Site Investigation Report
Classic Cleaners
Cascade Plaza
Everett, Washington

Prepared for:
Columbia Cascade Plaza, LLC

July 21, 2015
11277-199

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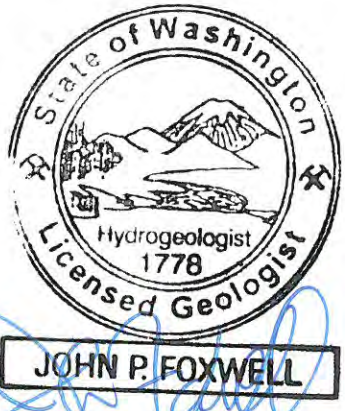

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1.0 Introduction

This Site Investigation Report was prepared on behalf of Columbia Cascade Plaza, LLC (the current facility owner) for the former Classic Cleaners facility located at tenant space (unit) B004, 7601 Evergreen Way, Everett, Washington (Site; Figures 1 and 2).

In 2002, the Site (consisting of unit B004 and surrounding impacted areas) was enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) due to release(s) from historical dry cleaning operations. Soil and groundwater investigations and groundwater monitoring activities were conducted at the Site from 1997 through 2002. Reports describing these site investigation activities were included in the 2002 VCP application package. No investigation activities were performed for several years following enrollment in the VCP. Consequently, the VCP enrollment was suspended. The Site was re-enrolled in the VCP on June 24, 2013 and Ecology issued an opinion letter for the Site on September 18, 2013.

Apex submitted the Progress Report (Apex, 2014a) for the Site to Ecology on June 9, 2014. The report: 1) presented information requested by Ecology; 2) summarized the results of historical soil and groundwater investigation activities performed at the Site prior to the 2013 re-enrollment in the VCP; 3) described soil gas and air sampling completed in October, November, and December 2013 for a Tier I/II vapor intrusion evaluation, and groundwater monitoring in July 2013 and March 2014; and 4) presented a proposed scope of work and schedule for additional investigation activities and groundwater monitoring.

Apex met with Ecology on June 20, 2014 to review the Progress Report and discuss whether the planned additional investigation activities and contingent outcomes would be sufficient to obtain a no further action (NFA) opinion for the Site. As an outcome of the meeting, and at the request of Ecology, Apex submitted the Site Investigation Work Plan (Work Plan; Apex, 2014b) to Ecology on August 12, 2014. The Work Plan presented a Conceptual Site Model (CSM) for the Site, a scope of work for a site investigation and groundwater monitoring, and additional information requested by Ecology. On October 2, 2014, Ecology issued an opinion letter (Ecology, 2014) in which Ecology agreed with the site investigation approach presented in the Work Plan and recommended additional investigation activities to further evaluate the extent of soil and groundwater impacts at the Site.

This report summarizes the results of historical site investigation activities, as well as new site investigation data collected by Apex in 2014. This report includes the following sections:

- Site description and history;
- Historical site investigation summary;
- 2013 and 2014 site investigation and groundwater monitoring activities;

- Tier II vapor intrusion evaluation for unit B004;
- Tier I vapor intrusion evaluation for unit B005A; and
- Risk Screening.

The 2014 site investigation activities were completed as described in the Work Plan and Ecology's October 2, 2014 opinion letter.

2.0 Site Description

The Site is located at Cascade Plaza, which is a single-story shopping mall constructed on two parcels, totaling approximately 19.26 acres, within the City of Everett. The two parcels that comprise Cascade Plaza were woodland that was first developed in the 1940s as residential properties and in the 1950s as a drive-in movie theater. The current shopping mall was constructed in the 1980s. The entirety of Cascade Plaza is covered with five retail/office buildings, a retail gas station, Portland cement concrete (PCC) or asphalt concrete (AC) pavement, and small landscaped areas. The five buildings have historically housed various retail stores, offices, restaurants, an automobile rental agency, and a dry cleaning facility. Classic Cleaners operated in unit B004 from the early 1980s through 1999. Unit B004 is currently occupied by a Domino's Pizza franchise. The current layout of unit B004 is shown on Figure 2. The Site vicinity is developed for commercial and residential use.

3.0 Prior Environmental Investigation Summary

Soil and groundwater investigations and groundwater monitoring were completed at the Site from 1997 through 2002 by ATC Associates (ATC) and Whitman Environmental Services (WES). Additional groundwater monitoring and a soil vapor intrusion investigation were completed by Apex in 2013 and 2014. These activities are summarized below. Sampling locations are shown on Figures 2 and 3. Tables 1 through 4 summarize the groundwater, soil, and air data (soil vapor and ambient air). The corresponding Model Toxics Control Act (MTCA) Cleanup Levels (CULs) for soil, groundwater, and ambient air and Screening Levels (SLs)[1] for vapor intrusion (soil vapor and ambient air) are also provided in the tables (when applicable).

3.1 1997 Soil and Groundwater Investigation

Three borings (HB-1 through HB-3) were advanced inside unit B004 near the dry cleaning equipment, and three borings (B-1 through B-3) were advanced in the parking areas east and west of unit B004. Borings

[1] Updated CULs and Vapor Intrusion SLs from http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/2015-changes.html

HB-1 through HB-3 were completed through the concrete slab using a core drill and a hand auger. HB-1 through HB-3 were terminated when dense soils resulted in refusal to the hand auger. Soil samples were collected from borings HB-1 and HB-2 at depths of approximately 8 inches below the concrete slab, and from HB-3 at depths of 8 inches and 3 feet below the concrete slab. Borings B-1 through B-3 were completed to depths of 15 feet below ground surface (bgs) using a hollow stem auger drilling rig. Soil samples were collected at depths of 5, 7.5, and 10 feet bgs in each boring and groundwater was first encountered at depths between 10 and 11 feet bgs. Groundwater samples were collected from borings B-2 and B-3. Soil and groundwater samples were analyzed for halogenated volatile organic compounds (HVOCs), including tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene, and vinyl chloride. PCE was detected in the 8-inch-deep soil samples collected from borings HB-1 and HB-3 (0.32 and 0.13 milligrams per kilogram [mg/kg], respectively) at concentrations that exceed the MTCA Method A CUL of 0.05 mg/kg. HVOCs were not detected in a deeper sample collected from 3 feet (Table 1). PCE was detected in groundwater samples collected from borings B-2 and B-3 at concentrations that were below the MTCA Method A CUL and SL (Table 3).

3.2 1997 Monitoring Well Installation and Groundwater Sampling

Three monitoring wells (MW-1, MW-2, and MW-3) were installed and sampled to evaluate the extent of HVOC impacts in groundwater at the Site. Well MW-1 was installed in the parking area west of unit B004. Wells MW-2 and MW-3 were installed in the parking area east of unit B004. The wells were constructed to a depth of 20 feet bgs. One soil sample was collected from each boring at a depth of 10 feet bgs, which was approximately one to two feet below the depth of groundwater (Table 1). HVOCs were not detected in any of the soil samples. PCE was detected in the groundwater samples collected from wells MW-2 and MW-3 at concentrations that were below SL and CUL (Table 3). HVOCs were not detected in MW-1.

3.3 1999 Monitoring Well Installation, Groundwater Sampling, and Soil Sampling

Monitoring well MW-4 was installed in the parking area northeast of unit B004 (Figure 2) to further evaluate HVOC impacts in groundwater in the direction inferred to be downgradient of the unit B004. The well was constructed to a depth of approximately 18 feet. Soil samples were collected at 5-foot intervals and field screened for HVOCs. A soil sample collected at a depth of 12.5 feet bgs, which was approximately 0.5 foot below the groundwater surface, was submitted for laboratory analysis of HVOCs. HVOCs were not detected in the soil sample. PCE was detected in the groundwater sample collected from well MW-4 at concentrations below the CUL and SL (Table 3).

The 1999 site investigation activities also included advancing three borings (Core 1 through Core 3) inside unit B003, which is located adjacent to and north of unit B004. The borings were completed through the concrete slab using a core drill and a hand auger. One soil sample was collected from each boring at a depth of one foot. HVOCs were not detected in the soil samples.

3.4 1998-2000 Groundwater Monitoring

Wells MW-1 through MW-4 were monitored approximately semi-annually from 1998 through 2000 (5 to 7 events) to evaluate HVOC concentration trends over time. The depth to groundwater at the Site ranged from approximately 7.8 to 10.5 feet bgs. The inferred groundwater flow direction was towards the northeast. The average horizontal groundwater gradient was 0.008 foot per foot (ft/ft). Historical groundwater elevation maps are included in Appendix A.

MW-1 is the upgradient well. HVOCs have never been detected in this well. PCE, chloroform, and 1,1,1-trichloroethane (TCA) were detected in MW-2, MW-3 and MW-4 during at least one sampling event, although PCE is the most prevalent chemical compound detected. Trichlorethene (TCE) was not detected during these initial monitoring events. HVOCs detected in MW-2 through MW-4 show decreasing concentration trends over the duration of the monitoring period. The chloroform concentrations detected are not expected to result from HVOC contamination at the Site. Chloroform frequently occurs as a disinfection byproduct from tri-halomethane compounds used for water treatment. Common water leaks are a routine source of chloroform.

The detected concentrations were below CULs, but concentrations of chloroform in wells MW-2 and MW-3 occasionally exceeded the SLs. No other HVOCs were detected in the groundwater samples.

3.5 2002 Supplemental Soil and Groundwater Sampling

A supplemental investigation was completed in December 2002 to provide additional information regarding soil and groundwater concentrations at and near unit B004. Two borings (HB-4 and HB-5) were advanced inside the building where the dry cleaning equipment had been located[2]. A third boring (HB-6) was advanced outside the building near the building's sanitary sewer lines that convey waste from the building. Borings HB-4 and HB-5 were completed to depths of 12 and 15 feet below the concrete slab, respectively, which were the approximate depths at which groundwater was first encountered. Boring HB-6 was terminated at 5 feet bgs, which, reportedly, is approximately the depth of the sanitary sewer pipe. Soil samples were collected over the entire depth of each of the borings and field screened for HVOCs. Two samples collected from borings HB-4 and HB-5, at a depth of approximately one to two feet beneath the concrete slab, and one soil sample, collected from HB-6 at a depth of 3 feet bgs, were submitted for laboratory analysis of HVOCs based on the results of field screening. The soil samples collected from borings HB-4 through HB-6 contained PCE at concentrations below the CUL. No other HVOCs were detected in the soil samples. Groundwater samples were collected from borings HB-4 and HB-5 and submitted for laboratory analysis of HVOCs. The PCE concentration in the groundwater sample collected

[2] The dry cleaning equipment was removed from the facility in approximately 2006. The facility has not been used for dry cleaning since that time.

from boring HB-4 (9.36 micrograms per liter [μg/L]) exceeded the CUL, and PCE concentration in HB-5 was slightly below the CUL.

4.0 Initial (2013) Vapor Intrusion Pathway Evaluation

A preliminary vapor intrusion pathway investigation was completed by Apex in 2013 to evaluate the vapor intrusion pathway following Ecology's draft vapor intrusion guidance (WDOE, 2009) and to develop a framework to obtain NFA status with Ecology. These activities were described previously in the *Progress Report* (Apex, 2014). The results of the initial vapor intrusion pathway evaluation indicates that concentrations of PCE are present in subslab soil gas at concentrations that exceed the SL, but are not present in ambient air at concentrations above the ambient air SL or CUL.

Tier I Vapor Intrusion Assessment Sampling. Sampling for the Tier 1 vapor intrusion assessment for unit B004 was performed by Apex in October 2013. Groundwater data from the July 2013 groundwater monitoring event was used to demonstrate vapor intrusion risks from groundwater are not present.

Soil vapor sampling activities included installation of temporary soil gas probes VS-1 and VS-2 within unit B004 near historical boring HB-1 (Figure 3). These two soil gas probes were installed at a depth of approximately 3 inches below the base of the concrete slab. Soil vapor in the vicinity of boring HB-1 was targeted because soil collected at a depth of eight inches in that boring historically exhibited the highest PCE soil concentration (0.32 micrograms per cubic meter [$\mu g/m^3$]) detected at the Site. Each soil gas sample was analyzed for HVOCs by EPA method TO-15. PCE was detected in the samples collected from soil gas probes VS-1 (2,500 $\mu g/m^3$) and VS-2 (3,600 $\mu g/m^3$) at concentrations that exceed the SL.[3] No other HVOCs were detected in the soil gas samples. Soil gas data and corresponding SLs are listed in Table 4.

Tier II Vapor Intrusion Assessment Sampling at Unit B004. The soil vapor results from the Tier I assessment indicated that a Tier II assessment would be necessary to further evaluate potential vapor intrusion risks. The Tier II vapor intrusion assessment consisted of collecting soil vapor samples, indoor air samples, and outdoor air samples for the Tier II assessment in November and December, 2013.

Soil vapor and ambient air sampling activities were completed on November 20, 2013 and included installation of soil gas probes VS-3 and VS-4 in unit B004 near probes VS-1 and VS-2 (Figure 3). The probes were installed approximately 3 inches below the base of the concrete slab and leak tested. Samples collected for the Tier II evaluation included two soil vapor samples (VS-3 and VS-4), two indoor ambient air

[3] EPA released new toxicity factors for PCE in 2011, following release of *Draft Guidance for Evaluating Soil Vapor Intrusion in Washington State: Investigation and Remedial Action.* The MTCA Method B CUL as well as the updated Vapor Intrusion Screening Levels SLs taken from http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/2015-changes.html

samples (AA-2 and AA-3) and one outdoor (background) ambient air sample (AA-1) collected from the parking area east and upwind of unit B004. The outdoor ambient air sample was collected on December 6, 2013. Soil vapor and ambient air samples were analyzed for HVOCs by EPA method TO-15.

- PCE was detected in the samples collected from soil vapor samples from VS-3 (2,400 μg/m^3) and VS-4 (990 μg/m^3) at concentrations that exceed the SL (Table 4). No other HVOCs were detected in the soil gas samples.
- HVOCs were not detected in the indoor air samples at concentrations that exceeded CULs. It should be noted that the ambient air samples were collected when indoor air temperatures were significantly higher than outdoor temperatures.
- HVOCs were not detected in the outdoor ambient air samples at concentrations that exceeded SLs.

Additional Tier I Vapor Intrusion Assessment Sampling. Eleven additional soil probes (VS-5 through VS-15) were completed in December 2013 to evaluate the vapor intrusion pathway at other units near unit B004. Probes VS-5, VS-6, and VS-7 were installed in units B003, B005A, and B006 to a depth of approximately 3 inches below the base of the concrete slab. Probes VS-8 through VS-15 were installed in parking areas east and west of unit B004 and in close proximity to nearby retail spaces B001, B002, B005, B006, and B007 to a depth of five feet below the surface (which is below the presumed depth of the building footings). Sampling locations are shown on Figures 2 and 3.

The soil vapor samples were analyzed for HVOCs by EPA method TO-15. PCE was detected in the sample collected from soil vapor probe VS-6 (in Unit B005A) at a concentration below the SL. TCE was detected in the sample collected from soil gas probe VS-14 at a concentration (10 μg/m^3) that exceeds the SL. No other HVOCs were detected in the soil gas samples. Soil gas and air sampling data and soil gas SLs are listed in Table 4.

5.0 Groundwater Monitoring

Groundwater monitoring from monitoring wells MW-1 through MW-4 was completed in July 2013 as well as March, June, September, and November, 2014. The July 2013 and March 2014 events were previously reported in the Progress Report (Apex, 2014). Those results, as well as the results from the June, September, and November 2014 events are described in this section. A laboratory data quality review and laboratory analytical reports for the groundwater samples collected in June, September, and November 2014 are included in Appendix B of this report.

Groundwater was encountered between approximately 8 and 10 feet bgs, consistent with the range of groundwater elevations that have been historically observed. The inferred groundwater flow direction is to the northeast at a gradient of approximately 0.01 ft/ft. Groundwater elevation data are listed in Table 2 and

groundwater elevations and elevation contours for the last five monitoring events are shown on Figures 4 through 8, respectively.

Groundwater samples were collected using low-flow methods following Apex Standard Operating Procedure (SOP) 2.5, placed into laboratory-provided containers, and submitted to TestAmerica in Tacoma, Washington or Portland, Oregon for analysis. The containers for samples collected from well MW-2 and the duplicate sample collected from well MW-3 on September 22, 2014 were damaged in transit; therefore these samples could not be analyzed. Follow-up groundwater samples were collected from wells MW-2 and MW-3 on October 8, 2014. Samples were analyzed for HVOCs by EPA Method 8260B.

Similar to prior events, HVOCs were not detected in MW-1. HVOCs, primarily PCE and chloroform, were detected in MW-2 through MW-4. As described in Section 3.4, chloroform in groundwater is not expected to be derived from the site. However none of the detected concentrations exceeded the CULs and SLs. Groundwater sampling data and corresponding CULs and SLs are listed in Table 3.

6.0 2014 Site Investigation Activities

The 2014 site investigation activities were completed to finalize the vapor intrusion evaluation and groundwater monitoring program. The groundwater monitoring activities completed in 2013 and 2014 were described previously in this report. The 2014 soil and vapor intrusion pathway investigation activities are described below. Standard Operating Procedures for the site investigation are included in Appendix C.

6.1 Soil Sampling

On September 22, 2014, borings were advanced at four locations inside unit B004:

1. B-4 was advanced near boring HB-1, which is the location that historically exhibited the highest concentration of HVOCs in soil;
2. B-5 was advanced within the footprint of the former dry cleaning equipment, near historical boring HB-4, and near the boring for soil gas sample VS-2, which is the location that exhibited the highest concentration of HVOCs in soil gas;
3. B-6 was advanced near the sanitary drain piping; and
4. B-7 was advanced near HB-3, which is the location that historically exhibited the second highest concentration of HVOCs in soil.

The boring locations are shown on Figure 3. The borings were advanced by coring through the flooring and concrete slab, where necessary, and advancing a direct-push (Geoprobe®) sampler, using limited-access drilling equipment. Attempts were made to advance the borings to the depth of groundwater and collect

groundwater samples; however, the borings were terminated at refusal, which ranged from 3 to 7 feet, above first groundwater.

Soil samples were field screened sampled at one-foot intervals using a photoionization detector (PID). Two soil samples from each boring were retained for laboratory analysis. Attempts were made to collect soil samples from borings B-4 and B-7 from a depth of 8 inches below the concrete slab, which was the depth at which historical samples were collected from borings HB-1 and HB-3. Coarse sand and gravel (apparent engineered fill) were encountered within approximately two feet beneath the concrete slab. Therefore, discrete soil samples could not be collected from a depth of eight inches in borings B-4 and B-7 and a sample was collected from boring B-4 at a depth interval of one to two feet beneath the concrete slab, and from boring B-7 at a depth interval of zero to one foot beneath the concrete slab. Soil samples were also collected from borings B-4 and B-7 at the depth of refusal (i.e., 3 and 7 feet bgs, respectively). The soil sample collected from boring B-5 and B-6 with the highest PID reading and the sample collected at the depth of refusal were retained for analysis. The borings were backfilled with hydrated bentonite and the concrete floor was patched.

Soil samples were analyzed by TestAmerica for HVOCs (PCE, TCE, cis-1,2-DCE, and vinyl chloride) by EPA Method 5035/8260. PCE was detected in soil samples collected from borings B-4 through B-7 at concentrations ranging from 0.00057 to 0.0097 mg/kg, which are below the MTCA Method A CUL of 0.05 mg/kg. No other HVOCs were detected in the soil samples. Soil sampling data and CULs are listed in Table 1.

6.2 Tier I/II Vapor Intrusion Sampling

Tier II vapor intrusion sampling completed at unit B004 and B005 in November 2013 indicated that PCE concentrations in soil gas were not present based on ambient air data at the site. However, Ecology commented that the samples were collected when indoor air temperatures were significantly higher than outdoor temperatures. In order to evaluate this uncertainty, additional Tier II sampling was completed on September 22, 2014 when indoor air temperatures were similar to outdoor air temperatures. On September 22, 2014, the temperature ranged from 60 to 70 degrees Fahrenheit (°F), with and average temperature of 63 degrees °F.

Soil gas probes were completed to depths of approximately three inches below the base of the concrete slab at locations in Unit B004 (VS-16 and VS-17) and unit B005 (VS-18). Soil gas samples were collected using 1-liter Summa canisters at a rate of approximately 200 milliliters per minute. Two indoor ambient air samples (AA-5 and AA-6) were collected from space B004 and one outdoor ambient air sample (AA-4) was collected upwind of and close to unit B004. The outdoor sample was collected at least five feet above the ground surface, and away from trees, airflow obstructions, and potential point sources of volatile organic compound emissions, such as exhaust fans and vehicles. Air sampling locations are shown on Figures 2

and 3. The indoor/outdoor air samples were collected during an 8-hour interval in a 6-liter Summa canister. Each soil gas and ambient air sample was analyzed for the HVOCs by EPA Method TO-15.

Air and Soil Gas Sampling at Unit B004. Sampling activities included collection of a soil gas sample from soil gas probes VS-16 and VS-17 in unit B004. Probe VS-16 was installed near the service counter in an area at which soil gas samples had not been previously collected. Probe VS-17 was installed within the footprint of the former dry cleaning equipment and near historical boring VS-2, which exhibited the highest concentrations of PCE. The soil vapor probe locations are shown on Figure 3.

Soil vapor detections that exceeded SLs included PCE detected in the samples collected from soil gas probes VS-16 (150 $\mu g/m^3$) and VS-17 (5,600 $\mu g/m^3$), and TCE in soil gas probe VS-16 (8.4 $\mu g/m^3$). PCE was detected in ambient air sample AA-5 (0.52 $\mu g/m^3$) and TCE was detected in the background (outdoor) air sample AA-4 (0.2 $\mu g/m^3$) at concentrations below the ambient air CUL. Other HVOCs were not detected in the soil gas or air samples. Soil gas and air sampling data, soil gas SLs and air CULs are listed in Table 4.

Soil Gas Sampling at Unit B005A. To confirm the absence of an unacceptable vapor intrusion risk at unit B005A, an additional soil gas sample was collected from unit B005A on September 22, 2014 when indoor air temperatures were similar to outdoor temperatures. The sample was collected from probe VS-18, which was installed in close proximity to the north wall of unit B005A, which adjoins unit B004. The soil gas probe was installed approximately three inches below the base of the concrete slab using hand methods. The soil gas sample was collected using a 1-liter Summa canister. The soil gas sample was analyzed for HVOCs by EPA method TO-15. PCE was detected in the sample at a concentration of 9 $\mu g/m^3$, which is below the PCE SL of 96 $\mu g/m^3$. No other HVOCs were detected in the soil gas samples. Soil gas and air sampling data, soil gas SLs and air CULs are listed in Table 4. A laboratory data quality review and laboratory analytical reports for the soil gas and air samples collected in September 2014 are included in Appendix B.

7.0 Final Tier II Vapor Intrusion Evaluation

The Tier II vapor intrusion evaluation was finalized using the ambient air and soil gas data collected in 2014, following Ecology's draft VI guidance. The evaluation was performed to present and describe the current understanding of vapor intrusion exposure pathways at the Site, and the degree of human exposure. The supplemental evaluation included comprehensive screening using the entire data set of ambient air and soil gas data collected in 2013 and 2014.

7.1 Building Characteristics

Unit B004 and adjacent retail units, showing their spatial relationship to the HVOC source area and how air moves within the building are shown on Figure 3. A cross-sectional view of the building depicting the

building foundation, approximate depth of the source area, and depth to the shallowest groundwater are shown on Figure 9. PCE is present in soil gas in the shallow subsurface beneath the concrete slab at units B004 and B005A. PCE concentrations generally decrease with distance from the presumed source area (the former dry cleaning machine). No known utility corridors are present underneath units B004 and B005A; therefore, vapor migration in utility corridors is unlikely. The heating, ventilation, and air conditioning (HVAC) systems for the units are independent. Each unit is equipped with its own air handler unit and ductwork. Air does not move directly between the units.

7.2 Air and Soil Gas Sample Data Screening

Vapor intrusion assessment data collected on October 4, 2013, November 11, 2013, and September 22, 2014 were evaluated using the Tier II decision matrices presented in the Ecology VI Guidance, Appendix E, as summarized below.

Soil. The soil sample dataset consists of multiple soil samples collected within the footprint of unit B004 and near the source area, or from locations up- and down-gradient of the source area and outside unit B004. Concentrations of HVOCs did not exceed the soil SL for vapor intrusion screening in any of the soil samples, with the exception the soil samples from HB-1 and HB-3 that were collected in 1997 inside unit B004, near the former location of the dry cleaning equipment, from a depth of 8 inches below the concrete slab. Attempts to resample the 8 inch sample interval in 2014 were not successful. In these borings, compacted gravels were encountered and a sample could not be collected.

Groundwater. Concentrations of HVOCs did not exceed the groundwater SL for vapor intrusion screening. The highest concentrations of PCE detected in groundwater monitoring wells since 2013 are approximately 50 times lower than the vapor intrusion SL. Overall, the highest concentrations of PCE and other HVOCs in groundwater were detected in 2000 from discrete samples HB-4 and HB-5, at concentrations of 9.4 and 4.6 µg/L, respectively. Both concentrations are below the SL.

Soil Vapor and Ambient Air. PCE, and to a lesser extent TCE, was detected in soil vapor from unit B004 and B005A at concentrations above the SL. However, PCE or TCE were not detected in indoor air at concentrations above the ambient air CUL during sampling events in 2013 and 2014.

The available data indicate that the source at Cascade Cleaners is a small, localized source that has attenuated significantly. Residual PCE is present in soil vapor. Vapor intrusion from the subsurface to indoor air can be influenced by many conditions, including atmospheric conditions and building dynamics. At Cascade Plaza, in particular Building B004, the concrete slab appears to serve as a barrier for vapor flux. As evidenced by the two sampling rounds where subsurface soil vapor and indoor air samples were simultaneously collected, soil vapor with PCE above the vapor intrusion SLs is present, while ambient air at the point of exposure is below the CULs in both cases. Thus the vapor intrusion attenuation factor used by Ecology (0.03) is lower than the attenuation rate that accounts for site-specific conditions. Since a

significant source of HVOCs in soil or groundwater does not remain, and ambient air data are all below SLs and CULs, risks from the vapor intrusion pathway are acceptable.

8.0 Terrestrial Ecological Exclusion

A land use summary map is included In Appendix D. Based on this land use map, the site vicinity is developed as commercial and residential land uses. Large contiguous tracts of land with open space, park, or agricultural zoning are not present. Ecological habitat that would support a terrestrial or aquatic ecological receptor is not present at the site. For the areas where VOCs remain in soil, groundwater, and soil vapor, these areas are entirely paved preventing exposure to VOCs. Surface waters are not present at or near the Site. Based on the lack of habitat, terrestrial and aquatic ecological receptors are not present at the Site.

An aerial photograph depicting land features within 500 feet of the Site is included in Appendix D. Based on the air photo, we estimate that there is approximately 1.1 acre of undeveloped land shown within a 500 foot radius of the site. However, these lands would not be considered because they mostly consist of residential yards and right-of-ways. Because there is less than 1.5 acres of contiguous undeveloped land within 500 feet of the Site, the ecological exclusion criteria under Washington Administrative Code (WAC) 173-340-7491(1)(c)(i) for MTCA Terrestrial Ecological Evaluations (TEE) are met. Therefore a site-specific TEE is not required.

9.0 Conclusion

Soil and soil vapor concentrations at this site are largely below MTCA Method A CULs and vapor intrusion SLs. The limited areas where exceedances of soil or soil vapor CULs or SLs occur are located in the immediate vicinity of the former dry cleaning machine. Ambient air data collected at the site and groundwater data from wells MW-1 through MW-4 further support that conclusion that this source is small: concentrations of HVOCs in ambient air or groundwater have never exceeded the CULs or SLs. The dataset supports that this is a low impact site and regulatory closure with a restrictive covenant is an appropriate outcome for the site.

