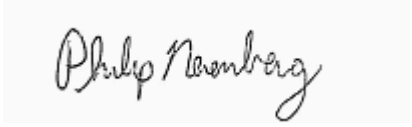

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Portland, OR 97209	Project Manager: Rob Ede	05/15/13 17:26

QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 3050138 - Total Solids (Dry Weight)												**Soil**

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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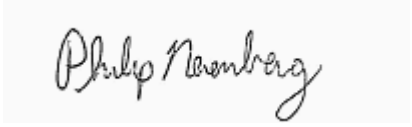

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SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: NWTPH-HCID (Soil)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3050143							
A3E0122-01	Soil	NWTPH-HCID	05/06/13 08:10	05/06/13 14:50	10.96g/10mL	10g/10mL	0.91

Diesel and Oil Hydrocarbons by NWTPH-Dx with Silica Gel Cleanup

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 3050302							
A3E0122-01	Soil	NWTPH-Dx/SG	05/06/13 08:10	05/13/13 07:08	10.6g/5mL	10g/5mL	0.94

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Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepency with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

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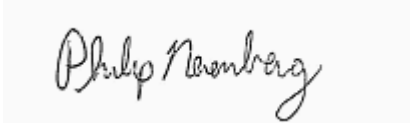

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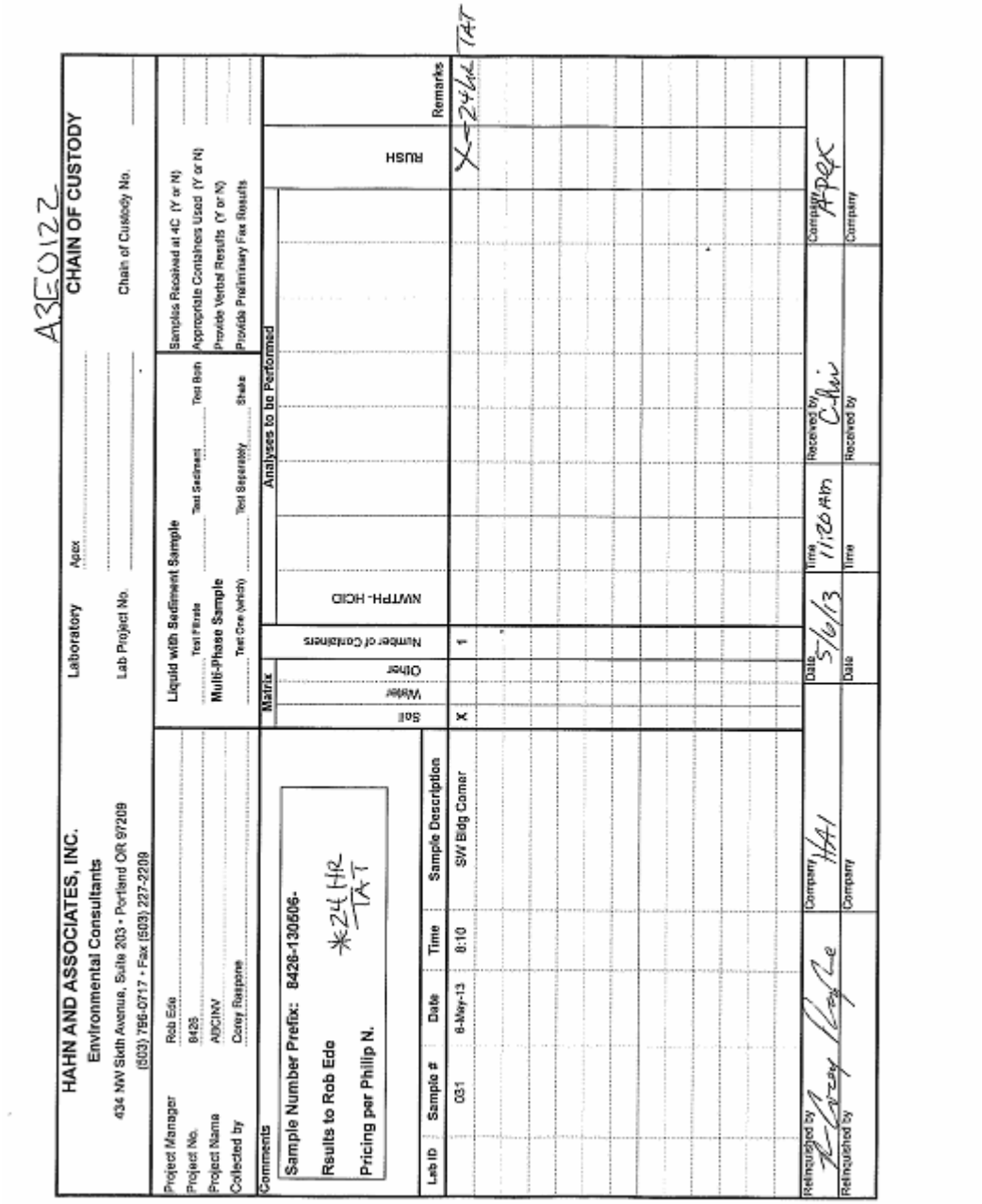

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