10.0 References

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Table 1 – Soil Sampling Analytical Results
Classic Cleaners
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Sample Location (Depth)	Sample Date	HVOC concentrations (mg/kg)					
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride	Chloroform	1,1,1 -TCA
	MTCA CUL (mg/kg)	0.05[a]	0.03[a]	160[b]	240[b]	800[b]	2[a]
HB-1 (8")	6/9/1997	0.32	<0.05	<0.05	<0.05	<0.05	<0.05
HB-2 (8")	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HB-3 (8")	6/9/1997	0.13	<0.05	<0.05	<0.05	<0.05	<0.05
HB-3 (3')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-1 (5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-1 (7.5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-1 (10')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-2 (5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-2 (7.5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-2 (10')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-3 (5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-3 (7.5')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
B-3 (10')	6/9/1997	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
MW-1 (10')	7/30/1997	ND*	ND*	ND*	ND*	ND*	ND*
MW-2 (10')	7/30/1997	ND*	ND*	ND*	ND*	ND*	ND*
MW-3 (10')	7/30/1997	ND*	ND*	ND*	ND*	ND*	ND*
Core 1 (1')	5/6/1999	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094	<0.0094
Core 2 (1')	5/6/1999	<0.0092	<0.0092	<0.0092	<0.0092	<0.0092	<0.0092
Core 3 (1')	5/6/1999	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009
MW-4/S-3 (12.5')	5/7/1999	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
HB-4 (1')	12/10/2002	0.0013	<1.28	<1.28	<1.28	<1.28	<1.28
HB-5 (1')	12/10/2002	0.00919	<1.12	<1.12	<1.12	<1.12	<1.12
HB-6 (3')	12/10/2002	0.00514	<1.21	<1.21	<1.21	<1.21	<1.21
B-4 (1-2')	9/22/2014	0.0097	<0.00028	<0.00028	<0.00028	NA	NA
B-4 (3')	9/22/2014	0.0029	<0.00035	<0.00035	<0.00035	NA	NA
B-5 (2'-3')	9/22/2014	0.006	<0.0003	<0.0003	<0.0003	NA	NA
B-5 (4.5')	9/22/2014	0.0013	<0.00027	<0.00027	<0.00027	NA	NA
B-6 (2'-3')	9/22/2014	0.00057	<0.0003	<0.0003	<0.0003	NA	NA
B-6 (4')	9/22/2014	0.0016	<0.00033	<0.00033	<0.00033	NA	NA
B-7 (0-1')	9/22/2014	0.00095	<0.00029	<0.00029	<0.00029	NA	NA
B-7 (7')	9/22/2014	0.00065	<0.00037	<0.00037	<0.00037	NA	NA

Notes:

1. HVOC = Halogenated volatile organic compound.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. DCE = Dichloroethene.
5. TCA = Trichloroethane.
6. MTCA CUL = Model Toxics Control Act Cleanup Level.
7. mg/kg = milligram per kilogram.
8. a = MTCA Method A Unrestricted Land Use Table Value.
9. b = MTCA Method B Non-Carcinogen CUL Standard Formula Value (Unrestricted Land Use).
10. ND* = Not detected at a concentration above the method detection limit, which is not available for this report.
11. < = Not detected at a concentration above the method reporting limit or practical quantitation limit.
12. Bold = analyte was detected at a concentration above the method detection limit.
13. Shaded = concentration exceeds the CUL.

Table 2 – Groundwater Elevations
Classic Cleaners
Everett, Washington

Well ID	Date	Reference Elevation (feet)[1]	Depth To Groundwater (feet)	Groundwater Elevation (feet)
MW-1	7/31/1997	505.14	7.91	497.23
	2/11/1998	505.14	7.91	497.23
	11/9/1998	505.14	8.73	496.41
	5/6/1999	505.14	7.8	497.34
	5/7/1999	505.14	7.87	497.27
	8/11/1999	505.14	8.25	496.89
	12/29/1999	505.14	7.94	497.2
	3/30/2000	505.14	7.92	497.22
	8/2/2000	505.14	8.59	496.55
	7/16/2013	505.14	8.21	496.93
	3/27/2014	505.14	7.62	497.52
	6/25/2014	505.14	8.2	496.94
	9/22/2014	505.14	8.6	496.54
	10/8/2014	505.14	NM	--
	11/12/2014	505.14	8.08	497.06
MW-2	7/31/1997	505.93	8.81	497.12
	2/11/1998	505.93	8.98	496.95
	11/9/1998	505.93	10.05	495.88
	5/6/1999	505.93	8.94	496.99
	5/7/1999	505.93	9.04	496.89
	8/11/1999	505.93	9.62	496.31
	12/29/1999	505.93	9.31	496.62
	3/30/2000	505.93	9.11	496.82
	8/2/2000	505.93	10.23	495.7
	7/16/2013	505.93	9.7	496.23
	3/27/2014	505.93	8.79	497.14
	6/25/2014	505.93	9.5	496.43
	9/22/2014	505.93	10.23	495.7
	10/8/2014	505.93	10.05	495.88
	11/12/2014	505.93	9.2	496.73
MW-3	7/31/1997	505.9	8.99	496.91
	2/11/1998	505.9	9.07	496.83
	11/9/1998	505.9	10.14	495.76
	5/6/1999	505.9	9.06	496.84
	5/7/1999	505.9	9.1	496.8
	8/11/1999	505.9	9.65	496.25
	12/28/1999	505.9	9.23	496.67
	3/30/2000	505.9	9.18	496.72
	8/2/2000	505.9	10.27	495.63
	7/16/2013	505.9	9.77	496.13
	3/27/2014	505.9	8.9	497
	6/25/2014	505.9	9.6	496.3
	9/22/2014	505.9	10.33	495.57
	10/8/2014	505.9	10.16	495.74
	11/12/2014	505.9	9.3	496.6
MW-4	5/6/1999	505.65	8.93	496.72
	8/11/1999	505.65	9.93	495.72
	12/28/1999	505.65	9.6	496.05
	3/30/2000	505.65	9.43	496.22
	8/2/2000	505.65	10.52	495.13
	7/16/2013	505.65	10.07	495.58
	3/27/2014	505.65	9.27	496.38
	6/25/2014	505.65	9.9	495.75
	9/22/2014	505.65	10.58	495.07
	10/8/2014	505.65	NM	--
	11/12/2014	505.65	9.65	496

Notes:

1. Reference elevation (i.e., top of casing) relative to City of Everett Datum, survey conducted in July 1997 by Hallin & Associates.
2. NM = Not measured.
3. -- = Not applicable; depth to groundwater was not measured.

Table 3 – Groundwater Sampling Analytical Results
Classic Cleaners
Everett, Washington

Sample Location	Sample Date	HVOC concentration (ug/L)					
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride	Chloroform	1,1,1-TCA
	MTCA CUL (ug/L)	5[a]	5[a]	16[b]	0.2[a]	80[b]	200[a]
	Updated Air SL (ug/L)	9.6	0.37	--	0.28	0.109	2,290
	Updated Vapor Intrusion SL (ug/L)	22.9	1.6	--	0.347	1.2	5,240
B-2-W	6/6/1997	1.3	<0.5	<0.5	<0.5	*5.3*	<0.5
B-3-W	6/6/1997	3.6	<0.5	<0.5	<0.5	*16*	<0.5
MW-1	7/31/1997	<0.5	<0.5	<0.5	<0.5	0.9	<0.5
	2/11/1998	<10	<10	<10	<10	<10	<10
	11/9/1998	<2	<2	<2	<2	<2	<2
	5/6/1999	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	8/11/1999	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	12/28/1999	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	3/30/2000	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	8/2/2000	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	7/16/2013	<1	<1	<1	<1	<1	<1
	3/27/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/25/2014	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1
	6/25/2014 DUP	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1
	9/22/2014	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1
	11/12/2014	<0.1	<0.1	<0.1	<0.02	<0.1	<0.1
MW-2	7/31/1997	3.8	<0.5	<0.5	<0.5	*15*	<0.5
	2/11/1998	<2	<2	<2	<2	<2	<2
	11/9/1998	*3*	<0.4	<0.4	<0.2	*3*	8
	5/6/1999	1.1	<0.4	<0.4	<0.2	<0.4	<0.4
	8/11/1999	1.2	<0.4	<0.4	<0.2	0.37	<0.4
	12/28/1999	1	<0.4	<0.4	<0.2	*0.71*	<0.4
	3/30/2000	0.62	<0.4	<0.4	<0.2	<0.4	<0.4
	8/2/2000	0.82	<0.4	<0.4	<0.2	<0.4	<0.4
	7/16/2013	<1	<1	<1	<1	<1	<1
	7/16/2013 DUP	<1	<1	<1	<1	<1	<1
	3/27/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	3/27/2014 DUP	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/25/2014	0.24	<0.1	<0.1	<0.02	<0.1	<0.1
	10/8/2014	0.15	0.06 J	0.026	<0.02	<0.1	<0.1
	11/12/2014	0.2	<0.1	<0.1	<0.02	<0.1	<0.1
MW-3	7/31/1997	*3.9*	<0.5	<0.5	<0.5	*15*	<0.5
	2/11/1998	<2	<2	<2	<2	*5.2*	<2
	11/9/1998	*3*	<0.4	<0.4	<0.2	*8*	<0.4
	5/6/1999	1.3	<0.4	<0.4	<0.2	0.51	<0.4
	8/11/1999	1.4	<0.4	<0.4	<0.2	0.64	3
	12/28/1999	1.4	<0.4	<0.4	<0.2	<0.4	<0.4
	3/30/2000	1.2	<0.4	<0.4	<0.2	<0.4	<0.4
	8/2/2000	1.2	<0.4	<0.4	<0.2	<0.4	<0.4
	7/16/2013	<1	<1	<1	<1	<1	<1
	3/27/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/25/2014	0.18	<0.1	<0.1	<0.02	<0.1	<0.1
	9/22/2014	0.17	0.073	0.13 J	<0.02	<0.1	<0.1
	10/8/2014	0.21	0.087 J	0.12	0.031	<0.1	<0.1
	10/8/2014 DUP	0.21	0.068 J	0.13	<0.02	<0.1	<0.1
	11/12/2014	0.17	<0.1	0.11	<0.02	<0.1	<0.1

Please see notes at end of table.

Table 3 – Groundwater Sampling Analytical Results
Classic Cleaners
Everett, Washington

Sample Location	Sample Date	HVOC concentration (ug/L)					
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride	Chloroform	1,1,1-TCA
	MTCA CUL (ug/L)	5[a]	5[a]	16[b]	0.2[a]	80[b]	200[a]
	Updated Air SL (ug/L)	9.6	0.37	--	0.28	0.109	2,290
	Updated Vapor Intrusion SL (ug/L)	22.9	1.6	--	0.347	1.2	5,240
MW-4	5/6/1999	0.41	<0.4	<0.4	<0.2	*2.1*	<0.5
	8/11/1999	0.16	<0.4	<0.4	<0.2	*0.99*	<0.4
	12/28/1999	0.11	<0.4	<0.4	<0.2	0.46	<0.4
	3/30/2000	<0.4	<0.4	<0.4	<0.2	<0.4	<0.4
	8/2/2000	<0.4	<0.4	<0.4	<0.2	0.4	<0.4
	7/16/2013	<1	<1	<1	<1	<1	<1
	3/27/2014	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
	6/25/2014	<0.5	<0.5	<0.5	<0.5	0.36	<0.5
	9/22/2014	0.062 J	<0.025	<0.025	<0.013	0.36	<0.025
	11/12/2014	<0.1	<0.1	<0.1	<0.02	0.33	<0.1
	11/12/2014 DUP	<0.1	<0.1	<0.1	<0.02	0.31	<0.1
HB-4 GW	12/10/2002	9.36	<1	<1	<0.4	*3.08*	<1
HB-5 GW	12/10/2002	4.92	<1	<1	<0.4	<1	<1

Notes:

1. HVOC = Halogenated volatile organic compound.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. DCE = Dichloroethene.
5. TCA = Trichloroethane.
6. MTCA CUL = Model Toxics Control Act Cleanup Level.
7. Updated Air and Vapor Intrusion Screening Levels (SL) from updated SL table at http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/2015-changes.html
8. -- = SL not available
9. ug/L = microgram per liter.
10. a = MTCA Method A Table Value.
11. b = MTCA Method B Non-Carcinogen CUL Standard Formula Value (Unrestricted Land Use).
12. < = Not detected at a concentration above the method reporting limit or practical quantitation limit.
13. Bold = analyte was detected at a concentration above the method detection limit.
14. Shaded concentration exceeds the groundwater CUL.
15. Italicized concentration exceeds the vapor intrusion SL.

Table 4 – Vapor Intrusion Evaluation Sampling Analytical Results
Classic Cleaners
Everett, Washington

Sample Location (Depth)	Sample Date	HVOC concentrations (ug/m^3)			
		PCE	TCE	cis-1,2-DCE	Vinyl Chloride
Method B Cleanup Level (ug/m^3)		9.6	0.37	--	0.28
Vapor Intrusion SL		22.9	1.55	--	0.347
VS-1 (3")	10/4/2013	*2,500*	<1.3	<6.5	<4.2
VS-2 (3")	10/4/2013	*3,600*	<2.7	<9.9	<6.4
VS-3 (3")	11/20/2013	*2,400*	<5.2	<3.8	<2.4
VS-4 (3")	11/20/2013	*990*	<5.1	<3.8	<2.4
VS-5 (3")	12/6/2013	<8.1	<6.4	<4.7	<3.0
VS-6 (3")	12/6/2013	8.4	<5.7	<4.2	<2.7
VS-7 (3")	12/6/2013	<7.1	<5.6	<4.1	<2.7
VS-8 (5')	12/19/2013	<8.3	<6.6	<4.9	<3.1
VS-9 (5')	12/19/2013	<7.1	<5.6	<4.1	<2.7
VS-10 (5')	12/19/2013	<7.0	<5.6	<4.1	<2.6
VS-11 (5')	12/19/2013	<6.8	<5.4	<4.0	<2.6
VS-12 (5')	12/19/2013	<7.1	<5.6	<4.1	<2.7
VS-13 (5')	12/19/2013	<6.8	<5.4	<4.0	<2.6
VS-14 (5')	12/19/2013	<7.0	*10*	<4.1	<2.6
VS-15 (5')	12/19/2013	<7.0	<5.5	<4.2	<2.6
VS-16 (3")	9/22/2014	*150*	*8.4*	1.9	<0.58
VS-17 (3")	9/22/2014	*5,600*	<23	<17	<11
VS-18 (3")	9/22/2014	9	<1.3	<0.99	<0.32
Method B Cleanup Level (ug/m^3)		9.6	0.37	--	0.28
AA-1 (Backgound)	12/6/2013	<0.21	<0.16	<0.12	<0.039
AA-2 (Indoors)	11/20/2013	<5.6	<4.5	<3.3	<2.1
AA-3 (Indoors)	11/20/2013	<5.6	<4.5	<3.3	<2.1
AA-4 (Background)	9/22/2014	<0.23	0.2	<0.14	<0.044
AA-5 (Indoors)	9/22/2014	0.52	<0.17	<0.13	<0.041
AA-6 (Indoors)	9/22/2014	<0.23	<0.18	<0.13	<0.043

Notes:

1. HVOC = Halogenated Volatile Organic Compound.
2. PCE = Tetrachloroethene.
3. TCE = Trichloroethene.
4. DCE = Dichloroethene.
5. ug/m^3 = microgram per cubic meter.
6. Updated Vapor Intrusion Screening Levels (SL) from updated SL table at http://www.ecy.wa.gov/programs/tcp/policies/VaporIntrusion/2015-changes.html
7. MTCA CUL = Model Toxics Control Act Cleanup Level (Unrestricted Land Use).
8. Bold = analyte was detected at a concentration above the method detection limit.
9. Shaded = concentration exceeds the SL.
10. < = Not detected at a concentration above the method reporting limit or practical quantitation limit.

Note: Base map prepared from USGS 7.5-minute quadrangle of Everett, WA, dated 2014 as provided by USGS.gov.

0 2,000 4,000

Approximate Scale in Feet

N

Site Location Map

Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
February 2015		1

Legend:

- **MW-1** Monitoring Well Location
- **VS-3** Soil Gas Sample Location (2013)
- **AA-2** Indoor Ambient Air Sample Location (2013)
- **AA-1** Outdoor Ambient Air Sample Location (2013)
- **HB-6** Soil Sample Location (2002)
- **Core 1** Soil Sample Location (1999)
- **B-1** Soil Sample Location (1997)
- **B-2** Soil and Groundwater Sample Location (1997)
- **VS-18** Soil Gas Sample Location (2014)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

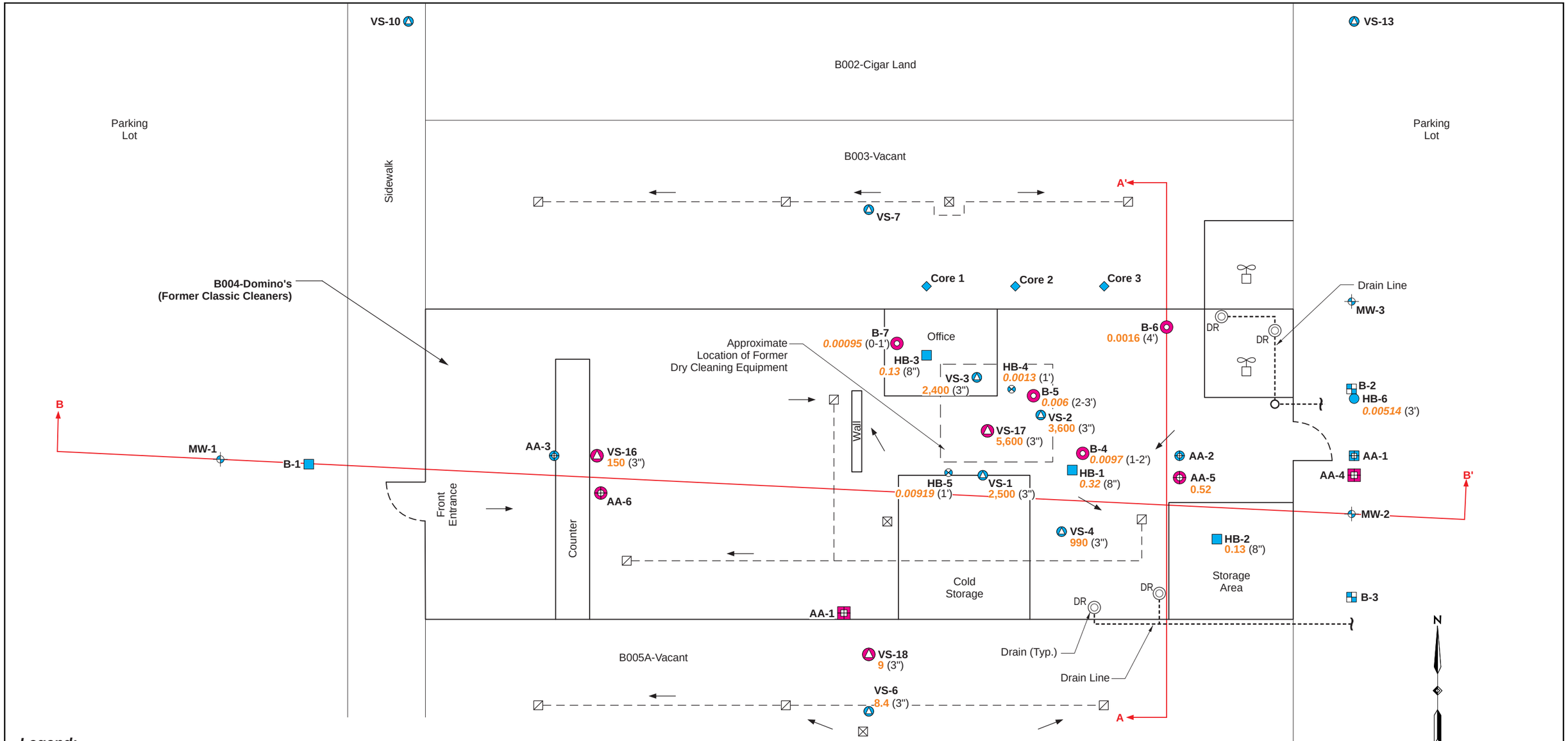
Approximate Scale in Feet

Site Layout

Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
February 2015		2



NOTE: B004 = Unit Number

Legend:

- 1.56 (4.5') — Soil Gas or Air Tetrachloroethene Concentration in µg/m³ and (Soil Gas Sample Depth BGS)
- *0.13* (8") — Soil Tetrachloroethene Concentration in mg/kg and (Sample Depth BGS)
- MW-1 — Monitoring Well Location
- VS-3 — Soil Gas Sample Location (2013)
- AA-2 — Indoor Ambient Air Sample Location (2013)
- AA-1 — Outdoor Ambient Air Sample Location (2013)
- HB-6 — Soil Sample Location (2002)
- HB-4 — Soil and Groundwater Sample Location (2002)
- Core 1 — Soil Sample Location (1999)
- B-1/HB-1 — Soil Sample Location (1997)
- B-2 — Soil and Groundwater Sample Location (1997)
- Axial Fan Location
- HVAC Return
- HVAC Vent
- Air Flow Direction (Inferred)
- B-4 — Soil Sample Location (2014)
- VS-16 — Soil Gas Sample Location (2014)
- AA-2 — Indoor Ambient Air Sample Location (2014)
- AA-1 — Outdoor Ambient Air Sample Location (2014)
- A A' — Cross-Section Location (See Figures 9 and 10)

Unit B004 Layout

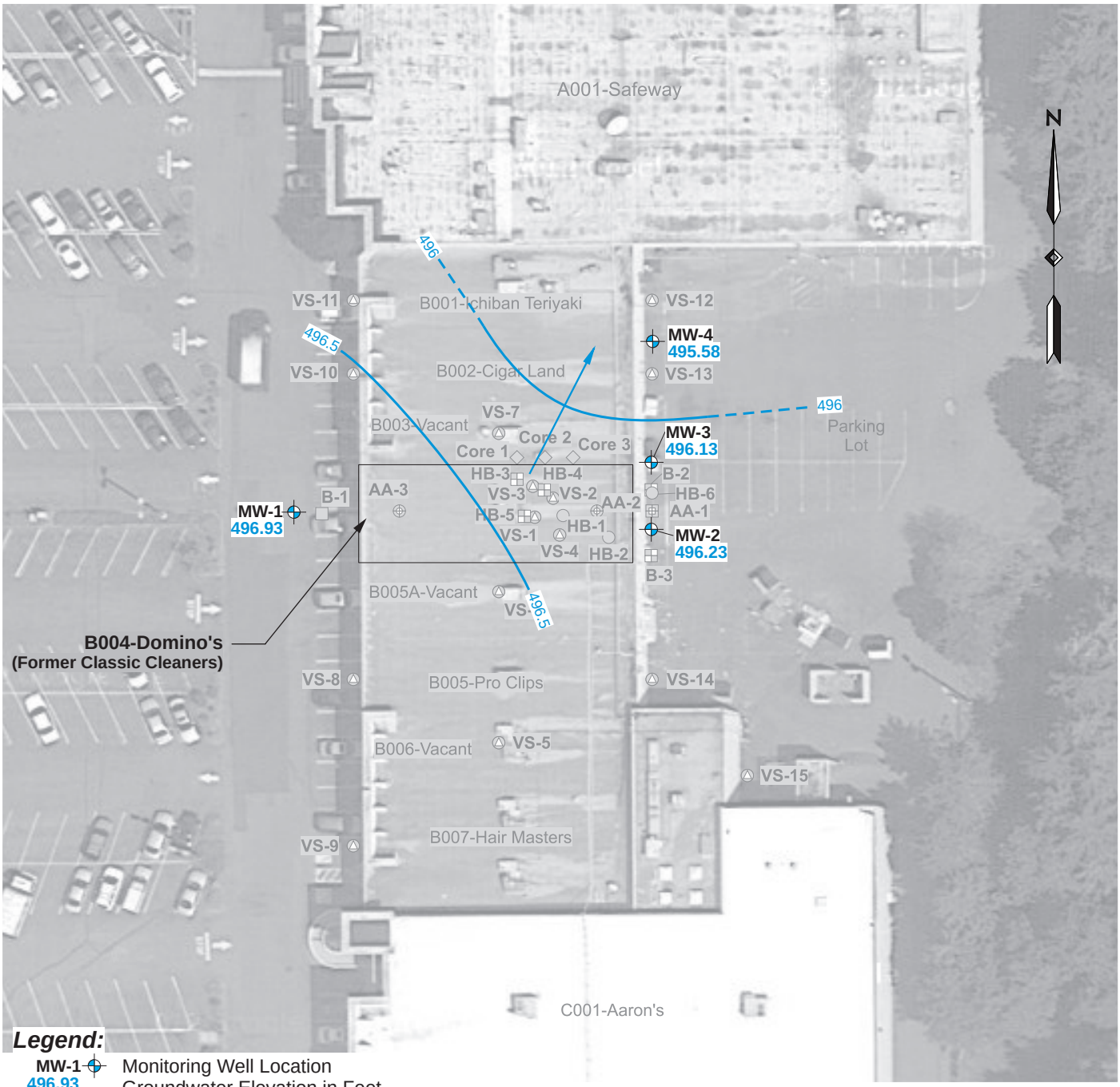
Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number 11277-199

February 2015

Figure 3



Legend:

MW-1 496.93 — Monitoring Well Location, Groundwater Elevation in Feet

496 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

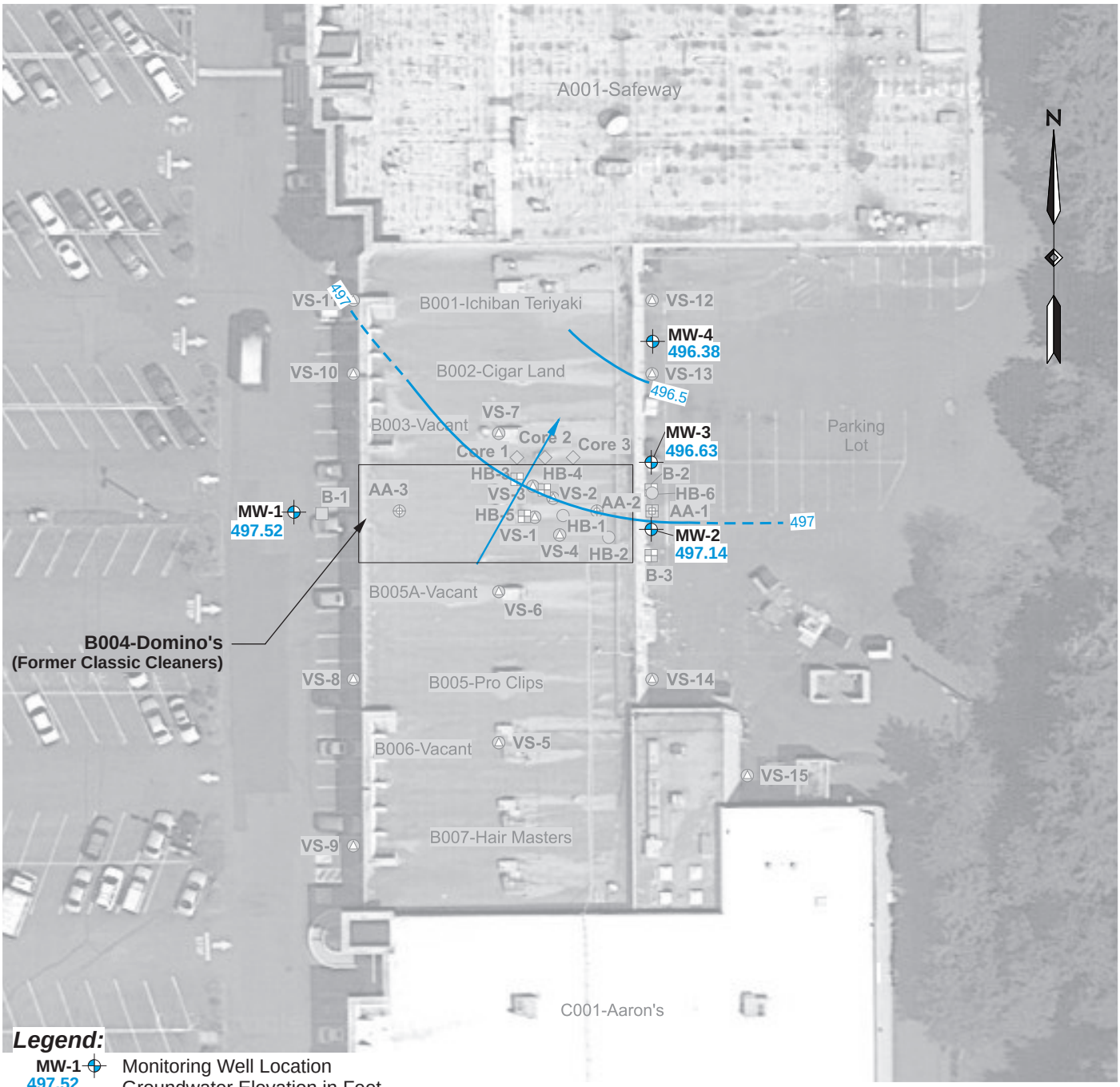
Approximate Scale in Feet

Groundwater Elevations - July 16, 2013

Site Investigation
Cascade Plaza
Everett, Washington

APEX
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
February 2015		4



Legend:

MW-1 / 497.52 — Monitoring Well Location, Groundwater Elevation in Feet

497 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

Approximate Scale in Feet

Groundwater Elevations - March 27, 2014

Site Investigation
Cascade Plaza
Everett, Washington

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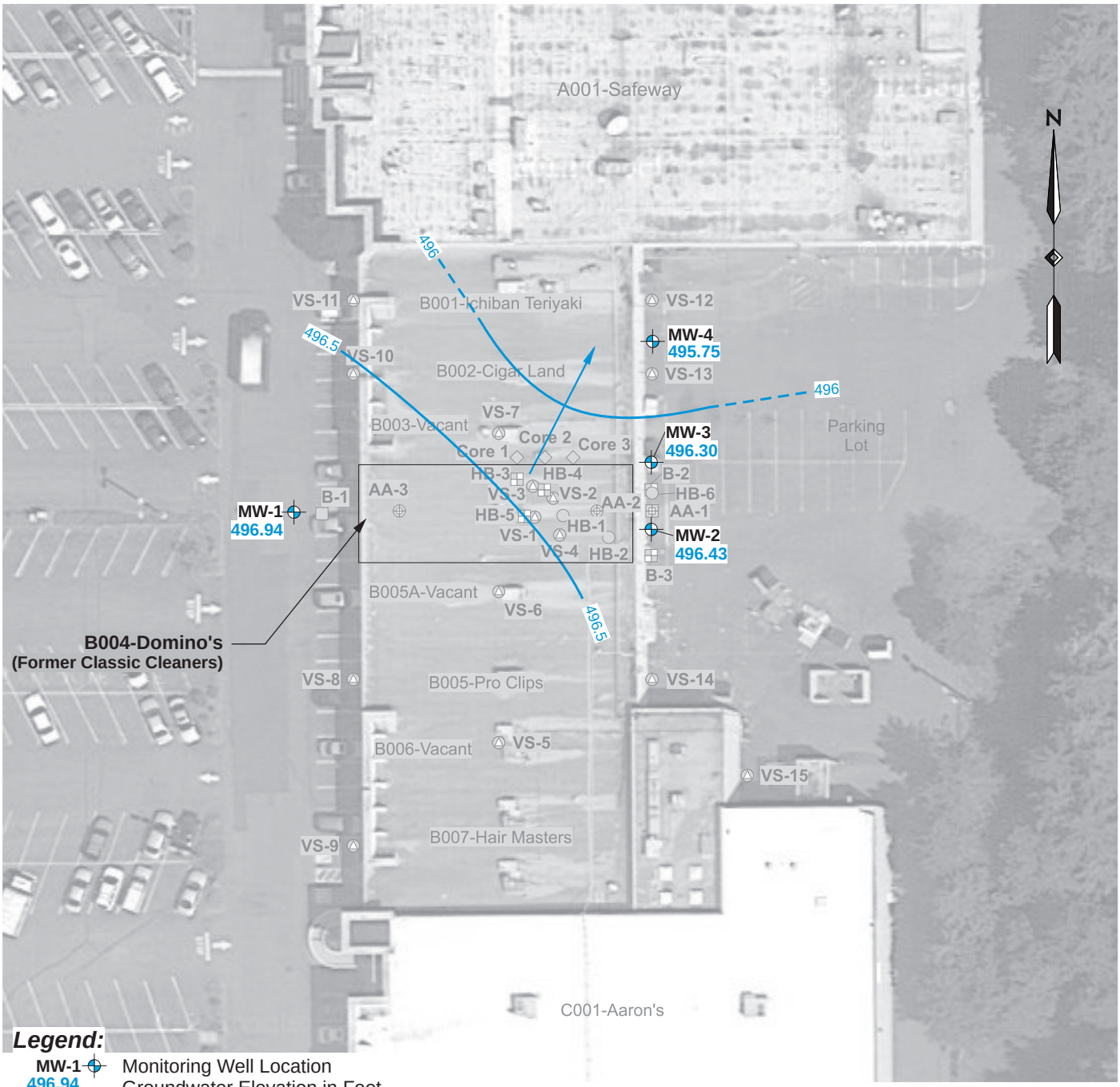
Portland, Oregon 97201

Project Number	11277-199	Figure
February 2015		5



Legend:

MW-1 496.94 — Monitoring Well Location, Groundwater Elevation in Feet

496 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

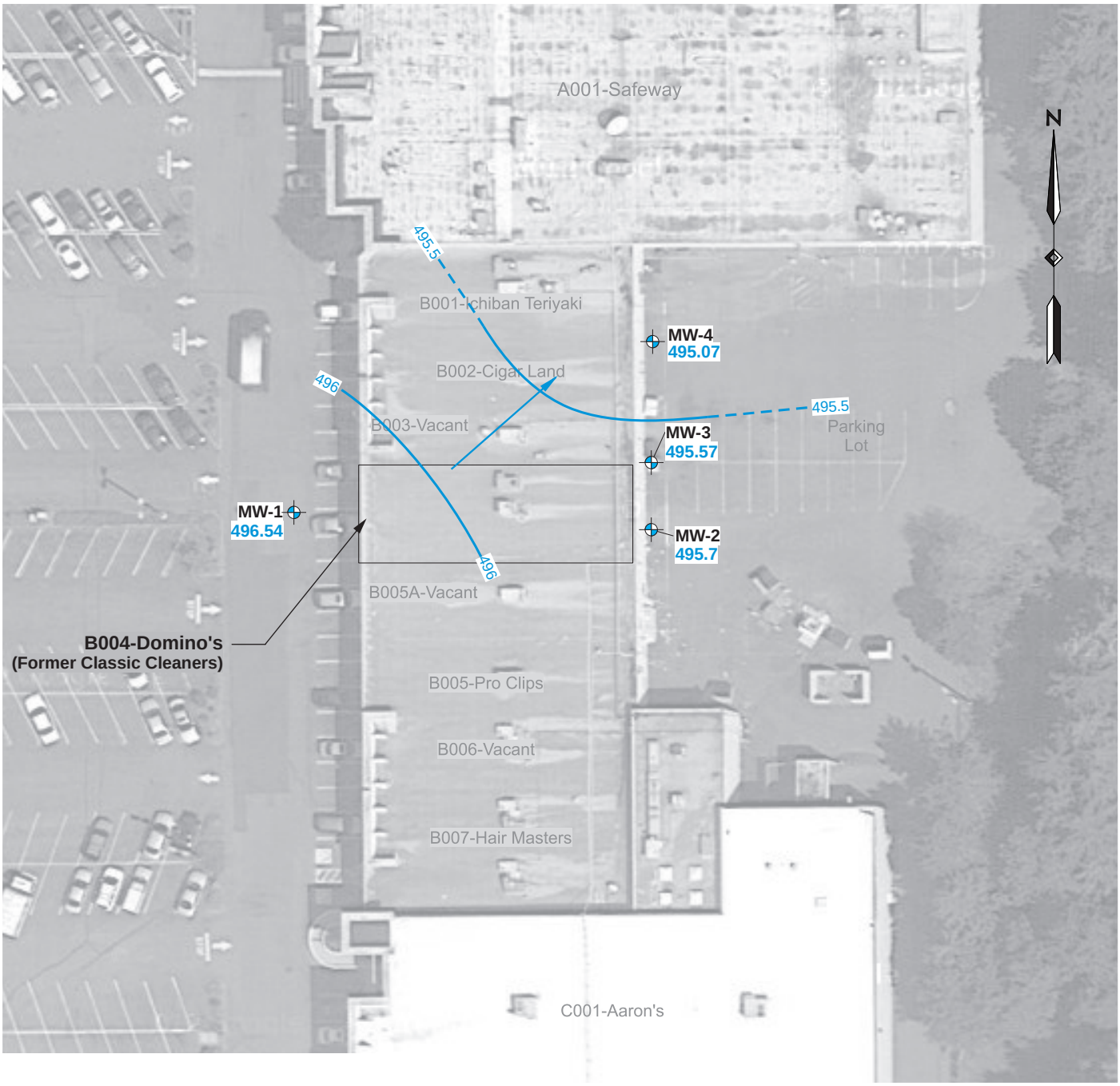
Approximate Scale in Feet

Groundwater Elevations - June 25, 2014

Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
February 2015		6



Legend:

MW-1 496.93 — Monitoring Well Location, Groundwater Elevation in Feet

496 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

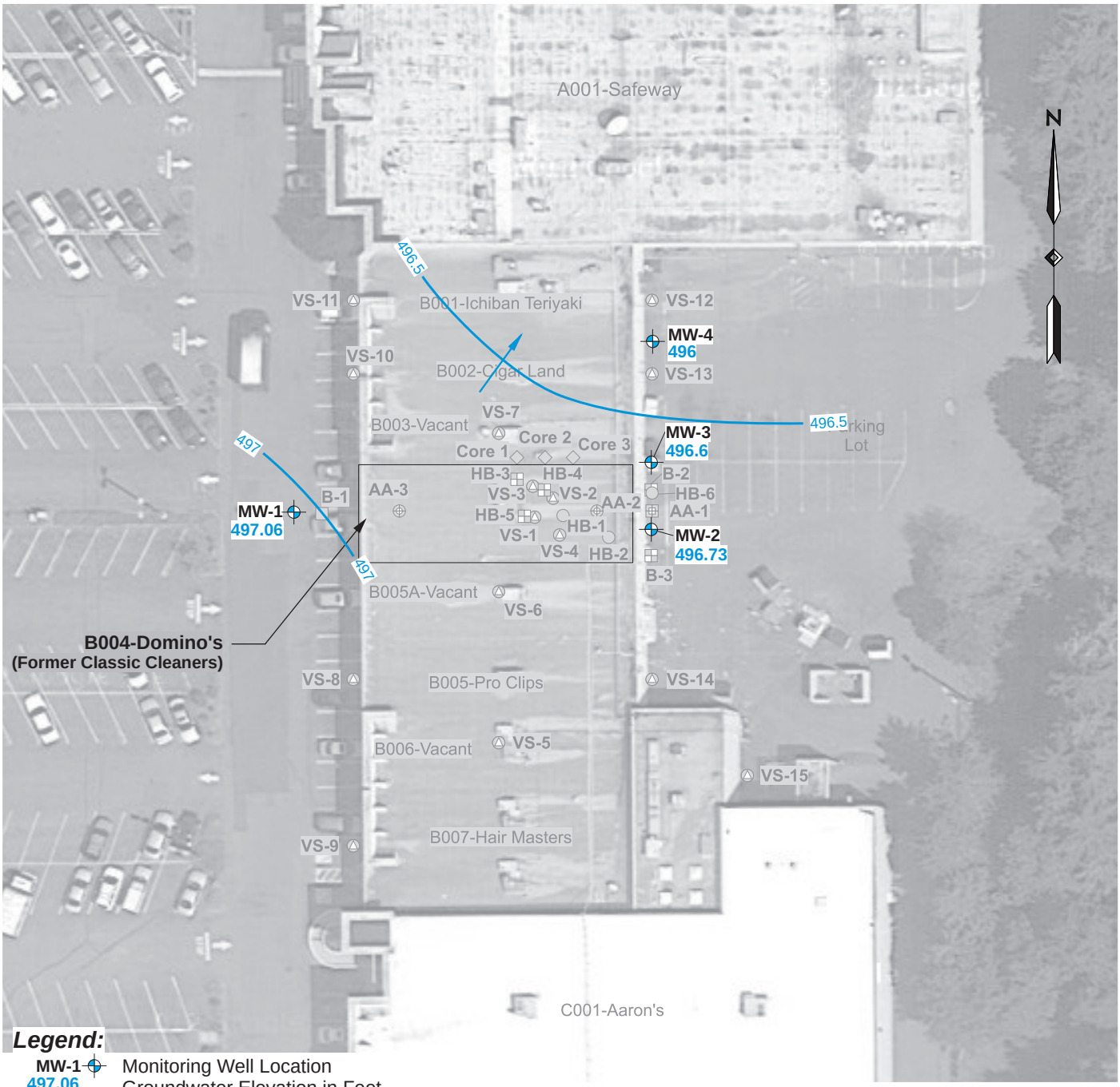
0 50 100

Approximate Scale in Feet

Groundwater Elevations - September 22, 2014

Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	11277-199	Figure 7
	February 2015		



Legend:

MW-1 497.06 — Monitoring Well Location, Groundwater Elevation in Feet

497 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

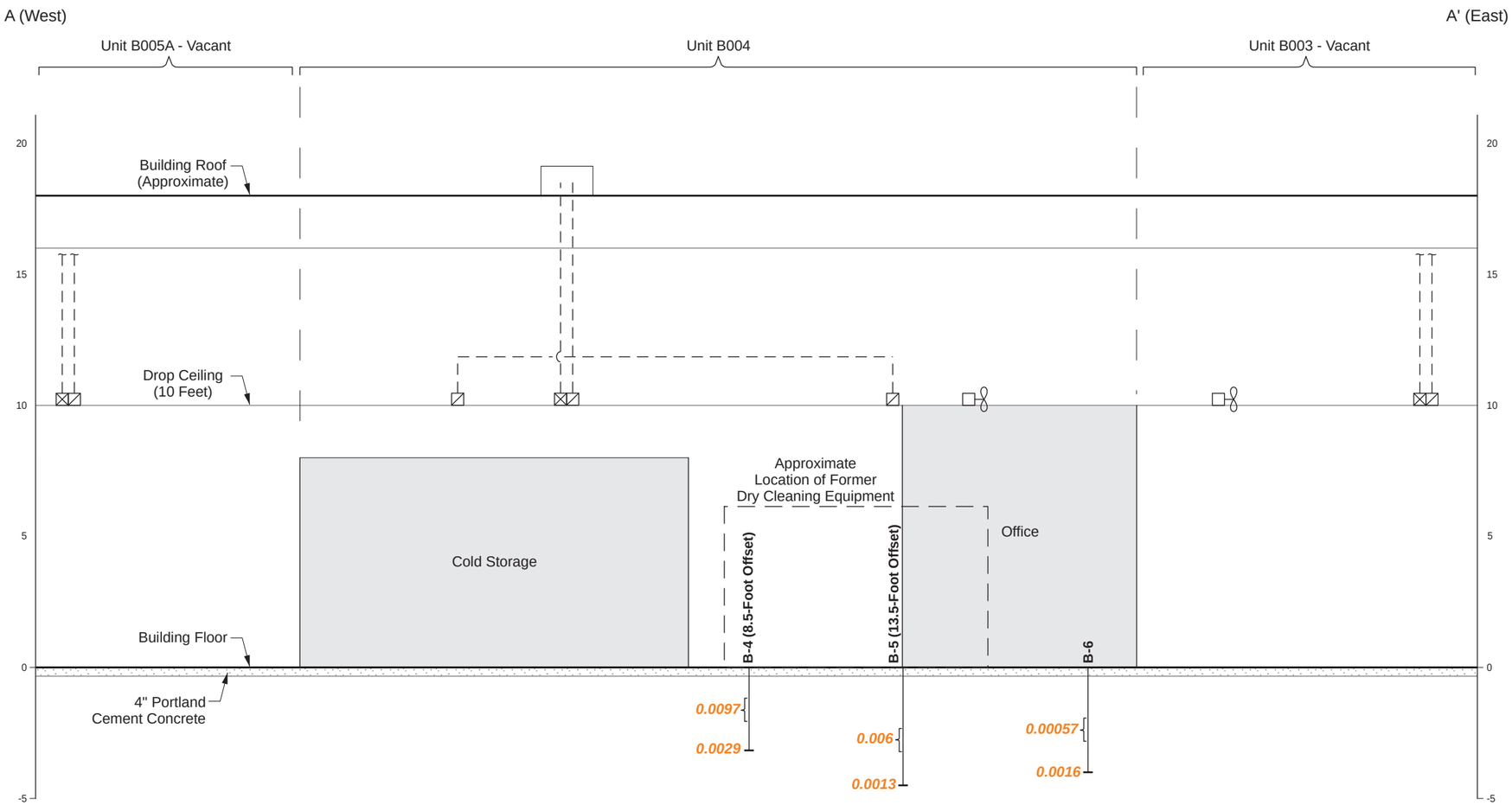
Approximate Scale in Feet

Groundwater Elevations - November 12, 2014

Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
February 2015		8



Legend:

B-4 — Boring Location

0.2 — Soil Tetrachloroethene Concentration in mg/kg

Axial Fan Location

HVAC Return

HVAC Vent

Air Flow Direction (Inferred)

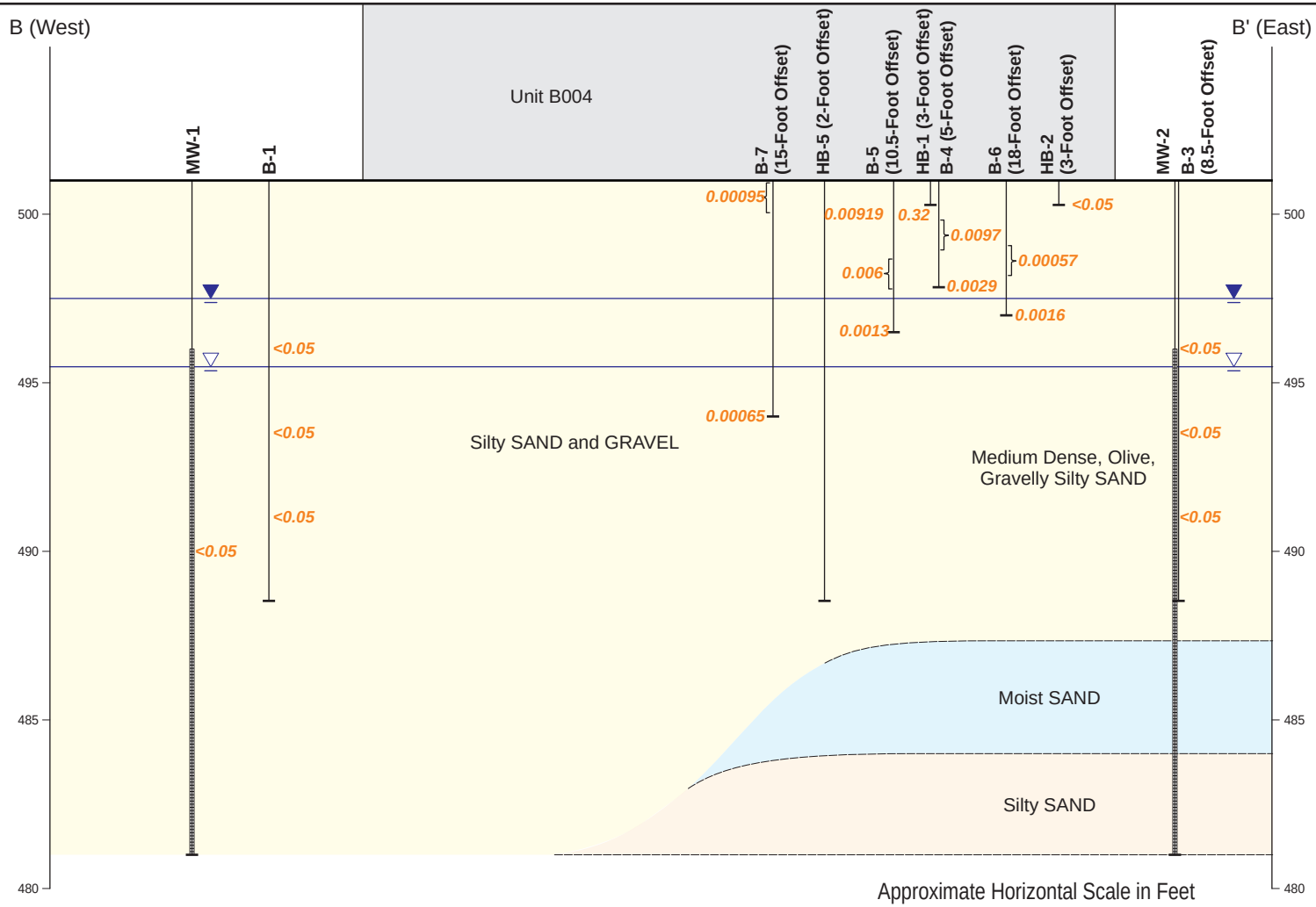
Approximate Horizontal Scale in Feet
0 5 10
0 5 10
Approximate Vertical Scale in Feet

Cross-Section A-A'

Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	Figure
11277-199	9
February 2015	



Legend:

MW-1 Monitoring Well Location

Typical High Groundwater Level - Gauged 3/27/2014

Typical Groundwater Level - Gauged 9/22/2014

0.2 Soil Tetrachloroethene Concentration in mg/kg

Screen Interval

SAND

Gravelly SAND/SILT

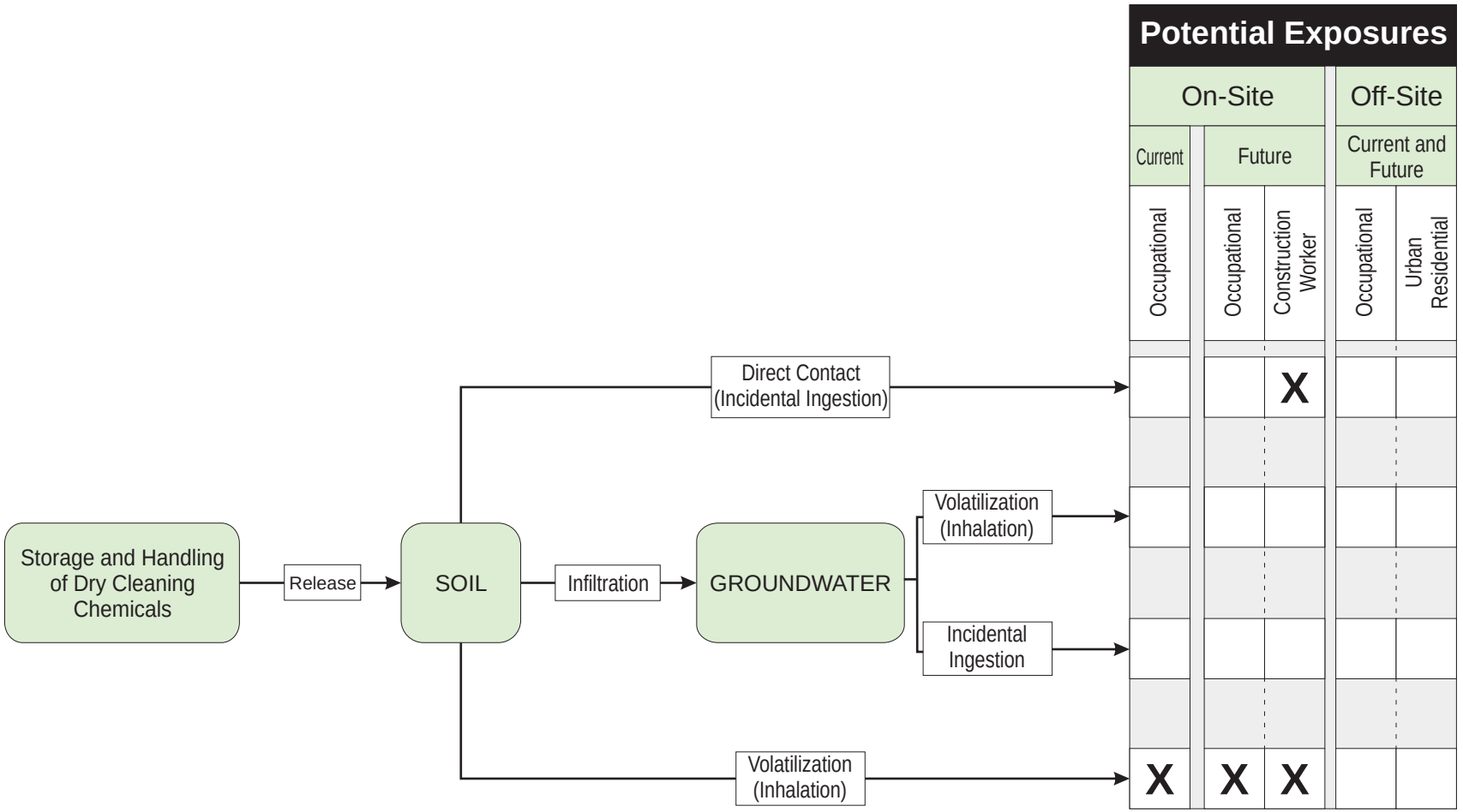
Silty SAND

Cross-Section B-B'

Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
February 2015		10



Conceptual Site Exposure Model

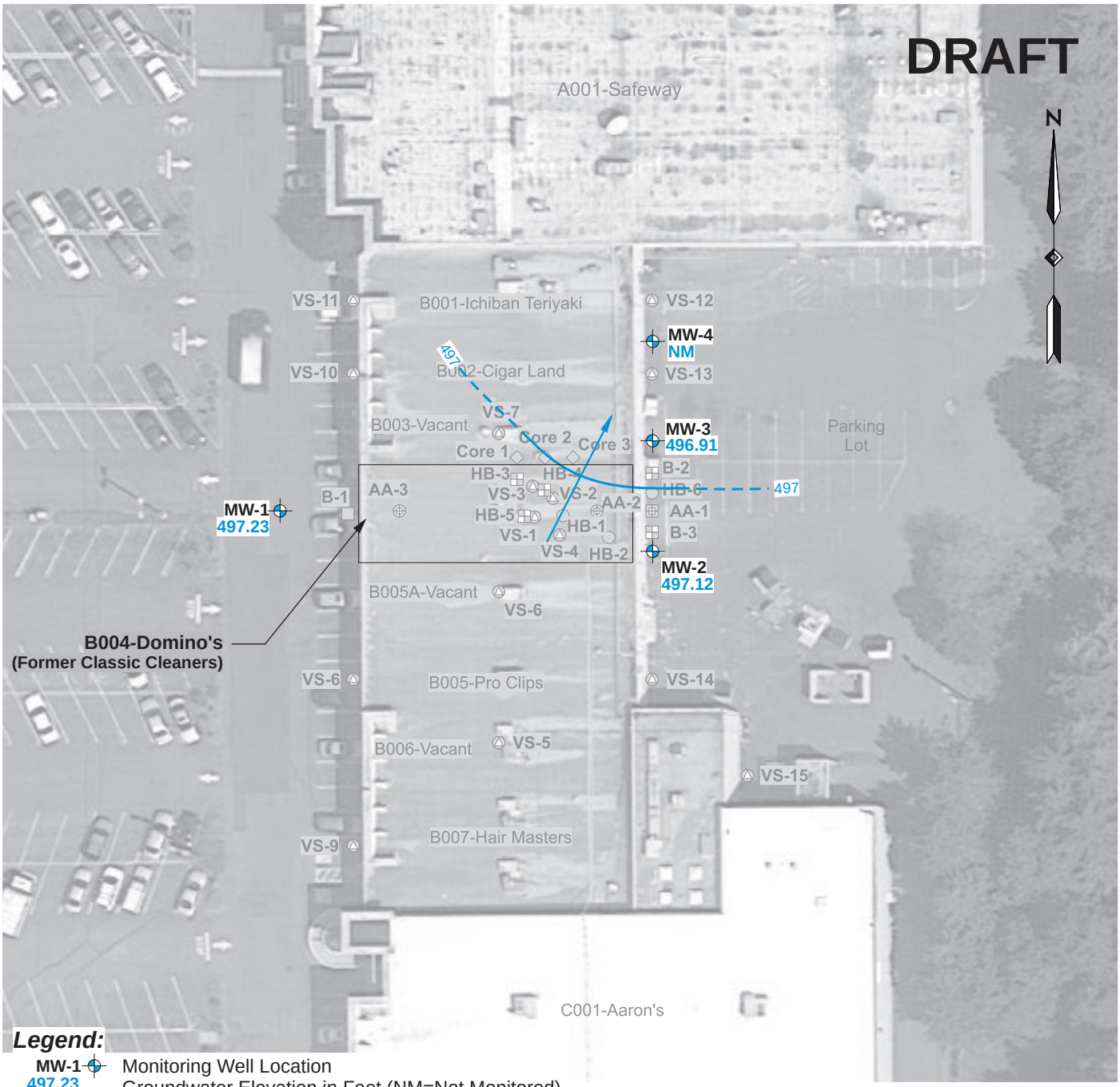
Site Investigation
Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
February 2015		11

Appendix A

Historical Groundwater Elevation Maps



Legend:

MW-1 497.23 — Monitoring Well Location; Groundwater Elevation in Feet (NM=Not Monitored)

497 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

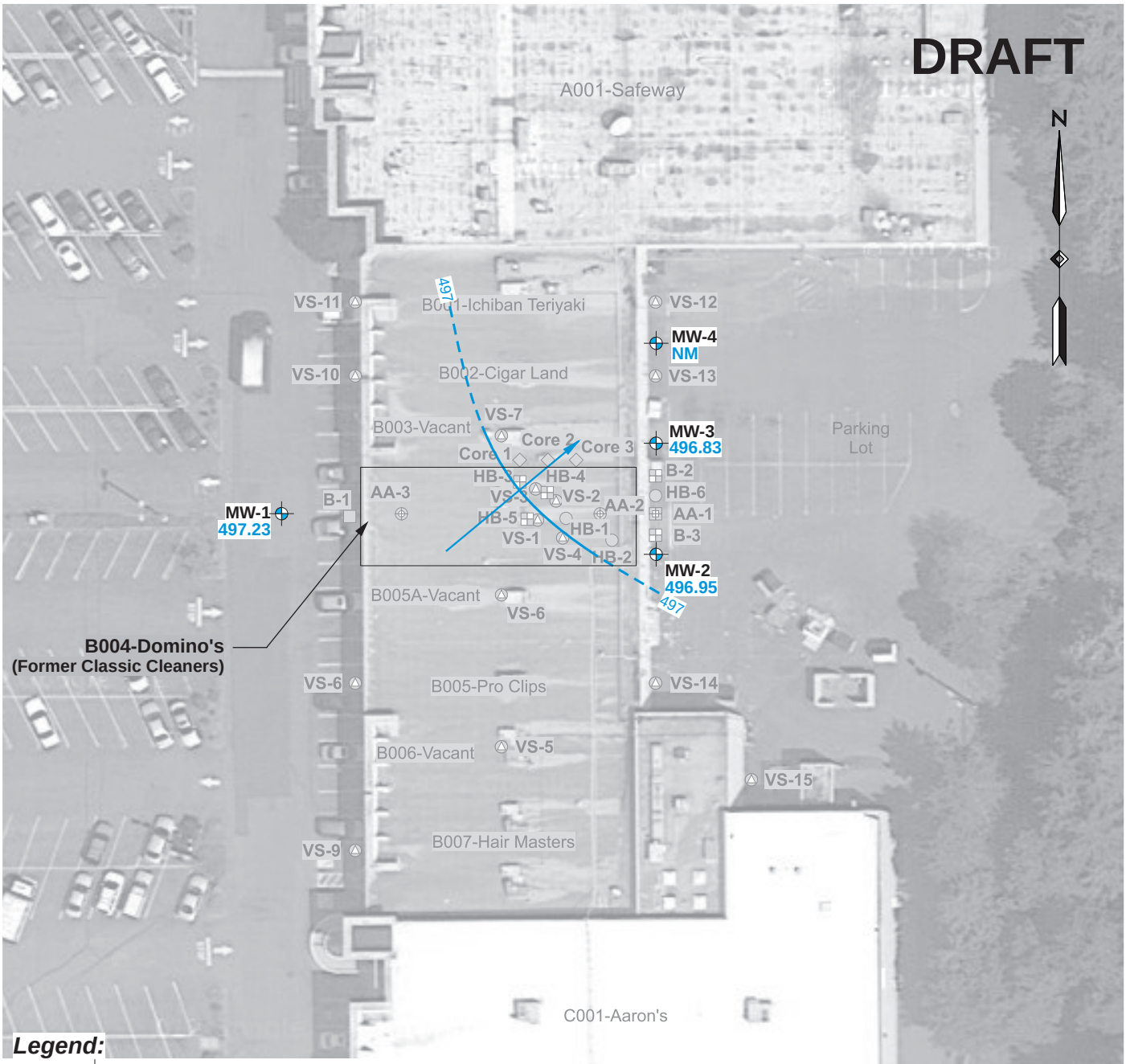
Approximate Scale in Feet

Groundwater Elevations - July 31, 1997

Cascade Plaza
Everett, Washington

APEX
Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
May 2014		A-1



Legend:

MW-1 / 497.23 — Monitoring Well Location; Groundwater Elevation in Feet (NM=Not Monitored)

497 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

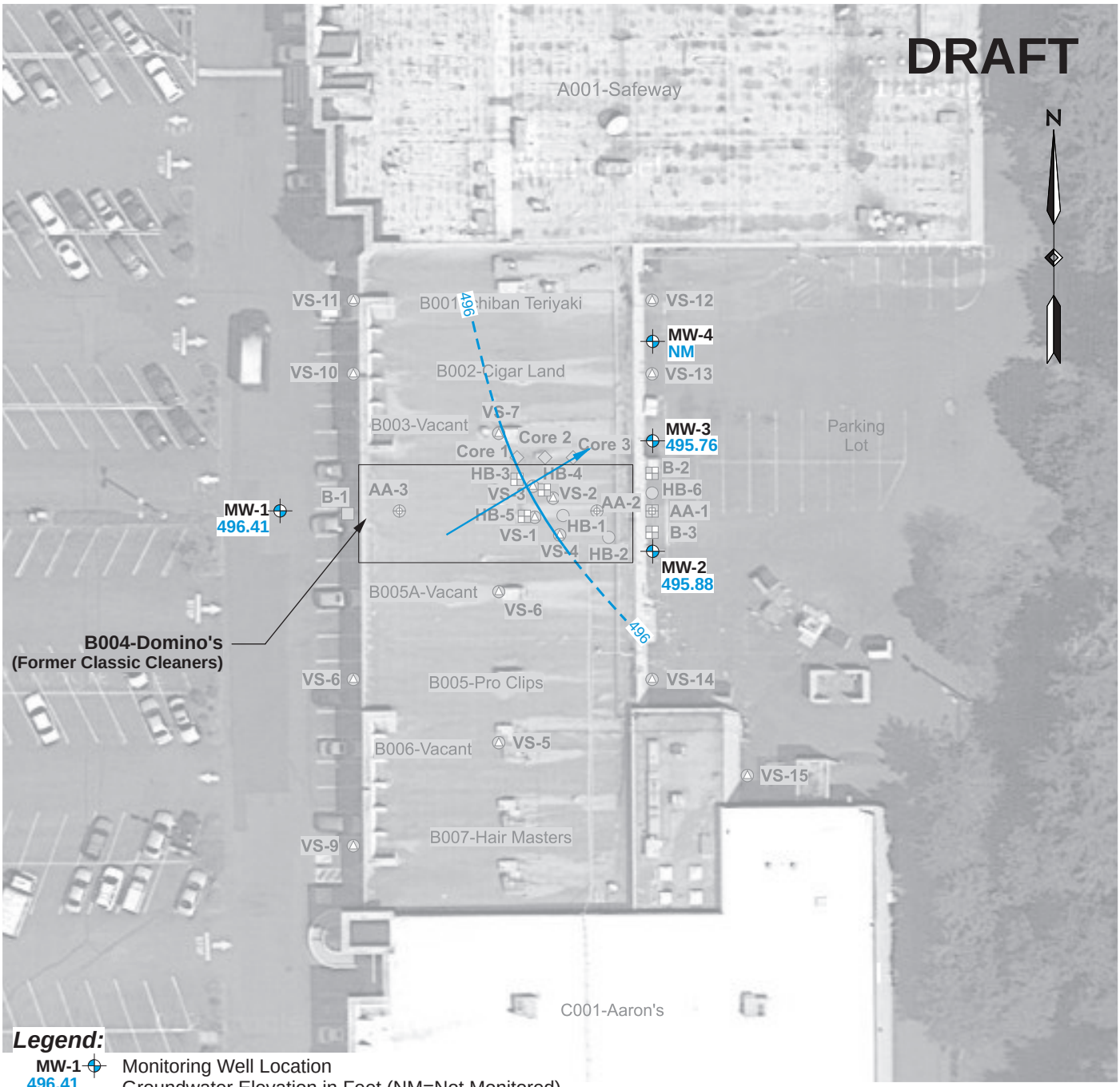
Approximate Scale in Feet

Groundwater Elevations - February 11, 1998

Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
May 2014		A-2



Legend:

MW-1 496.41 — Monitoring Well Location; Groundwater Elevation in Feet (NM=Not Monitored)

496 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

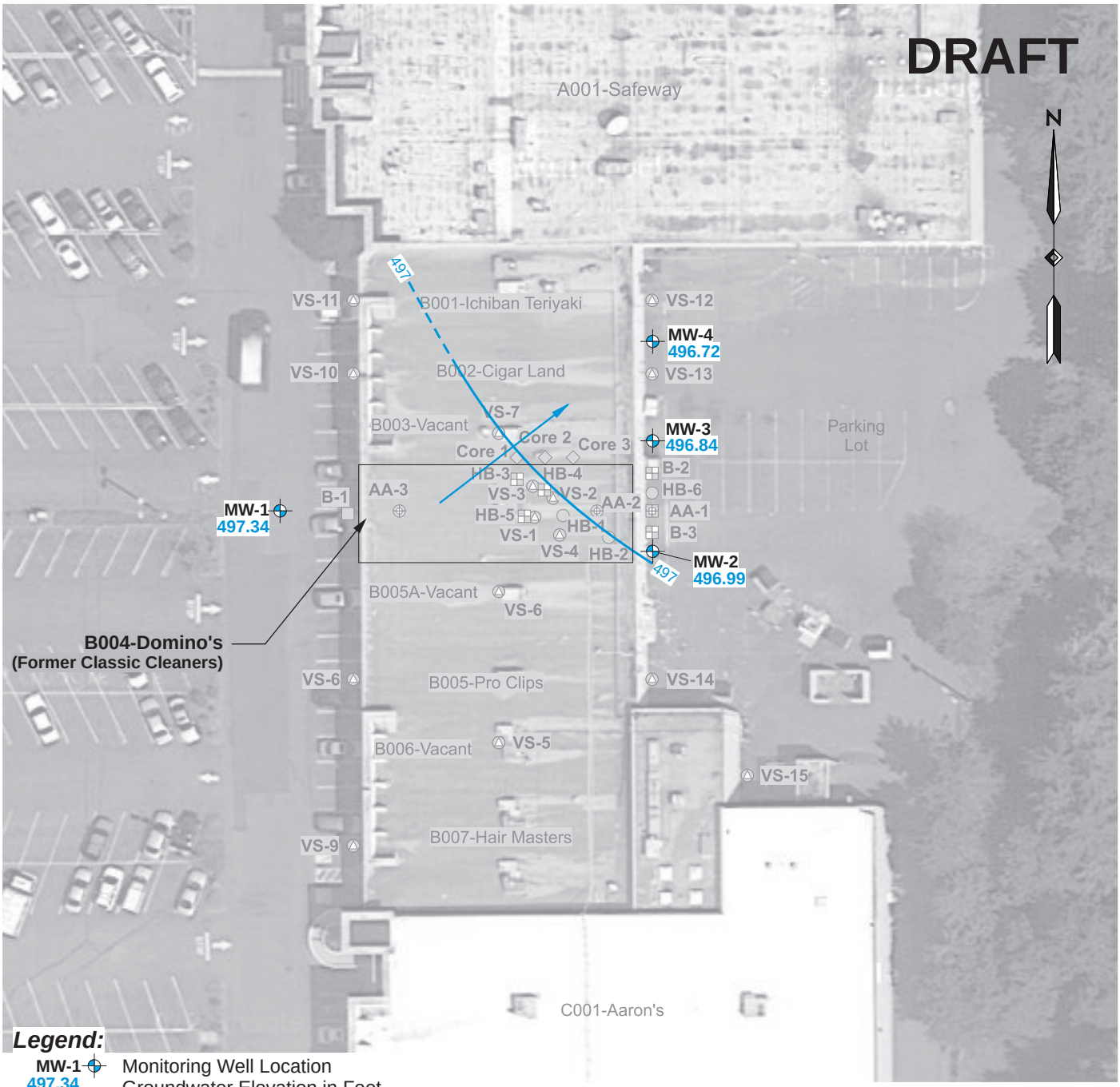
0 50 100

Approximate Scale in Feet

Groundwater Elevations - November 9, 1998

Cascade Plaza
Everett, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	11277-199	Figure A-3
	May 2014		



Legend:

MW-1 / 497.34 — Monitoring Well Location, Groundwater Elevation in Feet

497 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

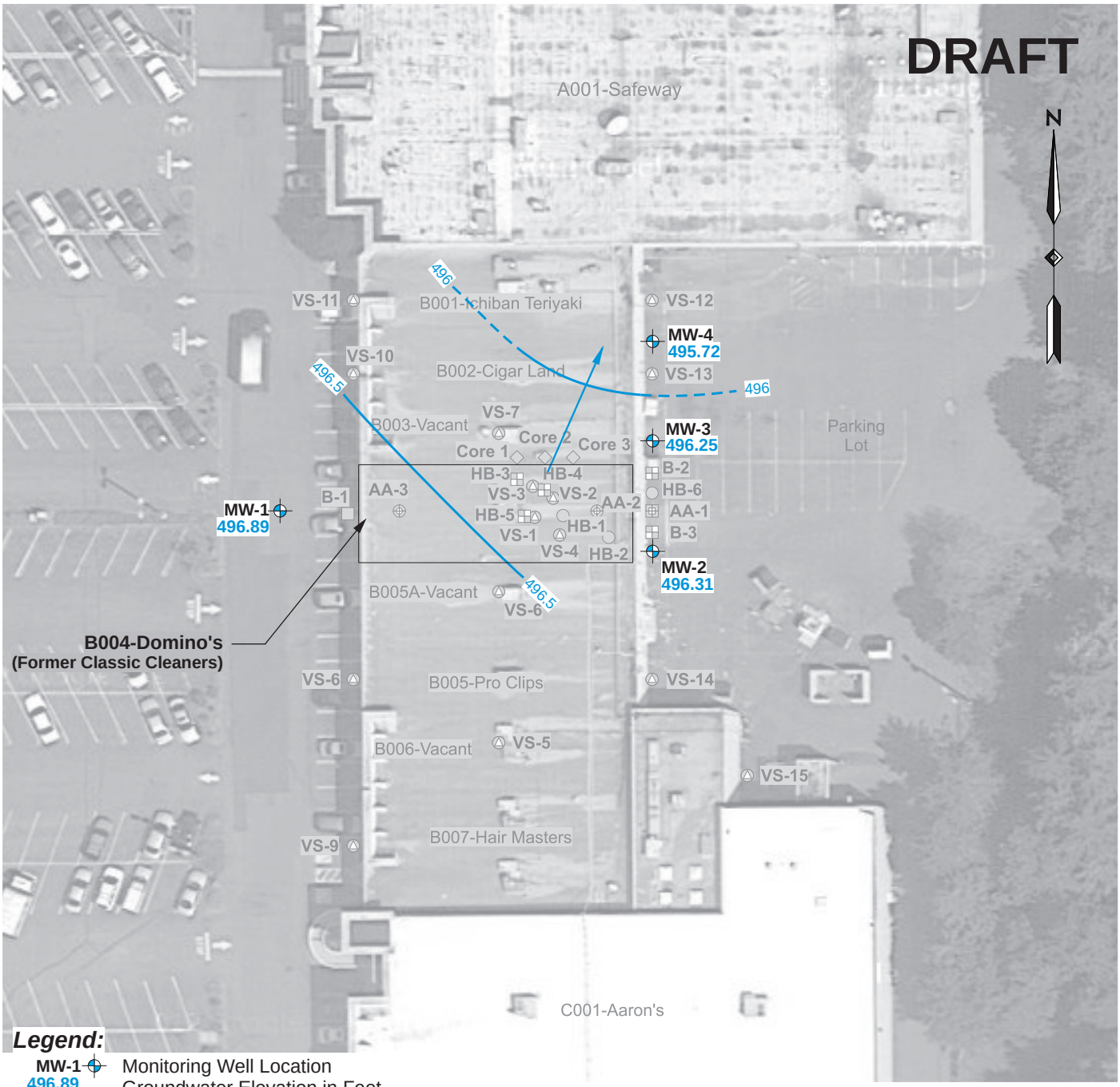
Approximate Scale in Feet

Groundwater Elevations - May 6, 1999

Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
May 2014		A-4



NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

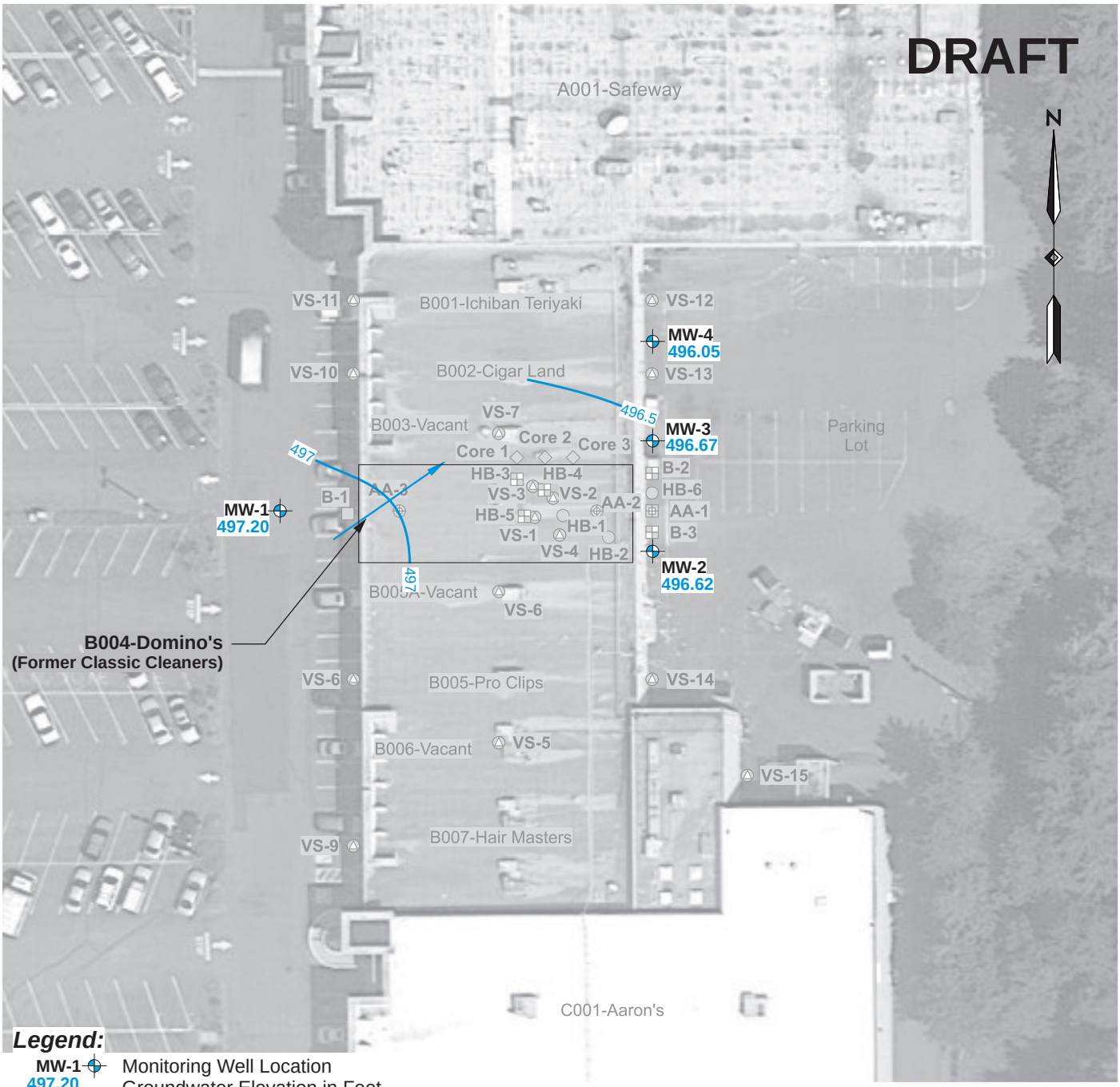
Approximate Scale in Feet

Groundwater Elevations - November 11, 1999

Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
May 2014		A-5



Legend:

MW-1 / 497.20 — Monitoring Well Location, Groundwater Elevation in Feet

497 — Groundwater Elevation Contour in Feet

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

Approximate Scale in Feet

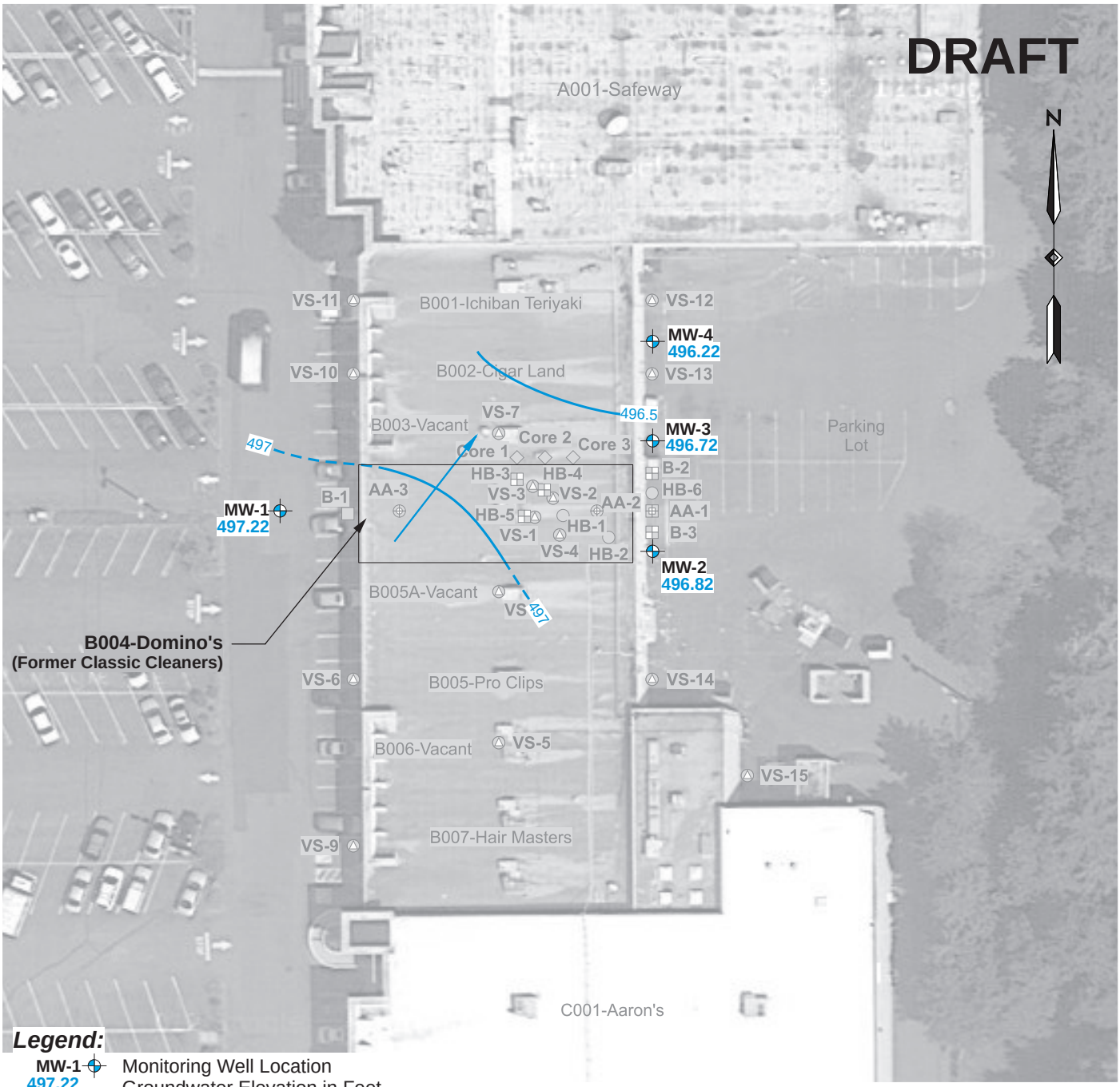
Groundwater Elevations - December 29, 1999

Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199
May 2014	

Figure A-6



Legend:

MW-1 497.22 — Monitoring Well Location, Groundwater Elevation in Feet

497 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

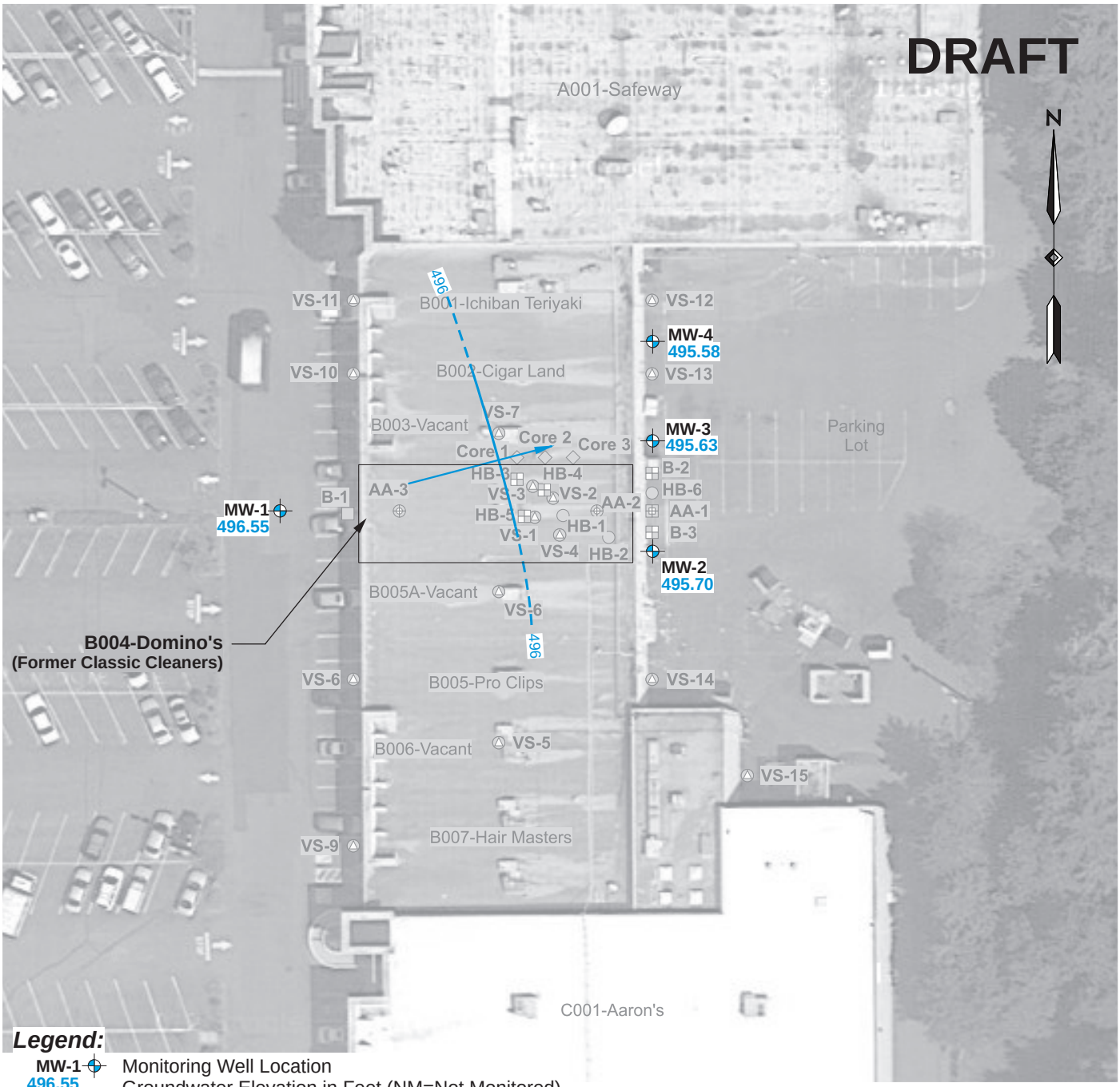
Approximate Scale in Feet

Groundwater Elevations - March 30, 2000

Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
May 2014		A-7



Legend:

MW-1 496.55 — Monitoring Well Location; Groundwater Elevation in Feet (NM=Not Monitored)

496 — Groundwater Elevation Contour in Feet (Dashed Where Inferred)

Apparent Groundwater Flow Direction

VS-3 — Soil Gas Sample Location (2013)

AA-2 — Indoor Ambient Air Sample Location (2013)

AA-1 — Outdoor Ambient Air Sample Location (2013)

HB-1 — Soil Sample Location (2002)

Core 1 — Soil Sample Location (1999)

B-1 — Soil Sample Location (1997)

B-2 — Soil and Groundwater Sample Location (1997)

NOTES: Base map prepared from 2013 - Google Imagery. Aerial dated July 5, 2012.

B004 = Unit Number

0 50 100

Approximate Scale in Feet

Groundwater Elevations - August 2, 2000

Cascade Plaza
Everett, Washington

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Figure
May 2014		A-8

Appendix B

Laboratory Data and Data Quality Review

Appendix B – Laboratory Analytical Reports and Data Quality Review

This appendix documents the results of a quality assurance/quality control (QA/QC) review of the analytical data for samples collected as part of the soil, groundwater, and soil vapor intrusion assessment at the former Cascade Cleaners at Cascade Plaza (the Facility). Soil sampling was completed on September 22, 2014. Air and soil gas sampling was completed as part of the soil vapor intrusion assessment on September 22, 2014. Groundwater sampling was completed on September 22, October 8, and November 12, 2014. Soil and groundwater sample analysis was performed by TestAmerica of Portland, Oregon. Air and soil gas sample analyses were performed by Eurofins Air Toxics, Inc., of Folsom, California. Copies of the laboratory reports are included in this appendix.

The QA review included examination and validation of the laboratory summary report, specifically:

- Analytical methods;
- Detection limits;
- Sample holding times;
- Chain-of-custody (COC) records;
- Surrogates, spikes, and blanks; and
- Duplicates.

The QA review did not include a review of raw data.

Analytical Methods

Soil samples were analyzed by TestAmerica for halogenated volatile organic compounds [HVOCs: tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride] by U.S. Environmental Protection Agency (EPA) Method 5035/8260. Groundwater samples were analyzed for volatile organic compounds (VOCs) by EPA Method 8260B. Soil gas and air samples were analyzed for HVOCs using EPA Method TO15.

Quality Assurance Objectives and Review

The general QA objectives for this project were to develop and implement procedures for obtaining, evaluating, and confirming the usability of data of a specified quality for monitoring groundwater quality trends and remediation systems performance at the Facility. To collect such information, analytical data must have an appropriate degree of accuracy and reproducibility, samples collected must be representative of actual field conditions, and samples must be collected and analyzed using unbroken COC procedures.

Reporting limits and analytical results for soil gas and air samples were compared to applicable regulatory cleanup level screening levels for each parameter. Precision, accuracy, representativeness, completeness, and comparability parameters used to indicate data quality are defined below.

Reporting Limits. Detection limits are set by the laboratory and are based on instrumentation abilities, sample matrix, and suggested detection limits by the EPA or the Washington State Department of Ecology (Ecology). In some cases, the detection limits may be increased due to high concentrations of analytes in the samples or matrix interferences. Detection limits were generally consistent with industry standards and regulatory standards when possible (if not raised, as previously discussed). Reporting limits were reviewed and are generally acceptable for this project. Reporting limits for individual samples varied based on the magnitude of the chemical impact. It is not expected that any of the raised detection limits compromised the usability of the data.

Holding Times. Samples were processed and analyzed within the appropriate holding times, with the following exception:

- Soil samples collected using EPA Method 5035 were frozen within 48 hours of sampling and stored by Apex prior to shipping the samples to the laboratory. However, the laboratory indicated that the samples were not received frozen (the temperature of the samples upon receipt by the laboratory was reportedly 3 degrees Celsius); therefore the laboratory assigned an "H" qualifier to the concentrations of HVOCs detected in these soil samples. Since the soil samples were frozen in storage and based on the low temperature of the samples, the quality of the data reported for analysis by Method 5035 are of adequate quality for use in this project.

Method Blanks. A method blank or laboratory blank is a sample prepared in the laboratory along with the actual samples and analyzed for the same parameters at the same time. It is used to assess if detected analytes may have been the result of contamination of the samples in the laboratory. No analytes were detected in the laboratory method blanks for the soil gas or air analyses.

Laboratory Control Samples. Laboratory Control Samples (LCS) were also analyzed by the laboratories to assess the accuracy of the analytical equipment. LCS are prepared from an analyte-free matrix that is then spiked with known levels of the constituents of interest (COI; i.e., a standard). The concentrations are measured and the results compared to the known spiked levels. This comparison is expressed as percent recovery. The LCS percent recoveries were within control limits.

In addition, a second laboratory control sample (the Laboratory Control Sample Duplicate [LCSD]) was prepared as above and analyzed. The LCSD percent recovery was within control limits for the water and air samples. The LCS and LCSD samples are compared to assess the precision of the analytical method (RPD). The RPDs were within acceptable control limits.

Surrogate Recovery. Surrogates are organic compounds that are similar in chemical composition to the COI and spiked into environmental and batch quality control samples prior to sample preparation and analysis. Surrogate recoveries for environmental samples are used to evaluate matrix interference on a sample-specific basis. All surrogate recoveries were within control limits.

Conclusion. In conclusion, the overall QA objectives have been met and the data are of adequate quality for use in this project.

eurofins | Air Toxics

10/17/2014

Mr. Mark Havighorst

Apex Companies, LLC (formerly Ash Creek Associates)

3015 SW 1st Avenue

Portland OR 97201

Project Name: Regency Cascade Plaza (Everett, WA)

Project #: 11277.199

Workorder #: 1410078B

Dear Mr. Mark Havighorst

The following report includes the data for the above referenced project for sample(s) received on 10/6/2014 at Air Toxics Ltd.

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

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

Regards,

Kelly Buettner

Project Manager

eurofins | Air Toxics

WORK ORDER #: 1410078B

Work Order Summary

CLIENT:	Mr. Mark Havighorst Apex Companies, LLC (formerly Ash Creek Associates) 3015 SW 1st Avenue Portland, OR 97201	**BILL TO:**	Mr. Mark Havighorst Apex Companies, LLC (formerly Ash Creek Associates) 3015 SW 1st Avenue Portland, OR 97201
PHONE:	503-924-4704	**P.O. #**	
FAX:	503-924-4707	**PROJECT #**	11277.199 Regency Cascade Plaza (Everett, WA)
DATE RECEIVED:	10/06/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	10/17/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
04A	VS-16	Modified TO-15	3.1 "Hg	15 psi
05A	VS-17	Modified TO-15	2 "Hg	14.7 psi
06A	Lab Blank	Modified TO-15	NA	NA
06B	Lab Blank	Modified TO-15	NA	NA
07A	CCV	Modified TO-15	NA	NA
07B	CCV	Modified TO-15	NA	NA
08A	LCS	Modified TO-15	NA	NA
08AA	LCSD	Modified TO-15	NA	NA
08B	LCS	Modified TO-15	NA	NA
08BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 10/17/14

Technical Director

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

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

LABORATORY NARRATIVE
Modified TO-15
Apex Companies, LLC (formerly Ash Creek Associates)
Workorder# 1410078B

Two 1 Liter Summa Canister (100% Certified) samples were received on October 06, 2014. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

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

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

Requirement	***TO-15***	***ATL Modifications***
Initial Calibration	</=30% RSD with 2 compounds allowed out to < 40% RSD	</=30% RSD with 4 compounds allowed out to < 40% RSD
Blank and standards	Zero Air	UHP Nitrogen provides a higher purity gas matrix than zero air

Receiving Notes

The Chain of Custody contained incorrect method information. EATL proceeded with the analysis as per the original contract or verbal agreement.

Analytical Notes

Dilution was performed on sample VS-17 due to the presence of high level target species.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

eurofins | Air Toxics

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

Client Sample ID: VS-16

Lab ID#: 1410078B-04A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
cis-1,2-Dichloroethene	0.22	0.48	0.89	1.9
Trichloroethene	0.22	1.6	1.2	8.4
Tetrachloroethene	0.22	23	1.5	150

Client Sample ID: VS-17

Lab ID#: 1410078B-05A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	4.3	820	29	5600

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Client Sample ID: VS-16

Lab ID#: 1410078B-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e100918**	**Date of Collection:**	**9/22/14 6:22:00 PM**
Dil. Factor:	**2.25**	**Date of Analysis:**	**10/10/14 07:46 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.22	Not Detected	0.58	Not Detected
cis-1,2-Dichloroethene	0.22	0.48	0.89	1.9
Trichloroethene	0.22	1.6	1.2	8.4
Tetrachloroethene	0.22	23	1.5	150

Container Type: 1 Liter Summa Canister (100% Certified)

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

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Client Sample ID: VS-17

Lab ID#: 1410078B-05A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2101006**	**Date of Collection:**	**9/22/14 6:25:00 PM**
Dil. Factor:	**8.60**	**Date of Analysis:**	**10/10/14 12:49 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	4.3	Not Detected	11	Not Detected
cis-1,2-Dichloroethene	4.3	Not Detected	17	Not Detected
Trichloroethene	4.3	Not Detected	23	Not Detected
Tetrachloroethene	4.3	820	29	5600

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	97	70-130
1,2-Dichloroethane-d4	98	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1410078B-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e100907**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/9/14 02:49 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.10	Not Detected	0.26	Not Detected
cis-1,2-Dichloroethene	0.10	Not Detected	0.40	Not Detected
Trichloroethene	0.10	Not Detected	0.54	Not Detected
Tetrachloroethene	0.10	Not Detected	0.68	Not Detected

Container Type: NA - Not Applicable

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

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Client Sample ID: Lab Blank

Lab ID#: 1410078B-06B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2101005**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/10/14 12:02 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	99	70-130
4-Bromofluorobenzene	92	70-130

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Client Sample ID: CCV

Lab ID#: 1410078B-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e100902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/9/14 10:13 AM**	

Compound	%Recovery
Vinyl Chloride	114
cis-1,2-Dichloroethene	109
Trichloroethene	105
Tetrachloroethene	108

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	102	70-130

eurofins | Air Toxics

Client Sample ID: CCV

Lab ID#: 1410078B-07B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2101002**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/10/14 09:13 AM**	

Compound	%Recovery
Vinyl Chloride	80
cis-1,2-Dichloroethene	87
Trichloroethene	84
Tetrachloroethene	88

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	95	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: LCS

Lab ID#: 1410078B-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e100904**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/9/14 11:49 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	118	70-130
cis-1,2-Dichloroethene	114	70-130
Trichloroethene	107	70-130
Tetrachloroethene	109	70-130

Container Type: NA - Not Applicable

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

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Client Sample ID: LCSD

Lab ID#: 1410078B-08AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**e100905**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/9/14 01:05 PM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	118	70-130
cis-1,2-Dichloroethene	114	70-130
Trichloroethene	105	70-130
Tetrachloroethene	108	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: LCS

Lab ID#: 1410078B-08B

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2101003**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/10/14 10:13 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	86	70-130
cis-1,2-Dichloroethene	91	70-130
Trichloroethene	86	70-130
Tetrachloroethene	89	70-130

Container Type: NA - Not Applicable

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

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Client Sample ID: LCSD

Lab ID#: 1410078B-08BB

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**2101004**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/10/14 10:54 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	82	70-130
cis-1,2-Dichloroethene	89	70-130
Trichloroethene	85	70-130
Tetrachloroethene	89	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	101	70-130

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10/20/2014
Mr. Mark Havighorst
Apex Companies, LLC (formerly Ash Creek Associates)
3015 SW 1st Avenue

Portland OR 97201

Project Name: Regency Cascade Plaza (Everett, WA)
Project #: 11277.199
Workorder #: 1410078A

Dear Mr. Mark Havighorst

The following report includes the data for the above referenced project for sample(s) received on 10/6/2014 at Air Toxics Ltd.

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

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

Regards,

Kelly Buettner

Project Manager

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WORK ORDER #: 1410078A

Work Order Summary

CLIENT:	Mr. Mark Havighorst Apex Companies, LLC (formerly Ash Creek Associates) 3015 SW 1st Avenue Portland, OR 97201	**BILL TO:**	Mr. Mark Havighorst Apex Companies, LLC (formerly Ash Creek Associates) 3015 SW 1st Avenue Portland, OR 97201
PHONE:	503-924-4704	**P.O. #**	
FAX:	503-924-4707	**PROJECT #**	11277.199 Regency Cascade Plaza (Everett, WA)
DATE RECEIVED:	10/06/2014	**CONTACT:**	Kelly Buettner
DATE COMPLETED:	10/20/2014		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	AA-4	Modified TO-15 SIM	6.3 "Hg	5.3 psi
02A	AA-5	Modified TO-15 SIM	4.7 "Hg	5.1 psi
03A	AA-6	Modified TO-15 SIM	6.3 "Hg	4.7 psi
06A	VS-18	Modified TO-15 SIM	24.7 "Hg	4.8 psi
07A	Lab Blank	Modified TO-15 SIM	NA	NA
08A	CCV	Modified TO-15 SIM	NA	NA
09A	LCS	Modified TO-15 SIM	NA	NA
09AA	LCSD	Modified TO-15 SIM	NA	NA

CERTIFIED BY: Heidi Hayes DATE: 10/20/14

Technical Director

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

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

LABORATORY NARRATIVE
Modified TO-15 SIM
Apex Companies, LLC (formerly Ash Creek Associates)
Workorder# 1410078A

Four 6 Liter Summa Canister (SIM Certified) samples were received on October 06, 2014. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the SIM acquisition mode.

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

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

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

Receiving Notes

Sample VS-18 was received with significant vacuum remaining in the canister. The residual canister vacuum resulted in elevated reporting limits.

Analytical Notes

Dilution was performed on sample VS-18 due to the presence of high level non-target species.

Definition of Data Qualifying Flags

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

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

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

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

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

N - The identification is based on presumptive evidence.

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

a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

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

Client Sample ID: AA-4

Lab ID#: 1410078A-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Trichloroethene	0.034	0.037	0.18	0.20

Client Sample ID: AA-5

Lab ID#: 1410078A-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.032	0.077	0.22	0.52

Client Sample ID: AA-6

Lab ID#: 1410078A-03A

No Detections Were Found.

Client Sample ID: VS-18

Lab ID#: 1410078A-06A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Tetrachloroethene	0.25	1.3	1.7	9.0

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Client Sample ID: AA-4

Lab ID#: 1410078A-01A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v100907sim**	**Date of Collection: 9/22/14 6:45:00 PM**	
Dil. Factor:	**1.72**	**Date of Analysis: 10/9/14 01:33 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.044	Not Detected
cis-1,2-Dichloroethene	0.034	Not Detected	0.14	Not Detected
Trichloroethene	0.034	0.037	0.18	0.20
Tetrachloroethene	0.034	Not Detected	0.23	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: AA-5

Lab ID#: 1410078A-02A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v100908sim**	**Date of Collection: 9/22/14 6:45:00 PM**	
Dil. Factor:	**1.60**	**Date of Analysis: 10/9/14 02:09 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.016	Not Detected	0.041	Not Detected
cis-1,2-Dichloroethene	0.032	Not Detected	0.13	Not Detected
Trichloroethene	0.032	Not Detected	0.17	Not Detected
Tetrachloroethene	0.032	0.077	0.22	0.52

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	107	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: AA-6

Lab ID#: 1410078A-03A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v100909sim**	**Date of Collection: 9/22/14 6:45:00 PM**	
Dil. Factor:	**1.67**	**Date of Analysis: 10/9/14 02:56 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.017	Not Detected	0.043	Not Detected
cis-1,2-Dichloroethene	0.033	Not Detected	0.13	Not Detected
Trichloroethene	0.033	Not Detected	0.18	Not Detected
Tetrachloroethene	0.033	Not Detected	0.23	Not Detected

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	104	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: VS-18

Lab ID#: 1410078A-06A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v100911sim**	**Date of Collection: 9/29/14 1:40:00 PM**	
Dil. Factor:	**12.5**	**Date of Analysis: 10/9/14 05:21 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.12	Not Detected	0.32	Not Detected
cis-1,2-Dichloroethene	0.25	Not Detected	0.99	Not Detected
Trichloroethene	0.25	Not Detected	1.3	Not Detected
Tetrachloroethene	0.25	1.3	1.7	9.0

Container Type: 6 Liter Summa Canister (SIM Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	99	70-130

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Client Sample ID: Lab Blank

Lab ID#: 1410078A-07A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v100906sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/9/14 12:44 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Vinyl Chloride	0.010	Not Detected	0.026	Not Detected
cis-1,2-Dichloroethene	0.020	Not Detected	0.079	Not Detected
Trichloroethene	0.020	Not Detected	0.11	Not Detected
Tetrachloroethene	0.020	Not Detected	0.14	Not Detected

Container Type: NA - Not Applicable

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

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Client Sample ID: CCV

Lab ID#: 1410078A-08A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v100902sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/9/14 09:25 AM**	

Compound	%Recovery
Vinyl Chloride	91
cis-1,2-Dichloroethene	94
Trichloroethene	90
Tetrachloroethene	86

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	103	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: LCS

Lab ID#: 1410078A-09A

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v100903sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/9/14 10:18 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	97	70-130
cis-1,2-Dichloroethene	99	70-130
Trichloroethene	95	70-130
Tetrachloroethene	91	70-130

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: LCSD

Lab ID#: 1410078A-09AA

MODIFIED EPA METHOD TO-15 GC/MS SIM

File Name:	**v100904sim**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/9/14 11:00 AM**	

Compound	%Recovery	Method Limits
Vinyl Chloride	96	70-130
cis-1,2-Dichloroethene	99	70-130
Trichloroethene	94	70-130
Tetrachloroethene	89	70-130

Container Type: NA - Not Applicable

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

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Tel: (503)906-9200

TestAmerica Job ID: 250-21790-1
TestAmerica Sample Delivery Group: 11277.199
Client Project/Site: Regency Cascade Plaza

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Mark Havighorst

Vanessa Berry

Authorized for release by:
10/9/2014 4:04:22 PM

Vanessa Berry, Project Manager II
(503)906-9233
vanessa.berry@testamericainc.com

Table of Contents

Sample Summary

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza

TestAmerica Job ID: 250-21790-1
SDG: 11277.199

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
250-21790-2	MW-3	Water	09/22/14 12:30	10/02/14 14:30
250-21790-3	MW-3 DUP	Water	09/22/14 12:30	10/02/14 14:30
250-21790-4	MW-4	Water	09/22/14 13:05	10/02/14 14:30
250-21790-5	MW-1	Water	09/22/14 16:35	10/02/14 14:30
250-21790-6	B-7 (0-1)	Solid	09/22/14 13:20	10/02/14 14:30
250-21790-7	B-7 (7)	Solid	09/22/14 13:45	10/02/14 14:30
250-21790-8	B-5 (2-3)	Solid	09/22/14 14:10	10/02/14 14:30
250-21790-9	B-5 (4.5)	Solid	09/22/14 14:20	10/02/14 14:30
250-21790-10	B-4 (1-2)	Solid	09/22/14 14:50	10/02/14 14:30
250-21790-11	B-4 (3)	Solid	09/22/14 15:00	10/02/14 14:30
250-21790-12	B-6 (2-3)	Solid	09/22/14 15:15	10/02/14 14:30
250-21790-13	B-6 (4)	Solid	09/22/14 15:25	10/02/14 14:30

Job ID: 250-21790-1

Laboratory: TestAmerica Portland

Narrative

Job Narrative
250-21790-1

Comments
No additional comments.

Receipt
The samples were received on 10/2/2014 2:30 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.0º C.

Except:

Stirbar vials not received frozen. B-4 (1-2) (250-21790-10), B-4 (3) (250-21790-11), B-5 (2-3) (250-21790-8), B-5 (4.5) (250-21790-9), B-6 (2-3) (250-21790-12), B-6 (4) (250-21790-13), B-7 (0-1) (250-21790-6), B-7 (7) (250-21790-7)

3/3 vials received frozen and broken. MW-2 (250-21790-1)

2/3 vials received frozen/broken. MW-3 (250-21790-2)

1/3 vials received frozen/broken. MW-3 DUP (250-21790-3)

No Trip Blank submitted.250-21790

GC/MS VOA
Method(s) 8260B: The following sample(s) was analyzed outside of analytical holding time.: B-4 (1-2) (250-21790-10), B-4 (3) (250-21790-11), B-5 (2-3) (250-21790-8), B-5 (4.5) (250-21790-9), B-6 (2-3) (250-21790-12), B-6 (4) (250-21790-13), B-7 (0-1) (250-21790-6), B-7 (7) (250-21790-7).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza

TestAmerica Job ID: 250-21790-1
SDG: 11277.199

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW-3
Date Collected: 09/22/14 12:30
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			10/06/14 13:28	1
2-Chlorotoluene	ND		0.10		ug/L			10/06/14 13:28	1
1,2,3-Trichloropropane	ND		0.20		ug/L			10/06/14 13:28	1
Carbon tetrachloride	ND		0.10		ug/L			10/06/14 13:28	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 13:28	1
Chlorobenzene	ND		0.10		ug/L			10/06/14 13:28	1
Vinyl chloride	ND		0.020		ug/L			10/06/14 13:28	1
sec-Butylbenzene	ND		0.10		ug/L			10/06/14 13:28	1
Dibromomethane	ND		0.10		ug/L			10/06/14 13:28	1
m-Xylene & p-Xylene	ND		0.20		ug/L			10/06/14 13:28	1
o-Xylene	ND		0.10		ug/L			10/06/14 13:28	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			10/06/14 13:28	1
Styrene	ND		0.10		ug/L			10/06/14 13:28	1
Chlorobromomethane	ND		0.10		ug/L			10/06/14 13:28	1
Dichlorobromomethane	ND		0.10		ug/L			10/06/14 13:28	1
1,3-Dichlorobenzene	ND		0.20		ug/L			10/06/14 13:28	1
Benzene	ND		0.10		ug/L			10/06/14 13:28	1
Chloroethane	ND		0.25		ug/L			10/06/14 13:28	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 13:28	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			10/06/14 13:28	1
N-Propylbenzene	ND		0.10		ug/L			10/06/14 13:28	1
4-Isopropyltoluene	ND		0.20		ug/L			10/06/14 13:28	1
n-Butylbenzene	ND		0.10		ug/L			10/06/14 13:28	1
1,1-Dichloropropene	ND		0.10		ug/L			10/06/14 13:28	1
cis-1,2-Dichloroethene	**0.13**		0.10		ug/L			10/06/14 13:28	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 13:28	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			10/06/14 13:28	1
Toluene	ND		0.10		ug/L			10/06/14 13:28	1
Naphthalene	ND		0.40		ug/L			10/06/14 13:28	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			10/06/14 13:28	1
1,3-Dichloropropane	ND		0.10		ug/L			10/06/14 13:28	1
Chloroform	ND		0.10		ug/L			10/06/14 13:28	1
4-Chlorotoluene	ND		0.20		ug/L			10/06/14 13:28	1
Chlorodibromomethane	ND		0.10		ug/L			10/06/14 13:28	1
Dichlorodifluoromethane	ND		0.40		ug/L			10/06/14 13:28	1
1,1,2-Trichloroethane	ND		0.10		ug/L			10/06/14 13:28	1
tert-Butylbenzene	ND		0.10		ug/L			10/06/14 13:28	1
Chloromethane	ND		0.10		ug/L			10/06/14 13:28	1
Methylene Chloride	ND		0.50		ug/L			10/06/14 13:28	1
1,1-Dichloroethene	ND		0.10		ug/L			10/06/14 13:28	1
Isopropylbenzene	ND		0.10		ug/L			10/06/14 13:28	1
1,2-Dichloroethane	ND		0.10		ug/L			10/06/14 13:28	1
Tetrachloroethene	**0.17**		0.10		ug/L			10/06/14 13:28	1
1,1,1-Trichloroethane	ND		0.10		ug/L			10/06/14 13:28	1
2,2-Dichloropropane	ND		0.10		ug/L			10/06/14 13:28	1
1,2-Dibromoethane	ND		0.10		ug/L			10/06/14 13:28	1
Bromoform	ND		0.10		ug/L			10/06/14 13:28	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			10/06/14 13:28	1
Trichlorofluoromethane	ND		0.10		ug/L			10/06/14 13:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-3
Date Collected: 09/22/14 12:30
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		0.10		ug/L			10/06/14 13:28	1
Bromobenzene	ND		0.10		ug/L			10/06/14 13:28	1
1,2-Dichloropropane	ND		0.10		ug/L			10/06/14 13:28	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 13:28	1
Ethylbenzene	ND		0.10		ug/L			10/06/14 13:28	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			10/06/14 13:28	1
Hexachlorobutadiene	ND		0.20		ug/L			10/06/14 13:28	1
1,1-Dichloroethane	ND		0.10		ug/L			10/06/14 13:28	1
Bromomethane	ND		0.10		ug/L			10/06/14 13:28	1
1,4-Dichlorobenzene	ND		0.20		ug/L			10/06/14 13:28	1
Methyl tert-butyl ether	ND		0.10		ug/L			10/06/14 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*75 - 120*		*10/06/14 13:28*	*1*
Trifluorotoluene (Surr)	*97*		*80 - 127*		*10/06/14 13:28*	*1*
Toluene-d8 (Surr)	*98*		*75 - 125*		*10/06/14 13:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 128*		*10/06/14 13:28*	*1*
Dibromofluoromethane (Surr)	*101*		*85 - 115*		*10/06/14 13:28*	*1*

Client Sample ID: MW-3 DUP
Date Collected: 09/22/14 12:30
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			10/06/14 13:52	1
2-Chlorotoluene	ND		0.10		ug/L			10/06/14 13:52	1
1,2,3-Trichloropropane	ND		0.20		ug/L			10/06/14 13:52	1
Carbon tetrachloride	ND		0.10		ug/L			10/06/14 13:52	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 13:52	1
Chlorobenzene	ND		0.10		ug/L			10/06/14 13:52	1
Vinyl chloride	ND		0.020		ug/L			10/06/14 13:52	1
sec-Butylbenzene	ND		0.10		ug/L			10/06/14 13:52	1
Dibromomethane	ND		0.10		ug/L			10/06/14 13:52	1
m-Xylene & p-Xylene	ND		0.20		ug/L			10/06/14 13:52	1
o-Xylene	ND		0.10		ug/L			10/06/14 13:52	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			10/06/14 13:52	1
Styrene	ND		0.10		ug/L			10/06/14 13:52	1
Chlorobromomethane	ND		0.10		ug/L			10/06/14 13:52	1
Dichlorobromomethane	ND		0.10		ug/L			10/06/14 13:52	1
1,3-Dichlorobenzene	ND		0.20		ug/L			10/06/14 13:52	1
Benzene	ND		0.10		ug/L			10/06/14 13:52	1
Chloroethane	ND		0.25		ug/L			10/06/14 13:52	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 13:52	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			10/06/14 13:52	1
N-Propylbenzene	ND		0.10		ug/L			10/06/14 13:52	1
4-Isopropyltoluene	ND		0.20		ug/L			10/06/14 13:52	1
n-Butylbenzene	ND		0.10		ug/L			10/06/14 13:52	1
1,1-Dichloropropene	ND		0.10		ug/L			10/06/14 13:52	1
cis-1,2-Dichloroethene	**0.11**		0.10		ug/L			10/06/14 13:52	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 13:52	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			10/06/14 13:52	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-3 DUP
Date Collected: 09/22/14 12:30
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		0.10		ug/L			10/06/14 13:52	1
Naphthalene	ND		0.40		ug/L			10/06/14 13:52	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			10/06/14 13:52	1
1,3-Dichloropropane	ND		0.10		ug/L			10/06/14 13:52	1
Chloroform	ND		0.10		ug/L			10/06/14 13:52	1
4-Chlorotoluene	ND		0.20		ug/L			10/06/14 13:52	1
Chlorodibromomethane	ND		0.10		ug/L			10/06/14 13:52	1
Dichlorodifluoromethane	ND		0.40		ug/L			10/06/14 13:52	1
1,1,2-Trichloroethane	ND		0.10		ug/L			10/06/14 13:52	1
tert-Butylbenzene	ND		0.10		ug/L			10/06/14 13:52	1
Chloromethane	ND		0.10		ug/L			10/06/14 13:52	1
Methylene Chloride	ND		0.50		ug/L			10/06/14 13:52	1
1,1-Dichloroethene	ND		0.10		ug/L			10/06/14 13:52	1
Isopropylbenzene	ND		0.10		ug/L			10/06/14 13:52	1
1,2-Dichloroethane	ND		0.10		ug/L			10/06/14 13:52	1
Tetrachloroethene	**0.20**		0.10		ug/L			10/06/14 13:52	1
1,1,1-Trichloroethane	ND		0.10		ug/L			10/06/14 13:52	1
2,2-Dichloropropane	ND		0.10		ug/L			10/06/14 13:52	1
1,2-Dibromoethane	ND		0.10		ug/L			10/06/14 13:52	1
Bromoform	ND		0.10		ug/L			10/06/14 13:52	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			10/06/14 13:52	1
Trichlorofluoromethane	ND		0.10		ug/L			10/06/14 13:52	1
Trichloroethene	ND		0.10		ug/L			10/06/14 13:52	1
Bromobenzene	ND		0.10		ug/L			10/06/14 13:52	1
1,2-Dichloropropane	ND		0.10		ug/L			10/06/14 13:52	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 13:52	1
Ethylbenzene	ND		0.10		ug/L			10/06/14 13:52	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			10/06/14 13:52	1
Hexachlorobutadiene	ND		0.20		ug/L			10/06/14 13:52	1
1,1-Dichloroethane	ND		0.10		ug/L			10/06/14 13:52	1
Bromomethane	ND		0.10		ug/L			10/06/14 13:52	1
1,4-Dichlorobenzene	ND		0.20		ug/L			10/06/14 13:52	1
Methyl tert-butyl ether	ND		0.10		ug/L			10/06/14 13:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*75 - 120*		*10/06/14 13:52*	*1*
Trifluorotoluene (Surr)	*94*		*80 - 127*		*10/06/14 13:52*	*1*
Toluene-d8 (Surr)	*99*		*75 - 125*		*10/06/14 13:52*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 128*		*10/06/14 13:52*	*1*
Dibromofluoromethane (Surr)	*98*		*85 - 115*		*10/06/14 13:52*	*1*

Client Sample ID: MW-4
Date Collected: 09/22/14 13:05
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			10/06/14 14:17	1
2-Chlorotoluene	ND		0.10		ug/L			10/06/14 14:17	1
1,2,3-Trichloropropane	ND		0.20		ug/L			10/06/14 14:17	1
Carbon tetrachloride	ND		0.10		ug/L			10/06/14 14:17	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 14:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4
Date Collected: 09/22/14 13:05
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.10		ug/L			10/06/14 14:17	1
Vinyl chloride	ND		0.020		ug/L			10/06/14 14:17	1
sec-Butylbenzene	ND		0.10		ug/L			10/06/14 14:17	1
Dibromomethane	ND		0.10		ug/L			10/06/14 14:17	1
m-Xylene & p-Xylene	ND		0.20		ug/L			10/06/14 14:17	1
o-Xylene	ND		0.10		ug/L			10/06/14 14:17	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			10/06/14 14:17	1
Styrene	ND		0.10		ug/L			10/06/14 14:17	1
Chlorobromomethane	ND		0.10		ug/L			10/06/14 14:17	1
Dichlorobromomethane	ND		0.10		ug/L			10/06/14 14:17	1
1,3-Dichlorobenzene	ND		0.20		ug/L			10/06/14 14:17	1
Benzene	ND		0.10		ug/L			10/06/14 14:17	1
Chloroethane	ND		0.25		ug/L			10/06/14 14:17	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 14:17	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			10/06/14 14:17	1
N-Propylbenzene	ND		0.10		ug/L			10/06/14 14:17	1
4-Isopropyltoluene	ND		0.20		ug/L			10/06/14 14:17	1
n-Butylbenzene	ND		0.10		ug/L			10/06/14 14:17	1
1,1-Dichloropropene	ND		0.10		ug/L			10/06/14 14:17	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			10/06/14 14:17	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 14:17	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			10/06/14 14:17	1
Toluene	ND		0.10		ug/L			10/06/14 14:17	1
Naphthalene	ND		0.40		ug/L			10/06/14 14:17	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			10/06/14 14:17	1
1,3-Dichloropropane	ND		0.10		ug/L			10/06/14 14:17	1
Chloroform	**0.36**		0.10		ug/L			10/06/14 14:17	1
4-Chlorotoluene	ND		0.20		ug/L			10/06/14 14:17	1
Chlorodibromomethane	ND		0.10		ug/L			10/06/14 14:17	1
Dichlorodifluoromethane	ND		0.40		ug/L			10/06/14 14:17	1
1,1,2-Trichloroethane	ND		0.10		ug/L			10/06/14 14:17	1
tert-Butylbenzene	ND		0.10		ug/L			10/06/14 14:17	1
Chloromethane	ND		0.10		ug/L			10/06/14 14:17	1
Methylene Chloride	ND		0.50		ug/L			10/06/14 14:17	1
1,1-Dichloroethene	ND		0.10		ug/L			10/06/14 14:17	1
Isopropylbenzene	ND		0.10		ug/L			10/06/14 14:17	1
1,2-Dichloroethane	ND		0.10		ug/L			10/06/14 14:17	1
Tetrachloroethene	ND		0.10		ug/L			10/06/14 14:17	1
1,1,1-Trichloroethane	ND		0.10		ug/L			10/06/14 14:17	1
2,2-Dichloropropane	ND		0.10		ug/L			10/06/14 14:17	1
1,2-Dibromoethane	ND		0.10		ug/L			10/06/14 14:17	1
Bromoform	ND		0.10		ug/L			10/06/14 14:17	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			10/06/14 14:17	1
Trichlorofluoromethane	ND		0.10		ug/L			10/06/14 14:17	1
Trichloroethene	ND		0.10		ug/L			10/06/14 14:17	1
Bromobenzene	ND		0.10		ug/L			10/06/14 14:17	1
1,2-Dichloropropane	ND		0.10		ug/L			10/06/14 14:17	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 14:17	1
Ethylbenzene	ND		0.10		ug/L			10/06/14 14:17	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4
Date Collected: 09/22/14 13:05
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		0.10		ug/L			10/06/14 14:17	1
Hexachlorobutadiene	ND		0.20		ug/L			10/06/14 14:17	1
1,1-Dichloroethane	ND		0.10		ug/L			10/06/14 14:17	1
Bromomethane	ND		0.10		ug/L			10/06/14 14:17	1
1,4-Dichlorobenzene	ND		0.20		ug/L			10/06/14 14:17	1
Methyl tert-butyl ether	ND		0.10		ug/L			10/06/14 14:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*75 - 120*		*10/06/14 14:17*	*1*
Trifluorotoluene (Surr)	*106*		*80 - 127*		*10/06/14 14:17*	*1*
Toluene-d8 (Surr)	*96*		*75 - 125*		*10/06/14 14:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*102*		*70 - 128*		*10/06/14 14:17*	*1*
Dibromofluoromethane (Surr)	*101*		*85 - 115*		*10/06/14 14:17*	*1*

Client Sample ID: MW-1
Date Collected: 09/22/14 16:35
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			10/06/14 14:42	1
2-Chlorotoluene	ND		0.10		ug/L			10/06/14 14:42	1
1,2,3-Trichloropropane	ND		0.20		ug/L			10/06/14 14:42	1
Carbon tetrachloride	ND		0.10		ug/L			10/06/14 14:42	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 14:42	1
Chlorobenzene	ND		0.10		ug/L			10/06/14 14:42	1
Vinyl chloride	ND		0.020		ug/L			10/06/14 14:42	1
sec-Butylbenzene	ND		0.10		ug/L			10/06/14 14:42	1
Dibromomethane	ND		0.10		ug/L			10/06/14 14:42	1
m-Xylene & p-Xylene	ND		0.20		ug/L			10/06/14 14:42	1
o-Xylene	ND		0.10		ug/L			10/06/14 14:42	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			10/06/14 14:42	1
Styrene	ND		0.10		ug/L			10/06/14 14:42	1
Chlorobromomethane	ND		0.10		ug/L			10/06/14 14:42	1
Dichlorobromomethane	ND		0.10		ug/L			10/06/14 14:42	1
1,3-Dichlorobenzene	ND		0.20		ug/L			10/06/14 14:42	1
Benzene	ND		0.10		ug/L			10/06/14 14:42	1
Chloroethane	ND		0.25		ug/L			10/06/14 14:42	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 14:42	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			10/06/14 14:42	1
N-Propylbenzene	ND		0.10		ug/L			10/06/14 14:42	1
4-Isopropyltoluene	ND		0.20		ug/L			10/06/14 14:42	1
n-Butylbenzene	ND		0.10		ug/L			10/06/14 14:42	1
1,1-Dichloropropene	ND		0.10		ug/L			10/06/14 14:42	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			10/06/14 14:42	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 14:42	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			10/06/14 14:42	1
Toluene	ND		0.10		ug/L			10/06/14 14:42	1
Naphthalene	ND		0.40		ug/L			10/06/14 14:42	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			10/06/14 14:42	1
1,3-Dichloropropane	ND		0.10		ug/L			10/06/14 14:42	1
Chloroform	ND		0.10		ug/L			10/06/14 14:42	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-1
Date Collected: 09/22/14 16:35
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chlorotoluene	ND		0.20		ug/L			10/06/14 14:42	1
Chlorodibromomethane	ND		0.10		ug/L			10/06/14 14:42	1
Dichlorodifluoromethane	ND		0.40		ug/L			10/06/14 14:42	1
1,1,2-Trichloroethane	ND		0.10		ug/L			10/06/14 14:42	1
tert-Butylbenzene	ND		0.10		ug/L			10/06/14 14:42	1
Chloromethane	ND		0.10		ug/L			10/06/14 14:42	1
Methylene Chloride	ND		0.50		ug/L			10/06/14 14:42	1
1,1-Dichloroethene	ND		0.10		ug/L			10/06/14 14:42	1
Isopropylbenzene	ND		0.10		ug/L			10/06/14 14:42	1
1,2-Dichloroethane	ND		0.10		ug/L			10/06/14 14:42	1
Tetrachloroethene	ND		0.10		ug/L			10/06/14 14:42	1
1,1,1-Trichloroethane	ND		0.10		ug/L			10/06/14 14:42	1
2,2-Dichloropropane	ND		0.10		ug/L			10/06/14 14:42	1
1,2-Dibromoethane	ND		0.10		ug/L			10/06/14 14:42	1
Bromoform	ND		0.10		ug/L			10/06/14 14:42	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			10/06/14 14:42	1
Trichlorofluoromethane	ND		0.10		ug/L			10/06/14 14:42	1
Trichloroethene	ND		0.10		ug/L			10/06/14 14:42	1
Bromobenzene	ND		0.10		ug/L			10/06/14 14:42	1
1,2-Dichloropropane	ND		0.10		ug/L			10/06/14 14:42	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 14:42	1
Ethylbenzene	ND		0.10		ug/L			10/06/14 14:42	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			10/06/14 14:42	1
Hexachlorobutadiene	ND		0.20		ug/L			10/06/14 14:42	1
1,1-Dichloroethane	ND		0.10		ug/L			10/06/14 14:42	1
Bromomethane	ND		0.10		ug/L			10/06/14 14:42	1
1,4-Dichlorobenzene	ND		0.20		ug/L			10/06/14 14:42	1
Methyl tert-butyl ether	ND		0.10		ug/L			10/06/14 14:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*75 - 120*		*10/06/14 14:42*	*1*
Trifluorotoluene (Surr)	*106*		*80 - 127*		*10/06/14 14:42*	*1*
Toluene-d8 (Surr)	*97*		*75 - 125*		*10/06/14 14:42*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 128*		*10/06/14 14:42*	*1*
Dibromofluoromethane (Surr)	*100*		*85 - 115*		*10/06/14 14:42*	*1*

Client Sample ID: B-7 (0-1)
Date Collected: 09/22/14 13:20
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-6
Matrix: Solid
Percent Solids: 93.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H	0.97		ug/Kg	☼	10/04/14 12:00	10/07/14 16:56	1
cis-1,2-Dichloroethene	ND	H	0.97		ug/Kg	☼	10/04/14 12:00	10/07/14 16:56	1
Trichloroethene	ND	H	0.97		ug/Kg	☼	10/04/14 12:00	10/07/14 16:56	1
Tetrachloroethene	ND	H	0.97		ug/Kg	☼	10/04/14 12:00	10/07/14 16:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 120*	*10/04/14 12:00*	*10/07/14 16:56*	*1*
4-Bromofluorobenzene (Surr)	*95*		*70 - 120*	*10/04/14 12:00*	*10/07/14 16:56*	*1*
Dibromofluoromethane (Surr)	*109*		*75 - 132*	*10/04/14 12:00*	*10/07/14 16:56*	*1*
Trifluorotoluene (Surr)	*94*		*65 - 140*	*10/04/14 12:00*	*10/07/14 16:56*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: B-7 (0-1)
Date Collected: 09/22/14 13:20
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-6
Matrix: Solid
Percent Solids: 93.2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*113*		*71 - 136*	*10/04/14 12:00*	*10/07/14 16:56*	*1*

Client Sample ID: B-7 (7)
Date Collected: 09/22/14 13:45
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-7
Matrix: Solid
Percent Solids: 91.3

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H	1.2		ug/Kg	☼	10/04/14 12:00	10/07/14 17:23	1
cis-1,2-Dichloroethene	ND	H	1.2		ug/Kg	☼	10/04/14 12:00	10/07/14 17:23	1
Trichloroethene	ND	H	1.2		ug/Kg	☼	10/04/14 12:00	10/07/14 17:23	1
Tetrachloroethene	ND	H	1.2		ug/Kg	☼	10/04/14 12:00	10/07/14 17:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*	*10/04/14 12:00*	*10/07/14 17:23*	*1*
4-Bromofluorobenzene (Surr)	*92*		*70 - 120*	*10/04/14 12:00*	*10/07/14 17:23*	*1*
Dibromofluoromethane (Surr)	*111*		*75 - 132*	*10/04/14 12:00*	*10/07/14 17:23*	*1*
Trifluorotoluene (Surr)	*92*		*65 - 140*	*10/04/14 12:00*	*10/07/14 17:23*	*1*
1,2-Dichloroethane-d4 (Surr)	*115*		*71 - 136*	*10/04/14 12:00*	*10/07/14 17:23*	*1*

Client Sample ID: B-5 (2-3)
Date Collected: 09/22/14 14:10
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-8
Matrix: Solid
Percent Solids: 93.2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H	0.99		ug/Kg	☼	10/04/14 12:00	10/07/14 17:50	1
cis-1,2-Dichloroethene	ND	H	0.99		ug/Kg	☼	10/04/14 12:00	10/07/14 17:50	1
Trichloroethene	ND	H	0.99		ug/Kg	☼	10/04/14 12:00	10/07/14 17:50	1
Tetrachloroethene	**6.0**	**H**	0.99		ug/Kg	☼	10/04/14 12:00	10/07/14 17:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*101*		*80 - 120*	*10/04/14 12:00*	*10/07/14 17:50*	*1*
4-Bromofluorobenzene (Surr)	*92*		*70 - 120*	*10/04/14 12:00*	*10/07/14 17:50*	*1*
Dibromofluoromethane (Surr)	*110*		*75 - 132*	*10/04/14 12:00*	*10/07/14 17:50*	*1*
Trifluorotoluene (Surr)	*99*		*65 - 140*	*10/04/14 12:00*	*10/07/14 17:50*	*1*
1,2-Dichloroethane-d4 (Surr)	*116*		*71 - 136*	*10/04/14 12:00*	*10/07/14 17:50*	*1*

Client Sample ID: B-5 (4.5)
Date Collected: 09/22/14 14:20
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-9
Matrix: Solid
Percent Solids: 93.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H	1.0		ug/Kg	☼	10/04/14 12:00	10/07/14 18:17	1
cis-1,2-Dichloroethene	ND	H	1.0		ug/Kg	☼	10/04/14 12:00	10/07/14 18:17	1
Trichloroethene	ND	H	1.0		ug/Kg	☼	10/04/14 12:00	10/07/14 18:17	1
Tetrachloroethene	**1.2**	**H**	1.0		ug/Kg	☼	10/04/14 12:00	10/07/14 18:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*	*10/04/14 12:00*	*10/07/14 18:17*	*1*
4-Bromofluorobenzene (Surr)	*90*		*70 - 120*	*10/04/14 12:00*	*10/07/14 18:17*	*1*
Dibromofluoromethane (Surr)	*111*		*75 - 132*	*10/04/14 12:00*	*10/07/14 18:17*	*1*
Trifluorotoluene (Surr)	*95*		*65 - 140*	*10/04/14 12:00*	*10/07/14 18:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*119*		*71 - 136*	*10/04/14 12:00*	*10/07/14 18:17*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: B-4 (1-2)
Date Collected: 09/22/14 14:50
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-10
Matrix: Solid
Percent Solids: 91.4

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H	0.95		ug/Kg	☼	10/04/14 12:00	10/07/14 18:43	1
cis-1,2-Dichloroethene	ND	H	0.95		ug/Kg	☼	10/04/14 12:00	10/07/14 18:43	1
Trichloroethene	ND	H	0.95		ug/Kg	☼	10/04/14 12:00	10/07/14 18:43	1
Tetrachloroethene	**9.7**	**H**	0.95		ug/Kg	☼	10/04/14 12:00	10/07/14 18:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*103*		*80 - 120*	*10/04/14 12:00*	*10/07/14 18:43*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*	*10/04/14 12:00*	*10/07/14 18:43*	*1*
Dibromofluoromethane (Surr)	*113*		*75 - 132*	*10/04/14 12:00*	*10/07/14 18:43*	*1*
Trifluorotoluene (Surr)	*94*		*65 - 140*	*10/04/14 12:00*	*10/07/14 18:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*117*		*71 - 136*	*10/04/14 12:00*	*10/07/14 18:43*	*1*

Client Sample ID: B-4 (3)
Date Collected: 09/22/14 15:00
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-11
Matrix: Solid
Percent Solids: 93.0

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H	0.93		ug/Kg	☼	10/04/14 12:00	10/07/14 19:09	1
cis-1,2-Dichloroethene	ND	H	0.93		ug/Kg	☼	10/04/14 12:00	10/07/14 19:09	1
Trichloroethene	ND	H	0.93		ug/Kg	☼	10/04/14 12:00	10/07/14 19:09	1
Tetrachloroethene	**2.9**	**H**	0.93		ug/Kg	☼	10/04/14 12:00	10/07/14 19:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*100*		*80 - 120*	*10/04/14 12:00*	*10/07/14 19:09*	*1*
4-Bromofluorobenzene (Surr)	*93*		*70 - 120*	*10/04/14 12:00*	*10/07/14 19:09*	*1*
Dibromofluoromethane (Surr)	*113*		*75 - 132*	*10/04/14 12:00*	*10/07/14 19:09*	*1*
Trifluorotoluene (Surr)	*96*		*65 - 140*	*10/04/14 12:00*	*10/07/14 19:09*	*1*
1,2-Dichloroethane-d4 (Surr)	*121*		*71 - 136*	*10/04/14 12:00*	*10/07/14 19:09*	*1*

Client Sample ID: B-6 (2-3)
Date Collected: 09/22/14 15:15
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-12
Matrix: Solid
Percent Solids: 87.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H	1.1		ug/Kg	☼	10/04/14 12:00	10/07/14 19:36	1
cis-1,2-Dichloroethene	ND	H	1.1		ug/Kg	☼	10/04/14 12:00	10/07/14 19:36	1
Trichloroethene	ND	H	1.1		ug/Kg	☼	10/04/14 12:00	10/07/14 19:36	1
Tetrachloroethene	**1.1**	**H**	1.1		ug/Kg	☼	10/04/14 12:00	10/07/14 19:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*98*		*80 - 120*	*10/04/14 12:00*	*10/07/14 19:36*	*1*
4-Bromofluorobenzene (Surr)	*94*		*70 - 120*	*10/04/14 12:00*	*10/07/14 19:36*	*1*
Dibromofluoromethane (Surr)	*113*		*75 - 132*	*10/04/14 12:00*	*10/07/14 19:36*	*1*
Trifluorotoluene (Surr)	*99*		*65 - 140*	*10/04/14 12:00*	*10/07/14 19:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*123*		*71 - 136*	*10/04/14 12:00*	*10/07/14 19:36*	*1*

Client Sample ID: B-6 (4)
Date Collected: 09/22/14 15:25
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-13
Matrix: Solid
Percent Solids: 92.8

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND	H	1.1		ug/Kg	☼	10/04/14 12:00	10/07/14 20:02	1
cis-1,2-Dichloroethene	ND	H	1.1		ug/Kg	☼	10/04/14 12:00	10/07/14 20:02	1
Trichloroethene	ND	H	1.1		ug/Kg	☼	10/04/14 12:00	10/07/14 20:02	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: B-6 (4)
Date Collected: 09/22/14 15:25
Date Received: 10/02/14 14:30

Lab Sample ID: 250-21790-13
Matrix: Solid
Percent Solids: 92.8

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Tetrachloroethene	1.6	H	1.1		ug/Kg	☼	10/04/14 12:00	10/07/14 20:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*	*10/04/14 12:00*	*10/07/14 20:02*	*1*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*	*10/04/14 12:00*	*10/07/14 20:02*	*1*
Dibromofluoromethane (Surr)	*111*		*75 - 132*	*10/04/14 12:00*	*10/07/14 20:02*	*1*
Trifluorotoluene (Surr)	*96*		*65 - 140*	*10/04/14 12:00*	*10/07/14 20:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*117*		*71 - 136*	*10/04/14 12:00*	*10/07/14 20:02*	*1*

General Chemistry

Client Sample ID: B-7 (0-1) — **Lab Sample ID: 250-21790-6**
Date Collected: 09/22/14 13:20 — **Matrix: Solid**
Date Received: 10/02/14 14:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93		0.10		%			10/06/14 15:29	1
Percent Moisture	6.8		0.10		%			10/06/14 15:29	1

Client Sample ID: B-7 (7) — **Lab Sample ID: 250-21790-7**
Date Collected: 09/22/14 13:45 — **Matrix: Solid**
Date Received: 10/02/14 14:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91		0.10		%			10/06/14 15:29	1
Percent Moisture	8.7		0.10		%			10/06/14 15:29	1

Client Sample ID: B-5 (2-3) — **Lab Sample ID: 250-21790-8**
Date Collected: 09/22/14 14:10 — **Matrix: Solid**
Date Received: 10/02/14 14:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93		0.10		%			10/06/14 15:29	1
Percent Moisture	6.8		0.10		%			10/06/14 15:29	1

Client Sample ID: B-5 (4.5) — **Lab Sample ID: 250-21790-9**
Date Collected: 09/22/14 14:20 — **Matrix: Solid**
Date Received: 10/02/14 14:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93		0.10		%			10/06/14 15:29	1
Percent Moisture	7.0		0.10		%			10/06/14 15:29	1

Client Sample ID: B-4 (1-2) — **Lab Sample ID: 250-21790-10**
Date Collected: 09/22/14 14:50 — **Matrix: Solid**
Date Received: 10/02/14 14:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	91		0.10		%			10/06/14 15:29	1
Percent Moisture	8.6		0.10		%			10/06/14 15:29	1

Client Sample ID: B-4 (3) — **Lab Sample ID: 250-21790-11**
Date Collected: 09/22/14 15:00 — **Matrix: Solid**
Date Received: 10/02/14 14:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93		0.10		%			10/06/14 15:29	1
Percent Moisture	7.0		0.10		%			10/06/14 15:29	1

Client Sample ID: B-6 (2-3) — **Lab Sample ID: 250-21790-12**
Date Collected: 09/22/14 15:15 — **Matrix: Solid**
Date Received: 10/02/14 14:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	87		0.10		%			10/06/14 15:29	1
Percent Moisture	13		0.10		%			10/06/14 15:29	1

Client Sample ID: B-6 (4) — **Lab Sample ID: 250-21790-13**
Date Collected: 09/22/14 15:25 — **Matrix: Solid**
Date Received: 10/02/14 14:30

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	93		0.10		%			10/06/14 15:29	1
Percent Moisture	7.2		0.10		%			10/06/14 15:29	1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-171814/6
Matrix: Water
Analysis Batch: 171814

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			10/06/14 11:24	1
2-Chlorotoluene	ND		0.10		ug/L			10/06/14 11:24	1
1,2,3-Trichloropropane	ND		0.20		ug/L			10/06/14 11:24	1
Carbon tetrachloride	ND		0.10		ug/L			10/06/14 11:24	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 11:24	1
Chlorobenzene	ND		0.10		ug/L			10/06/14 11:24	1
Vinyl chloride	ND		0.020		ug/L			10/06/14 11:24	1
sec-Butylbenzene	ND		0.10		ug/L			10/06/14 11:24	1
Dibromomethane	ND		0.10		ug/L			10/06/14 11:24	1
m-Xylene & p-Xylene	ND		0.20		ug/L			10/06/14 11:24	1
o-Xylene	ND		0.10		ug/L			10/06/14 11:24	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			10/06/14 11:24	1
Styrene	ND		0.10		ug/L			10/06/14 11:24	1
Chlorobromomethane	ND		0.10		ug/L			10/06/14 11:24	1
Dichlorobromomethane	ND		0.10		ug/L			10/06/14 11:24	1
1,3-Dichlorobenzene	ND		0.20		ug/L			10/06/14 11:24	1
Benzene	ND		0.10		ug/L			10/06/14 11:24	1
Chloroethane	ND		0.25		ug/L			10/06/14 11:24	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			10/06/14 11:24	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			10/06/14 11:24	1
N-Propylbenzene	ND		0.10		ug/L			10/06/14 11:24	1
4-Isopropyltoluene	ND		0.20		ug/L			10/06/14 11:24	1
n-Butylbenzene	ND		0.10		ug/L			10/06/14 11:24	1
1,1-Dichloropropene	ND		0.10		ug/L			10/06/14 11:24	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			10/06/14 11:24	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 11:24	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			10/06/14 11:24	1
Toluene	ND		0.10		ug/L			10/06/14 11:24	1
Naphthalene	ND		0.40		ug/L			10/06/14 11:24	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			10/06/14 11:24	1
1,3-Dichloropropane	ND		0.10		ug/L			10/06/14 11:24	1
Chloroform	ND		0.10		ug/L			10/06/14 11:24	1
4-Chlorotoluene	ND		0.20		ug/L			10/06/14 11:24	1
Chlorodibromomethane	ND		0.10		ug/L			10/06/14 11:24	1
Dichlorodifluoromethane	ND		0.40		ug/L			10/06/14 11:24	1
1,1,2-Trichloroethane	ND		0.10		ug/L			10/06/14 11:24	1
tert-Butylbenzene	ND		0.10		ug/L			10/06/14 11:24	1
Chloromethane	ND		0.10		ug/L			10/06/14 11:24	1
Methylene Chloride	ND		0.50		ug/L			10/06/14 11:24	1
1,1-Dichloroethene	ND		0.10		ug/L			10/06/14 11:24	1
Isopropylbenzene	ND		0.10		ug/L			10/06/14 11:24	1
1,2-Dichloroethane	ND		0.10		ug/L			10/06/14 11:24	1
Tetrachloroethene	ND		0.10		ug/L			10/06/14 11:24	1
1,1,1-Trichloroethane	ND		0.10		ug/L			10/06/14 11:24	1
2,2-Dichloropropane	ND		0.10		ug/L			10/06/14 11:24	1
1,2-Dibromoethane	ND		0.10		ug/L			10/06/14 11:24	1
Bromoform	ND		0.10		ug/L			10/06/14 11:24	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			10/06/14 11:24	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-171814/6
Matrix: Water
Analysis Batch: 171814

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND		0.10		ug/L			10/06/14 11:24	1
Trichloroethene	ND		0.10		ug/L			10/06/14 11:24	1
Bromobenzene	ND		0.10		ug/L			10/06/14 11:24	1
1,2-Dichloropropane	ND		0.10		ug/L			10/06/14 11:24	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			10/06/14 11:24	1
Ethylbenzene	ND		0.10		ug/L			10/06/14 11:24	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			10/06/14 11:24	1
Hexachlorobutadiene	ND		0.20		ug/L			10/06/14 11:24	1
1,1-Dichloroethane	ND		0.10		ug/L			10/06/14 11:24	1
Bromomethane	ND		0.10		ug/L			10/06/14 11:24	1
1,4-Dichlorobenzene	ND		0.20		ug/L			10/06/14 11:24	1
Methyl tert-butyl ether	ND		0.10		ug/L			10/06/14 11:24	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*75 - 120*		*10/06/14 11:24*	*1*
Trifluorotoluene (Surr)	*104*		*80 - 127*		*10/06/14 11:24*	*1*
Toluene-d8 (Surr)	*99*		*75 - 125*		*10/06/14 11:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 128*		*10/06/14 11:24*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*10/06/14 11:24*	*1*

Lab Sample ID: LCS 580-171814/7
Matrix: Water
Analysis Batch: 171814

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	5.00	4.98		ug/L		100	80 - 130
2-Chlorotoluene	5.00	5.18		ug/L		104	75 - 130
1,2,3-Trichloropropane	5.00	4.45		ug/L		89	75 - 120
Carbon tetrachloride	5.00	5.58		ug/L		112	75 - 140
cis-1,3-Dichloropropene	5.00	4.44		ug/L		89	70 - 120
Chlorobenzene	5.00	5.08		ug/L		102	80 - 120
Vinyl chloride	5.00	4.85		ug/L		97	65 - 140
sec-Butylbenzene	5.00	5.05		ug/L		101	80 - 125
Dibromomethane	5.00	5.23		ug/L		105	80 - 130
m-Xylene & p-Xylene	5.00	5.49		ug/L		110	80 - 130
o-Xylene	5.00	5.46		ug/L		109	80 - 120
1,2,4-Trichlorobenzene	5.00	3.95		ug/L		79	60 - 125
Styrene	5.00	4.92		ug/L		98	75 - 130
Chlorobromomethane	5.00	5.14		ug/L		103	80 - 125
Dichlorobromomethane	5.00	4.64		ug/L		93	80 - 125
1,3-Dichlorobenzene	5.00	5.07		ug/L		101	80 - 120
Benzene	5.00	5.31		ug/L		106	80 - 120
Chloroethane	5.00	5.54		ug/L		111	75 - 140
trans-1,3-Dichloropropene	5.00	4.09		ug/L		82	60 - 140
1,2,3-Trichlorobenzene	5.00	4.25		ug/L		85	60 - 125
N-Propylbenzene	5.00	5.47		ug/L		109	80 - 120
4-Isopropyltoluene	5.00	5.00		ug/L		100	80 - 120
n-Butylbenzene	5.00	4.44		ug/L		89	75 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-171814/7
Matrix: Water
Analysis Batch: 171814

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloropropene	5.00	5.33		ug/L		107	80 - 130
cis-1,2-Dichloroethene	5.00	5.04		ug/L		101	80 - 130
1,1,2,2-Tetrachloroethane	5.00	4.79		ug/L		96	75 - 125
1,2,4-Trimethylbenzene	5.00	5.27		ug/L		105	80 - 125
Toluene	5.00	5.12		ug/L		102	80 - 120
Naphthalene	5.00	3.54		ug/L		71	45 - 130
1,3,5-Trimethylbenzene	5.00	5.32		ug/L		106	80 - 125
1,3-Dichloropropane	5.00	4.95		ug/L		99	80 - 130
Chloroform	5.00	5.31		ug/L		106	80 - 130
4-Chlorotoluene	5.00	5.32		ug/L		106	75 - 130
Chlorodibromomethane	5.00	4.10		ug/L		82	70 - 120
Dichlorodifluoromethane	5.00	4.91		ug/L		98	30 - 180
1,1,2-Trichloroethane	5.00	4.91		ug/L		98	80 - 130
tert-Butylbenzene	5.00	4.97		ug/L		99	80 - 130
Chloromethane	5.00	4.80		ug/L		96	50 - 140
Methylene Chloride	5.00	5.59		ug/L		112	60 - 145
1,1-Dichloroethene	5.00	5.07		ug/L		101	70 - 150
Isopropylbenzene	5.00	5.36		ug/L		107	75 - 120
1,2-Dichloroethane	5.00	5.23		ug/L		105	80 - 140
Tetrachloroethene	5.00	5.92		ug/L		118	40 - 180
1,1,1-Trichloroethane	5.00	5.64		ug/L		113	80 - 140
2,2-Dichloropropane	5.00	5.19		ug/L		104	60 - 150
1,2-Dibromoethane	5.00	5.07		ug/L		101	70 - 130
Bromoform	5.00	5.39		ug/L		108	65 - 130
1,2-Dibromo-3-Chloropropane	5.00	3.66		ug/L		73	55 - 120
Trichlorofluoromethane	5.00	5.30		ug/L		106	30 - 180
Trichloroethene	5.00	5.22		ug/L		104	80 - 130
Bromobenzene	5.00	4.95		ug/L		99	80 - 130
1,2-Dichloropropane	5.00	5.50		ug/L		110	80 - 120
1,1,1,2-Tetrachloroethane	5.00	5.39		ug/L		108	75 - 125
Ethylbenzene	5.00	5.54		ug/L		111	80 - 125
trans-1,2-Dichloroethene	5.00	5.36		ug/L		107	80 - 140
Hexachlorobutadiene	5.00	4.77		ug/L		95	75 - 135
1,1-Dichloroethane	5.00	5.30		ug/L		106	75 - 135
Bromomethane	5.00	5.50		ug/L		110	70 - 135
1,4-Dichlorobenzene	5.00	4.86		ug/L		97	80 - 120
Methyl tert-butyl ether	5.00	5.24		ug/L		105	75 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*106*		*75 - 120*
Trifluorotoluene (Surr)	*94*		*80 - 127*
Toluene-d8 (Surr)	*100*		*75 - 125*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 128*
Dibromofluoromethane (Surr)	*102*		*85 - 115*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-171814/8
Matrix: Water
Analysis Batch: 171814

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichlorobenzene	5.00	5.24		ug/L		105	80 - 130	5	20
2-Chlorotoluene	5.00	5.18		ug/L		104	75 - 130	0	20
1,2,3-Trichloropropane	5.00	4.75		ug/L		95	75 - 120	6	20
Carbon tetrachloride	5.00	5.82		ug/L		116	75 - 140	4	20
cis-1,3-Dichloropropene	5.00	4.58		ug/L		92	70 - 120	3	20
Chlorobenzene	5.00	5.24		ug/L		105	80 - 120	3	20
Vinyl chloride	5.00	4.92		ug/L		98	65 - 140	2	20
sec-Butylbenzene	5.00	5.33		ug/L		107	80 - 125	5	20
Dibromomethane	5.00	5.41		ug/L		108	80 - 130	3	20
m-Xylene & p-Xylene	5.00	5.44		ug/L		109	80 - 130	1	20
o-Xylene	5.00	5.74		ug/L		115	80 - 120	5	20
1,2,4-Trichlorobenzene	5.00	4.09		ug/L		82	60 - 125	3	20
Styrene	5.00	5.21		ug/L		104	75 - 130	6	20
Chlorobromomethane	5.00	5.45		ug/L		109	80 - 125	6	20
Dichlorobromomethane	5.00	4.73		ug/L		95	80 - 125	2	20
1,3-Dichlorobenzene	5.00	5.39		ug/L		108	80 - 120	6	20
Benzene	5.00	5.34		ug/L		107	80 - 120	1	20
Chloroethane	5.00	5.08		ug/L		102	75 - 140	9	20
trans-1,3-Dichloropropene	5.00	4.27		ug/L		85	60 - 140	4	20
1,2,3-Trichlorobenzene	5.00	4.56		ug/L		91	60 - 125	7	20
N-Propylbenzene	5.00	5.81		ug/L		116	80 - 120	6	20
4-Isopropyltoluene	5.00	5.29		ug/L		106	80 - 120	6	20
n-Butylbenzene	5.00	4.56		ug/L		91	75 - 125	3	20
1,1-Dichloropropene	5.00	5.70		ug/L		114	80 - 130	7	20
cis-1,2-Dichloroethene	5.00	5.01		ug/L		100	80 - 130	1	20
1,1,2,2-Tetrachloroethane	5.00	4.94		ug/L		99	75 - 125	3	20
1,2,4-Trimethylbenzene	5.00	5.41		ug/L		108	80 - 125	3	20
Toluene	5.00	5.24		ug/L		105	80 - 120	2	20
Naphthalene	5.00	3.92		ug/L		78	45 - 130	10	20
1,3,5-Trimethylbenzene	5.00	5.49		ug/L		110	80 - 125	3	20
1,3-Dichloropropane	5.00	5.10		ug/L		102	80 - 130	3	20
Chloroform	5.00	5.49		ug/L		110	80 - 130	3	20
4-Chlorotoluene	5.00	5.77		ug/L		115	75 - 130	8	20
Chlorodibromomethane	5.00	4.19		ug/L		84	70 - 120	2	20
Dichlorodifluoromethane	5.00	4.87		ug/L		97	30 - 180	1	20
1,1,2-Trichloroethane	5.00	5.16		ug/L		103	80 - 130	5	20
tert-Butylbenzene	5.00	4.94		ug/L		99	80 - 130	1	20
Chloromethane	5.00	4.79		ug/L		96	50 - 140	0	20
Methylene Chloride	5.00	5.78		ug/L		116	60 - 145	3	20
1,1-Dichloroethene	5.00	5.51		ug/L		110	70 - 150	8	20
Isopropylbenzene	5.00	5.35		ug/L		107	75 - 120	0	20
1,2-Dichloroethane	5.00	5.41		ug/L		108	80 - 140	3	20
Tetrachloroethene	5.00	6.10		ug/L		122	40 - 180	3	20
1,1,1-Trichloroethane	5.00	5.71		ug/L		114	80 - 140	1	20
2,2-Dichloropropane	5.00	5.26		ug/L		105	60 - 150	1	20
1,2-Dibromoethane	5.00	5.27		ug/L		105	70 - 130	4	20
Bromoform	5.00	5.30		ug/L		106	65 - 130	2	20
1,2-Dibromo-3-Chloropropane	5.00	3.88		ug/L		78	55 - 120	6	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-171814/8
Matrix: Water
Analysis Batch: 171814

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichlorofluoromethane	5.00	5.08		ug/L		102	30 - 180	4	20
Trichloroethene	5.00	5.52		ug/L		110	80 - 130	6	20
Bromobenzene	5.00	5.17		ug/L		103	80 - 130	4	20
1,2-Dichloropropane	5.00	5.71		ug/L		114	80 - 120	4	20
1,1,1,2-Tetrachloroethane	5.00	5.45		ug/L		109	75 - 125	1	20
Ethylbenzene	5.00	5.55		ug/L		111	80 - 125	0	20
trans-1,2-Dichloroethene	5.00	5.53		ug/L		111	80 - 140	3	20
Hexachlorobutadiene	5.00	5.17		ug/L		103	75 - 135	8	20
1,1-Dichloroethane	5.00	5.54		ug/L		111	75 - 135	4	20
Bromomethane	5.00	5.23		ug/L		105	70 - 135	5	20
1,4-Dichlorobenzene	5.00	5.11		ug/L		102	80 - 120	5	20
Methyl tert-butyl ether	5.00	5.50		ug/L		110	75 - 120	5	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*75 - 120*
Trifluorotoluene (Surr)	*101*		*80 - 127*
Toluene-d8 (Surr)	*98*		*75 - 125*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 128*
Dibromofluoromethane (Surr)	*101*		*85 - 115*

Lab Sample ID: MB 580-171951/1-A
Matrix: Solid
Analysis Batch: 171945

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 171951

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		1.0		ug/Kg		10/07/14 11:04	10/07/14 11:58	1
cis-1,2-Dichloroethene	ND		1.0		ug/Kg		10/07/14 11:04	10/07/14 11:58	1
Trichloroethene	ND		1.0		ug/Kg		10/07/14 11:04	10/07/14 11:58	1
Tetrachloroethene	ND		1.0		ug/Kg		10/07/14 11:04	10/07/14 11:58	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*106*		*80 - 120*	*10/07/14 11:04*	*10/07/14 11:58*	*1*
4-Bromofluorobenzene (Surr)	*96*		*70 - 120*	*10/07/14 11:04*	*10/07/14 11:58*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 132*	*10/07/14 11:04*	*10/07/14 11:58*	*1*
Trifluorotoluene (Surr)	*103*		*65 - 140*	*10/07/14 11:04*	*10/07/14 11:58*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*71 - 136*	*10/07/14 11:04*	*10/07/14 11:58*	*1*

Lab Sample ID: LCS 580-171951/2-A
Matrix: Solid
Analysis Batch: 171945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 171951

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Vinyl chloride	30.0	32.4		ug/Kg		108	67 - 131
cis-1,2-Dichloroethene	30.0	30.4		ug/Kg		101	70 - 130
Trichloroethene	30.0	31.3		ug/Kg		104	83 - 124
Tetrachloroethene	30.0	34.5		ug/Kg		115	56 - 155

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-171951/2-A
Matrix: Solid
Analysis Batch: 171945

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 171951

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Toluene-d8 (Surr)	*107*		*80 - 120*
4-Bromofluorobenzene (Surr)	*98*		*70 - 120*
Dibromofluoromethane (Surr)	*102*		*75 - 132*
Trifluorotoluene (Surr)	*101*		*65 - 140*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*

Lab Sample ID: LCSD 580-171951/3-A
Matrix: Solid
Analysis Batch: 171945

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 171951

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vinyl chloride			30.0	32.9		ug/Kg		110	67 - 131	2	22
cis-1,2-Dichloroethene			30.0	30.6		ug/Kg		102	70 - 130	1	19
Trichloroethene			30.0	31.9		ug/Kg		106	83 - 124	2	17
Tetrachloroethene			30.0	37.5		ug/Kg		125	56 - 155	9	27

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Toluene-d8 (Surr)	*105*		*80 - 120*
4-Bromofluorobenzene (Surr)	*99*		*70 - 120*
Dibromofluoromethane (Surr)	*101*		*75 - 132*
Trifluorotoluene (Surr)	*99*		*65 - 140*
1,2-Dichloroethane-d4 (Surr)	*96*		*71 - 136*

Method: D 2216 - Percent Moisture

Lab Sample ID: 580-45555-A-14 DU
Matrix: Solid
Analysis Batch: 171864

Client Sample ID: Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Percent Solids	88			88		%				0.05	20
Percent Moisture	12			12		%				0.4	20

Certification Summary

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza

TestAmerica Job ID: 250-21790-1
SDG: 11277.199

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-13 *
California	State Program	9	2597	09-30-15
Oregon	NELAP	10	OR100021	01-09-15
USDA	Federal		P330-11-00092	04-17-17
Washington	State Program	10	C586	06-23-15

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
California	State Program	9	2901	01-31-15
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-15
USDA	Federal		P330-11-00222	04-08-17
Washington	State Program	10	C553	02-17-15

* Certification renewal pending - certification considered valid.

Method Summary

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza

TestAmerica Job ID: 250-21790-1
SDG: 11277.199

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SEA
D 2216	Percent Moisture	ASTM	TAL SEA

Protocol References:

ASTM = ASTM International

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

APEX

CHAIN OF CUSTODY RECORD

21790

Client Name: Apex
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201
Telephone Number: 503.924.4704
Fax No.:

Project Manager: Mark Havighorst
Project Name: Regency Cascade Plaza (Everett, WA)
Project Number: 11277.199
Sampler Name: M. Whitson

Analytical Lab:
Report To:
Page: 250-21790 Chain of Custody

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	Preservative: HNO_3 (Red Label)	Preservative: HCl (Blue Label)	Preservative: NaOH (Orange Label)	Preservative: H_2SO_4 Plastic (Yellow Label)	Preservative: H_2SO_4 Glass(Yellow Label)	Preservative: None (Black Label)	Preservative: Other (Specify)	Matrix: Groundwater	Matrix: Wastewater	Matrix: Drinking Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify):	Analyze For: VOCs (by EPA 8260B)	Analyze For: HVOCs (tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (-DCE), and vinyl chloride)	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report
MW-2	9/22/14	1200	3	X			X		X						X						X			X		
MW-3	9/22/14	1230	3	X			X		X						X						X			X		
MW-3 DUP	9/22/14	1230	3	X			X		X						X						X			X		
MW-4	9/22/14	1305	3	X			X		X						X						X			X		
MW-1	9/22/14	1635	3	X			X		X						X						X			X		
B-7 (0-1)	9/22/14	1320	4	X			X						X	X					X			X		X		
B-7 (7)	9/22/14	1345	4	X			X						X	X					X			~~HOLD~~ X		~~X~~		
B-5 (2-3)	9/22/14	1410	4	X			X						X	X					X			X		X		
B-5 (4.5)	9/22/14	1420	4	X			X						X	X					X			~~HOLD~~ X		~~X~~		
B-4 (1-2)	9/22/14	1450	4	X			X						X	X					X			X		X		

Special Instructions: **Samples close to end of holding time, please analyze within method holding times. REPORTING LIMITS MUST BE BELOW MTCA CUL.**

Method of Shipment:

Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
APEX	10-02-14	1935	TRP	10/2/14	1430
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time

Laboratory Comments:
Temperature Upon Receipt: 3.0
VOCs Free of Headspace? Y N
IR/GL

APEX

CHAIN OF CUSTODY RECORD

Client Name: Apex
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Number: 503.924.4704
Fax No.: 503.943.6357

21790

Project Manager: Mark Havighorst
Project Name: Regency Cascade Plaza (Everett, WA)
Project Number: 11277.199
Sampler Name: M. Whitson

Analytical Lab: TestAmerica
Report To: mhavighorst@apexcos.com
Page: 2 of 2

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	HNO_3 (Red Label)	HCl (Blue Label)	NaOH (Orange Label)	H_2SO_4 Plastic (Yellow Label)	H_2SO_4 Glass(Yellow Label)	None (Black Label)	Other (Specify)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other (specify):	Analyze For: VOCs (by EPA 8260B)	HVOCs (tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (-DCE), and vinyl chloride)	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report
B-4 (3)	9/22/14	1500	4	X			X						X	X					X			~~HOLD~~ X		X		
B-6 (2-3)	9/22/14	1515	4	X			X						X	X					X			X		X		
B-6 (4)	9/22/14	1525	4	X			X						X	X					X			~~HOLD~~ X		X		

Special Instructions: Samples close to end of holding time, please analyze within method holding times. REPORTING LIMITS MUST BE BELOW MTCA CUL.

Method of Shipment:

Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
APEX	10-02-14	1430	TA	10/2/14	1430

Laboratory Comments:
Temperature Upon Receipt:
VOCs Free of Headspace? Y N

3.0
IR/G-L

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 250-21790-1
SDG Number: 11277.199

Login Number: 21790
List Number: 1
Creator: Svabik-Seror, Philip M

List Source: TestAmerica Portland

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	False	Stirbar vials not received frozen.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	Several water vials received frozen/broken.
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	False	No Trip Blank submitted.
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 250-21790-1
SDG Number: 11277.199

Login Number: 21790
List Number: 2
Creator: Abello, Andrea N

List Source: TestAmerica Seattle
List Creation: 10/04/14 11:23 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	Stir bars not sent on dry ice
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	A2 = 3.8 / 4.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 250-21790-1
SDG Number: 11277.199

Login Number: 21790
List Number: 3
Creator: Abello, Andrea N

List Source: TestAmerica Seattle
List Creation: 10/04/14 11:24 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	A2 = 3.8 / 4.1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Portland
9405 SW Nimbus Ave.
Beaverton, OR 97008
Tel: (503)906-9200

TestAmerica Job ID: 250-22768-1
Client Project/Site: Regency Cascade Plaza (Everett, WA)

For:
Apex Companies LLC
3015 SW 1st Avenue
Portland, Oregon 97201

Attn: Mark Havighorst

Vanessa Berry

Authorized for release by:
11/24/2014 12:12:13 PM

Vanessa Berry, Project Manager II
(503)906-9233
vanessa.berry@testamericainc.com

Table of Contents

Sample Summary

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza (Everett, WA)

TestAmerica Job ID: 250-22768-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
250-22768-1	MW-1	Water	11/12/14 16:35	11/14/14 15:25
250-22768-2	MW-2	Water	11/12/14 16:17	11/14/14 15:25
250-22768-3	MW-3	Water	11/12/14 15:59	11/14/14 15:25
250-22768-4	MW-4	Water	11/12/14 15:40	11/14/14 15:25
250-22768-5	MW-4 Dup	Water	11/12/14 15:41	11/14/14 15:25

Job ID: 250-22768-1

Laboratory: TestAmerica Portland

Narrative

Job Narrative
250-22768-1

Comments
No additional comments.

Receipt
The samples were received on 11/14/2014 3:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.5º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza (Everett, WA)

TestAmerica Job ID: 250-22768-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Client Sample ID: MW-1
Date Collected: 11/12/14 16:35
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:03	1
2-Chlorotoluene	ND		0.10		ug/L			11/18/14 18:03	1
1,2,3-Trichloropropane	ND		0.20		ug/L			11/18/14 18:03	1
Carbon tetrachloride	ND		0.10		ug/L			11/18/14 18:03	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 18:03	1
Chlorobenzene	ND		0.10		ug/L			11/18/14 18:03	1
Vinyl chloride	ND		0.020		ug/L			11/18/14 18:03	1
sec-Butylbenzene	ND		0.10		ug/L			11/18/14 18:03	1
Dibromomethane	ND		0.10		ug/L			11/18/14 18:03	1
m-Xylene & p-Xylene	ND		0.20		ug/L			11/18/14 18:03	1
o-Xylene	ND		0.10		ug/L			11/18/14 18:03	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			11/18/14 18:03	1
Styrene	ND		0.10		ug/L			11/18/14 18:03	1
Chlorobromomethane	ND		0.10		ug/L			11/18/14 18:03	1
Dichlorobromomethane	ND		0.10		ug/L			11/18/14 18:03	1
1,3-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:03	1
Benzene	ND		0.10		ug/L			11/18/14 18:03	1
Chloroethane	ND		0.25		ug/L			11/18/14 18:03	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 18:03	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			11/18/14 18:03	1
N-Propylbenzene	ND		0.10		ug/L			11/18/14 18:03	1
4-Isopropyltoluene	ND		0.20		ug/L			11/18/14 18:03	1
n-Butylbenzene	ND		0.10		ug/L			11/18/14 18:03	1
1,1-Dichloropropene	ND		0.10		ug/L			11/18/14 18:03	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 18:03	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 18:03	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			11/18/14 18:03	1
Toluene	ND		0.10		ug/L			11/18/14 18:03	1
Naphthalene	ND		0.40		ug/L			11/18/14 18:03	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			11/18/14 18:03	1
1,3-Dichloropropane	ND		0.10		ug/L			11/18/14 18:03	1
Chloroform	ND		0.10		ug/L			11/18/14 18:03	1
4-Chlorotoluene	ND		0.20		ug/L			11/18/14 18:03	1
Chlorodibromomethane	ND		0.10		ug/L			11/18/14 18:03	1
Dichlorodifluoromethane	ND		0.40		ug/L			11/18/14 18:03	1
1,1,2-Trichloroethane	ND		0.10		ug/L			11/18/14 18:03	1
tert-Butylbenzene	ND		0.10		ug/L			11/18/14 18:03	1
Chloromethane	ND		0.10		ug/L			11/18/14 18:03	1
Methylene Chloride	ND		0.50		ug/L			11/18/14 18:03	1
1,1-Dichloroethene	ND		0.10		ug/L			11/18/14 18:03	1
Isopropylbenzene	ND		0.10		ug/L			11/18/14 18:03	1
1,2-Dichloroethane	ND		0.10		ug/L			11/18/14 18:03	1
Tetrachloroethene	ND		0.10		ug/L			11/18/14 18:03	1
1,1,1-Trichloroethane	ND		0.10		ug/L			11/18/14 18:03	1
2,2-Dichloropropane	ND		0.10		ug/L			11/18/14 18:03	1
1,2-Dibromoethane	ND		0.10		ug/L			11/18/14 18:03	1
Bromoform	ND		0.10		ug/L			11/18/14 18:03	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			11/18/14 18:03	1
Trichlorofluoromethane	ND		0.10		ug/L			11/18/14 18:03	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-1
Date Collected: 11/12/14 16:35
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	ND		0.10		ug/L			11/18/14 18:03	1
Bromobenzene	ND		0.10		ug/L			11/18/14 18:03	1
1,2-Dichloropropane	ND		0.10		ug/L			11/18/14 18:03	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 18:03	1
Ethylbenzene	ND		0.10		ug/L			11/18/14 18:03	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 18:03	1
Hexachlorobutadiene	ND		0.20		ug/L			11/18/14 18:03	1
1,1-Dichloroethane	ND		0.10		ug/L			11/18/14 18:03	1
Bromomethane	ND		0.10		ug/L			11/18/14 18:03	1
1,4-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:03	1
Methyl tert-butyl ether	ND		0.10		ug/L			11/18/14 18:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*75 - 120*		*11/18/14 18:03*	*1*
Trifluorotoluene (Surr)	*97*		*80 - 127*		*11/18/14 18:03*	*1*
Toluene-d8 (Surr)	*101*		*75 - 125*		*11/18/14 18:03*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 128*		*11/18/14 18:03*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*11/18/14 18:03*	*1*

Client Sample ID: MW-2
Date Collected: 11/12/14 16:17
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:28	1
2-Chlorotoluene	ND		0.10		ug/L			11/18/14 18:28	1
1,2,3-Trichloropropane	ND		0.20		ug/L			11/18/14 18:28	1
Carbon tetrachloride	ND		0.10		ug/L			11/18/14 18:28	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 18:28	1
Chlorobenzene	ND		0.10		ug/L			11/18/14 18:28	1
Vinyl chloride	ND		0.020		ug/L			11/18/14 18:28	1
sec-Butylbenzene	ND		0.10		ug/L			11/18/14 18:28	1
Dibromomethane	ND		0.10		ug/L			11/18/14 18:28	1
m-Xylene & p-Xylene	ND		0.20		ug/L			11/18/14 18:28	1
o-Xylene	ND		0.10		ug/L			11/18/14 18:28	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			11/18/14 18:28	1
Styrene	ND		0.10		ug/L			11/18/14 18:28	1
Chlorobromomethane	ND		0.10		ug/L			11/18/14 18:28	1
Dichlorobromomethane	ND		0.10		ug/L			11/18/14 18:28	1
1,3-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:28	1
Benzene	ND		0.10		ug/L			11/18/14 18:28	1
Chloroethane	ND		0.25		ug/L			11/18/14 18:28	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 18:28	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			11/18/14 18:28	1
N-Propylbenzene	ND		0.10		ug/L			11/18/14 18:28	1
4-Isopropyltoluene	ND		0.20		ug/L			11/18/14 18:28	1
n-Butylbenzene	ND		0.10		ug/L			11/18/14 18:28	1
1,1-Dichloropropene	ND		0.10		ug/L			11/18/14 18:28	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 18:28	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 18:28	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			11/18/14 18:28	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-2
Date Collected: 11/12/14 16:17
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	ND		0.10		ug/L			11/18/14 18:28	1
Naphthalene	ND		0.40		ug/L			11/18/14 18:28	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			11/18/14 18:28	1
1,3-Dichloropropane	ND		0.10		ug/L			11/18/14 18:28	1
Chloroform	ND		0.10		ug/L			11/18/14 18:28	1
4-Chlorotoluene	ND		0.20		ug/L			11/18/14 18:28	1
Chlorodibromomethane	ND		0.10		ug/L			11/18/14 18:28	1
Dichlorodifluoromethane	ND		0.40		ug/L			11/18/14 18:28	1
1,1,2-Trichloroethane	ND		0.10		ug/L			11/18/14 18:28	1
tert-Butylbenzene	ND		0.10		ug/L			11/18/14 18:28	1
Chloromethane	ND		0.10		ug/L			11/18/14 18:28	1
Methylene Chloride	ND		0.50		ug/L			11/18/14 18:28	1
1,1-Dichloroethene	ND		0.10		ug/L			11/18/14 18:28	1
Isopropylbenzene	ND		0.10		ug/L			11/18/14 18:28	1
1,2-Dichloroethane	ND		0.10		ug/L			11/18/14 18:28	1
Tetrachloroethene	**0.20**		0.10		ug/L			11/18/14 18:28	1
1,1,1-Trichloroethane	ND		0.10		ug/L			11/18/14 18:28	1
2,2-Dichloropropane	ND		0.10		ug/L			11/18/14 18:28	1
1,2-Dibromoethane	ND		0.10		ug/L			11/18/14 18:28	1
Bromoform	ND		0.10		ug/L			11/18/14 18:28	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			11/18/14 18:28	1
Trichlorofluoromethane	ND		0.10		ug/L			11/18/14 18:28	1
Trichloroethene	ND		0.10		ug/L			11/18/14 18:28	1
Bromobenzene	ND		0.10		ug/L			11/18/14 18:28	1
1,2-Dichloropropane	ND		0.10		ug/L			11/18/14 18:28	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 18:28	1
Ethylbenzene	ND		0.10		ug/L			11/18/14 18:28	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 18:28	1
Hexachlorobutadiene	ND		0.20		ug/L			11/18/14 18:28	1
1,1-Dichloroethane	ND		0.10		ug/L			11/18/14 18:28	1
Bromomethane	ND		0.10		ug/L			11/18/14 18:28	1
1,4-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:28	1
Methyl tert-butyl ether	ND		0.10		ug/L			11/18/14 18:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*		*11/18/14 18:28*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 127*		*11/18/14 18:28*	*1*
Toluene-d8 (Surr)	*101*		*75 - 125*		*11/18/14 18:28*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 128*		*11/18/14 18:28*	*1*
Dibromofluoromethane (Surr)	*100*		*85 - 115*		*11/18/14 18:28*	*1*

Client Sample ID: MW-3
Date Collected: 11/12/14 15:59
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:54	1
2-Chlorotoluene	ND		0.10		ug/L			11/18/14 18:54	1
1,2,3-Trichloropropane	ND		0.20		ug/L			11/18/14 18:54	1
Carbon tetrachloride	ND		0.10		ug/L			11/18/14 18:54	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 18:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-3
Date Collected: 11/12/14 15:59
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chlorobenzene	ND		0.10		ug/L			11/18/14 18:54	1
Vinyl chloride	ND		0.020		ug/L			11/18/14 18:54	1
sec-Butylbenzene	ND		0.10		ug/L			11/18/14 18:54	1
Dibromomethane	ND		0.10		ug/L			11/18/14 18:54	1
m-Xylene & p-Xylene	ND		0.20		ug/L			11/18/14 18:54	1
o-Xylene	ND		0.10		ug/L			11/18/14 18:54	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			11/18/14 18:54	1
Styrene	ND		0.10		ug/L			11/18/14 18:54	1
Chlorobromomethane	ND		0.10		ug/L			11/18/14 18:54	1
Dichlorobromomethane	ND		0.10		ug/L			11/18/14 18:54	1
1,3-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:54	1
Benzene	ND		0.10		ug/L			11/18/14 18:54	1
Chloroethane	ND		0.25		ug/L			11/18/14 18:54	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 18:54	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			11/18/14 18:54	1
N-Propylbenzene	ND		0.10		ug/L			11/18/14 18:54	1
4-Isopropyltoluene	ND		0.20		ug/L			11/18/14 18:54	1
n-Butylbenzene	ND		0.10		ug/L			11/18/14 18:54	1
1,1-Dichloropropene	ND		0.10		ug/L			11/18/14 18:54	1
cis-1,2-Dichloroethene	**0.11**		0.10		ug/L			11/18/14 18:54	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 18:54	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			11/18/14 18:54	1
Toluene	ND		0.10		ug/L			11/18/14 18:54	1
Naphthalene	ND		0.40		ug/L			11/18/14 18:54	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			11/18/14 18:54	1
1,3-Dichloropropane	ND		0.10		ug/L			11/18/14 18:54	1
Chloroform	ND		0.10		ug/L			11/18/14 18:54	1
4-Chlorotoluene	ND		0.20		ug/L			11/18/14 18:54	1
Chlorodibromomethane	ND		0.10		ug/L			11/18/14 18:54	1
Dichlorodifluoromethane	ND		0.40		ug/L			11/18/14 18:54	1
1,1,2-Trichloroethane	ND		0.10		ug/L			11/18/14 18:54	1
tert-Butylbenzene	ND		0.10		ug/L			11/18/14 18:54	1
Chloromethane	ND		0.10		ug/L			11/18/14 18:54	1
Methylene Chloride	ND		0.50		ug/L			11/18/14 18:54	1
1,1-Dichloroethene	ND		0.10		ug/L			11/18/14 18:54	1
Isopropylbenzene	ND		0.10		ug/L			11/18/14 18:54	1
1,2-Dichloroethane	ND		0.10		ug/L			11/18/14 18:54	1
Tetrachloroethene	**0.17**		0.10		ug/L			11/18/14 18:54	1
1,1,1-Trichloroethane	ND		0.10		ug/L			11/18/14 18:54	1
2,2-Dichloropropane	ND		0.10		ug/L			11/18/14 18:54	1
1,2-Dibromoethane	ND		0.10		ug/L			11/18/14 18:54	1
Bromoform	ND		0.10		ug/L			11/18/14 18:54	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			11/18/14 18:54	1
Trichlorofluoromethane	ND		0.10		ug/L			11/18/14 18:54	1
Trichloroethene	ND		0.10		ug/L			11/18/14 18:54	1
Bromobenzene	ND		0.10		ug/L			11/18/14 18:54	1
1,2-Dichloropropane	ND		0.10		ug/L			11/18/14 18:54	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 18:54	1
Ethylbenzene	ND		0.10		ug/L			11/18/14 18:54	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-3
Date Collected: 11/12/14 15:59
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 18:54	1
Hexachlorobutadiene	ND		0.20		ug/L			11/18/14 18:54	1
1,1-Dichloroethane	ND		0.10		ug/L			11/18/14 18:54	1
Bromomethane	ND		0.10		ug/L			11/18/14 18:54	1
1,4-Dichlorobenzene	ND		0.20		ug/L			11/18/14 18:54	1
Methyl tert-butyl ether	ND		0.10		ug/L			11/18/14 18:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*75 - 120*		*11/18/14 18:54*	*1*
Trifluorotoluene (Surr)	*99*		*80 - 127*		*11/18/14 18:54*	*1*
Toluene-d8 (Surr)	*101*		*75 - 125*		*11/18/14 18:54*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 128*		*11/18/14 18:54*	*1*
Dibromofluoromethane (Surr)	*100*		*85 - 115*		*11/18/14 18:54*	*1*

Client Sample ID: MW-4
Date Collected: 11/12/14 15:40
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			11/18/14 19:20	1
2-Chlorotoluene	ND		0.10		ug/L			11/18/14 19:20	1
1,2,3-Trichloropropane	ND		0.20		ug/L			11/18/14 19:20	1
Carbon tetrachloride	ND		0.10		ug/L			11/18/14 19:20	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 19:20	1
Chlorobenzene	ND		0.10		ug/L			11/18/14 19:20	1
Vinyl chloride	ND		0.020		ug/L			11/18/14 19:20	1
sec-Butylbenzene	ND		0.10		ug/L			11/18/14 19:20	1
Dibromomethane	ND		0.10		ug/L			11/18/14 19:20	1
m-Xylene & p-Xylene	ND		0.20		ug/L			11/18/14 19:20	1
o-Xylene	ND		0.10		ug/L			11/18/14 19:20	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			11/18/14 19:20	1
Styrene	ND		0.10		ug/L			11/18/14 19:20	1
Chlorobromomethane	ND		0.10		ug/L			11/18/14 19:20	1
Dichlorobromomethane	ND		0.10		ug/L			11/18/14 19:20	1
1,3-Dichlorobenzene	ND		0.20		ug/L			11/18/14 19:20	1
Benzene	ND		0.10		ug/L			11/18/14 19:20	1
Chloroethane	ND		0.25		ug/L			11/18/14 19:20	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 19:20	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			11/18/14 19:20	1
N-Propylbenzene	ND		0.10		ug/L			11/18/14 19:20	1
4-Isopropyltoluene	ND		0.20		ug/L			11/18/14 19:20	1
n-Butylbenzene	ND		0.10		ug/L			11/18/14 19:20	1
1,1-Dichloropropene	ND		0.10		ug/L			11/18/14 19:20	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 19:20	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 19:20	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			11/18/14 19:20	1
Toluene	ND		0.10		ug/L			11/18/14 19:20	1
Naphthalene	ND		0.40		ug/L			11/18/14 19:20	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			11/18/14 19:20	1
1,3-Dichloropropane	ND		0.10		ug/L			11/18/14 19:20	1
Chloroform	**0.33**		0.10		ug/L			11/18/14 19:20	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4
Date Collected: 11/12/14 15:40
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Chlorotoluene	ND		0.20		ug/L			11/18/14 19:20	1
Chlorodibromomethane	ND		0.10		ug/L			11/18/14 19:20	1
Dichlorodifluoromethane	ND		0.40		ug/L			11/18/14 19:20	1
1,1,2-Trichloroethane	ND		0.10		ug/L			11/18/14 19:20	1
tert-Butylbenzene	ND		0.10		ug/L			11/18/14 19:20	1
Chloromethane	ND		0.10		ug/L			11/18/14 19:20	1
Methylene Chloride	ND		0.50		ug/L			11/18/14 19:20	1
1,1-Dichloroethene	ND		0.10		ug/L			11/18/14 19:20	1
Isopropylbenzene	ND		0.10		ug/L			11/18/14 19:20	1
1,2-Dichloroethane	ND		0.10		ug/L			11/18/14 19:20	1
Tetrachloroethene	ND		0.10		ug/L			11/18/14 19:20	1
1,1,1-Trichloroethane	ND		0.10		ug/L			11/18/14 19:20	1
2,2-Dichloropropane	ND		0.10		ug/L			11/18/14 19:20	1
1,2-Dibromoethane	ND		0.10		ug/L			11/18/14 19:20	1
Bromoform	ND		0.10		ug/L			11/18/14 19:20	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			11/18/14 19:20	1
Trichlorofluoromethane	ND		0.10		ug/L			11/18/14 19:20	1
Trichloroethene	ND		0.10		ug/L			11/18/14 19:20	1
Bromobenzene	ND		0.10		ug/L			11/18/14 19:20	1
1,2-Dichloropropane	ND		0.10		ug/L			11/18/14 19:20	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 19:20	1
Ethylbenzene	ND		0.10		ug/L			11/18/14 19:20	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 19:20	1
Hexachlorobutadiene	ND		0.20		ug/L			11/18/14 19:20	1
1,1-Dichloroethane	ND		0.10		ug/L			11/18/14 19:20	1
Bromomethane	ND		0.10		ug/L			11/18/14 19:20	1
1,4-Dichlorobenzene	ND		0.20		ug/L			11/18/14 19:20	1
Methyl tert-butyl ether	ND		0.10		ug/L			11/18/14 19:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*		*11/18/14 19:20*	*1*
Trifluorotoluene (Surr)	*98*		*80 - 127*		*11/18/14 19:20*	*1*
Toluene-d8 (Surr)	*99*		*75 - 125*		*11/18/14 19:20*	*1*
1,2-Dichloroethane-d4 (Surr)	*105*		*70 - 128*		*11/18/14 19:20*	*1*
Dibromofluoromethane (Surr)	*101*		*85 - 115*		*11/18/14 19:20*	*1*

Client Sample ID: MW-4 Dup
Date Collected: 11/12/14 15:41
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			11/18/14 19:45	1
2-Chlorotoluene	ND		0.10		ug/L			11/18/14 19:45	1
1,2,3-Trichloropropane	ND		0.20		ug/L			11/18/14 19:45	1
Carbon tetrachloride	ND		0.10		ug/L			11/18/14 19:45	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 19:45	1
Chlorobenzene	ND		0.10		ug/L			11/18/14 19:45	1
Vinyl chloride	ND		0.020		ug/L			11/18/14 19:45	1
sec-Butylbenzene	ND		0.10		ug/L			11/18/14 19:45	1
Dibromomethane	ND		0.10		ug/L			11/18/14 19:45	1
m-Xylene & p-Xylene	ND		0.20		ug/L			11/18/14 19:45	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4 Dup
Date Collected: 11/12/14 15:41
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
o-Xylene	ND		0.10		ug/L			11/18/14 19:45	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			11/18/14 19:45	1
Styrene	ND		0.10		ug/L			11/18/14 19:45	1
Chlorobromomethane	ND		0.10		ug/L			11/18/14 19:45	1
Dichlorobromomethane	ND		0.10		ug/L			11/18/14 19:45	1
1,3-Dichlorobenzene	ND		0.20		ug/L			11/18/14 19:45	1
Benzene	ND		0.10		ug/L			11/18/14 19:45	1
Chloroethane	ND		0.25		ug/L			11/18/14 19:45	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 19:45	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			11/18/14 19:45	1
N-Propylbenzene	ND		0.10		ug/L			11/18/14 19:45	1
4-Isopropyltoluene	ND		0.20		ug/L			11/18/14 19:45	1
n-Butylbenzene	ND		0.10		ug/L			11/18/14 19:45	1
1,1-Dichloropropene	ND		0.10		ug/L			11/18/14 19:45	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 19:45	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 19:45	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			11/18/14 19:45	1
Toluene	ND		0.10		ug/L			11/18/14 19:45	1
Naphthalene	ND		0.40		ug/L			11/18/14 19:45	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			11/18/14 19:45	1
1,3-Dichloropropane	ND		0.10		ug/L			11/18/14 19:45	1
Chloroform	**0.31**		0.10		ug/L			11/18/14 19:45	1
4-Chlorotoluene	ND		0.20		ug/L			11/18/14 19:45	1
Chlorodibromomethane	ND		0.10		ug/L			11/18/14 19:45	1
Dichlorodifluoromethane	ND		0.40		ug/L			11/18/14 19:45	1
1,1,2-Trichloroethane	ND		0.10		ug/L			11/18/14 19:45	1
tert-Butylbenzene	ND		0.10		ug/L			11/18/14 19:45	1
Chloromethane	ND		0.10		ug/L			11/18/14 19:45	1
Methylene Chloride	ND		0.50		ug/L			11/18/14 19:45	1
1,1-Dichloroethene	ND		0.10		ug/L			11/18/14 19:45	1
Isopropylbenzene	ND		0.10		ug/L			11/18/14 19:45	1
1,2-Dichloroethane	ND		0.10		ug/L			11/18/14 19:45	1
Tetrachloroethene	ND		0.10		ug/L			11/18/14 19:45	1
1,1,1-Trichloroethane	ND		0.10		ug/L			11/18/14 19:45	1
2,2-Dichloropropane	ND		0.10		ug/L			11/18/14 19:45	1
1,2-Dibromoethane	ND		0.10		ug/L			11/18/14 19:45	1
Bromoform	ND		0.10		ug/L			11/18/14 19:45	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			11/18/14 19:45	1
Trichlorofluoromethane	ND		0.10		ug/L			11/18/14 19:45	1
Trichloroethene	ND		0.10		ug/L			11/18/14 19:45	1
Bromobenzene	ND		0.10		ug/L			11/18/14 19:45	1
1,2-Dichloropropane	ND		0.10		ug/L			11/18/14 19:45	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 19:45	1
Ethylbenzene	ND		0.10		ug/L			11/18/14 19:45	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 19:45	1
Hexachlorobutadiene	ND		0.20		ug/L			11/18/14 19:45	1
1,1-Dichloroethane	ND		0.10		ug/L			11/18/14 19:45	1
Bromomethane	ND		0.10		ug/L			11/18/14 19:45	1
1,4-Dichlorobenzene	ND		0.20		ug/L			11/18/14 19:45	1

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza (Everett, WA)

TestAmerica Job ID: 250-22768-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Client Sample ID: MW-4 Dup
Date Collected: 11/12/14 15:41
Date Received: 11/14/14 15:25

Lab Sample ID: 250-22768-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methyl tert-butyl ether	ND		0.10		ug/L			11/18/14 19:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*		*11/18/14 19:45*	*1*
Trifluorotoluene (Surr)	*97*		*80 - 127*		*11/18/14 19:45*	*1*
Toluene-d8 (Surr)	*101*		*75 - 125*		*11/18/14 19:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 128*		*11/18/14 19:45*	*1*
Dibromofluoromethane (Surr)	*100*		*85 - 115*		*11/18/14 19:45*	*1*

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-176110/6
Matrix: Water
Analysis Batch: 176110

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene	ND		0.20		ug/L			11/18/14 13:19	1
2-Chlorotoluene	ND		0.10		ug/L			11/18/14 13:19	1
1,2,3-Trichloropropane	ND		0.20		ug/L			11/18/14 13:19	1
Carbon tetrachloride	ND		0.10		ug/L			11/18/14 13:19	1
cis-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 13:19	1
Chlorobenzene	ND		0.10		ug/L			11/18/14 13:19	1
Vinyl chloride	ND		0.020		ug/L			11/18/14 13:19	1
sec-Butylbenzene	ND		0.10		ug/L			11/18/14 13:19	1
Dibromomethane	ND		0.10		ug/L			11/18/14 13:19	1
m-Xylene & p-Xylene	ND		0.20		ug/L			11/18/14 13:19	1
o-Xylene	ND		0.10		ug/L			11/18/14 13:19	1
1,2,4-Trichlorobenzene	ND		0.20		ug/L			11/18/14 13:19	1
Styrene	ND		0.10		ug/L			11/18/14 13:19	1
Chlorobromomethane	ND		0.10		ug/L			11/18/14 13:19	1
Dichlorobromomethane	ND		0.10		ug/L			11/18/14 13:19	1
1,3-Dichlorobenzene	ND		0.20		ug/L			11/18/14 13:19	1
Benzene	ND		0.10		ug/L			11/18/14 13:19	1
Chloroethane	ND		0.25		ug/L			11/18/14 13:19	1
trans-1,3-Dichloropropene	ND		0.10		ug/L			11/18/14 13:19	1
1,2,3-Trichlorobenzene	ND		0.40		ug/L			11/18/14 13:19	1
N-Propylbenzene	ND		0.10		ug/L			11/18/14 13:19	1
4-Isopropyltoluene	ND		0.20		ug/L			11/18/14 13:19	1
n-Butylbenzene	ND		0.10		ug/L			11/18/14 13:19	1
1,1-Dichloropropene	ND		0.10		ug/L			11/18/14 13:19	1
cis-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 13:19	1
1,1,2,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 13:19	1
1,2,4-Trimethylbenzene	ND		0.10		ug/L			11/18/14 13:19	1
Toluene	ND		0.10		ug/L			11/18/14 13:19	1
Naphthalene	ND		0.40		ug/L			11/18/14 13:19	1
1,3,5-Trimethylbenzene	ND		0.10		ug/L			11/18/14 13:19	1
1,3-Dichloropropane	ND		0.10		ug/L			11/18/14 13:19	1
Chloroform	ND		0.10		ug/L			11/18/14 13:19	1
4-Chlorotoluene	ND		0.20		ug/L			11/18/14 13:19	1
Chlorodibromomethane	ND		0.10		ug/L			11/18/14 13:19	1
Dichlorodifluoromethane	ND		0.40		ug/L			11/18/14 13:19	1
1,1,2-Trichloroethane	ND		0.10		ug/L			11/18/14 13:19	1
tert-Butylbenzene	ND		0.10		ug/L			11/18/14 13:19	1
Chloromethane	ND		0.10		ug/L			11/18/14 13:19	1
Methylene Chloride	ND		0.50		ug/L			11/18/14 13:19	1
1,1-Dichloroethene	ND		0.10		ug/L			11/18/14 13:19	1
Isopropylbenzene	ND		0.10		ug/L			11/18/14 13:19	1
1,2-Dichloroethane	ND		0.10		ug/L			11/18/14 13:19	1
Tetrachloroethene	ND		0.10		ug/L			11/18/14 13:19	1
1,1,1-Trichloroethane	ND		0.10		ug/L			11/18/14 13:19	1
2,2-Dichloropropane	ND		0.10		ug/L			11/18/14 13:19	1
1,2-Dibromoethane	ND		0.10		ug/L			11/18/14 13:19	1
Bromoform	ND		0.10		ug/L			11/18/14 13:19	1
1,2-Dibromo-3-Chloropropane	ND		0.40		ug/L			11/18/14 13:19	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-176110/6
Matrix: Water
Analysis Batch: 176110

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	ND		0.10		ug/L			11/18/14 13:19	1
Trichloroethene	ND		0.10		ug/L			11/18/14 13:19	1
Bromobenzene	ND		0.10		ug/L			11/18/14 13:19	1
1,2-Dichloropropane	ND		0.10		ug/L			11/18/14 13:19	1
1,1,1,2-Tetrachloroethane	ND		0.10		ug/L			11/18/14 13:19	1
Ethylbenzene	ND		0.10		ug/L			11/18/14 13:19	1
trans-1,2-Dichloroethene	ND		0.10		ug/L			11/18/14 13:19	1
Hexachlorobutadiene	ND		0.20		ug/L			11/18/14 13:19	1
1,1-Dichloroethane	ND		0.10		ug/L			11/18/14 13:19	1
Bromomethane	ND		0.10		ug/L			11/18/14 13:19	1
1,4-Dichlorobenzene	ND		0.20		ug/L			11/18/14 13:19	1
Methyl tert-butyl ether	ND		0.10		ug/L			11/18/14 13:19	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*		*11/18/14 13:19*	*1*
Trifluorotoluene (Surr)	*98*		*80 - 127*		*11/18/14 13:19*	*1*
Toluene-d8 (Surr)	*100*		*75 - 125*		*11/18/14 13:19*	*1*
1,2-Dichloroethane-d4 (Surr)	*104*		*70 - 128*		*11/18/14 13:19*	*1*
Dibromofluoromethane (Surr)	*99*		*85 - 115*		*11/18/14 13:19*	*1*

Lab Sample ID: LCS 580-176110/7
Matrix: Water
Analysis Batch: 176110

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dichlorobenzene	5.00	4.74		ug/L		95	80 - 130
2-Chlorotoluene	5.00	4.76		ug/L		95	75 - 130
1,2,3-Trichloropropane	5.00	4.79		ug/L		96	75 - 120
Carbon tetrachloride	5.00	5.15		ug/L		103	75 - 140
cis-1,3-Dichloropropene	5.00	4.87		ug/L		97	70 - 120
Chlorobenzene	5.00	4.81		ug/L		96	80 - 120
Vinyl chloride	5.00	5.02		ug/L		100	65 - 140
sec-Butylbenzene	5.00	4.93		ug/L		99	80 - 125
Dibromomethane	5.00	4.86		ug/L		97	80 - 130
m-Xylene & p-Xylene	5.00	4.86		ug/L		97	80 - 130
o-Xylene	5.00	4.92		ug/L		98	80 - 120
1,2,4-Trichlorobenzene	5.00	4.74		ug/L		95	60 - 125
Styrene	5.00	5.00		ug/L		100	75 - 130
Chlorobromomethane	5.00	4.98		ug/L		100	80 - 125
Dichlorobromomethane	5.00	4.91		ug/L		98	80 - 125
1,3-Dichlorobenzene	5.00	4.68		ug/L		94	80 - 120
Benzene	5.00	4.66		ug/L		93	80 - 120
Chloroethane	5.00	4.76		ug/L		95	75 - 140
trans-1,3-Dichloropropene	5.00	4.85		ug/L		97	60 - 140
1,2,3-Trichlorobenzene	5.00	4.71		ug/L		94	60 - 125
N-Propylbenzene	5.00	4.83		ug/L		97	80 - 120
4-Isopropyltoluene	5.00	4.89		ug/L		98	80 - 120
n-Butylbenzene	5.00	4.88		ug/L		98	75 - 125

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-176110/7
Matrix: Water
Analysis Batch: 176110

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloropropene	5.00	4.85		ug/L		97	80 - 130
cis-1,2-Dichloroethene	5.00	4.70		ug/L		94	80 - 130
1,1,2,2-Tetrachloroethane	5.00	4.62		ug/L		92	75 - 125
1,2,4-Trimethylbenzene	5.00	4.89		ug/L		98	80 - 125
Toluene	5.00	4.96		ug/L		99	80 - 120
Naphthalene	5.00	4.62		ug/L		92	45 - 130
1,3,5-Trimethylbenzene	5.00	4.83		ug/L		97	80 - 125
1,3-Dichloropropane	5.00	4.83		ug/L		97	80 - 130
Chloroform	5.00	4.88		ug/L		98	80 - 130
4-Chlorotoluene	5.00	4.77		ug/L		95	75 - 130
Chlorodibromomethane	5.00	4.83		ug/L		97	70 - 120
Dichlorodifluoromethane	5.00	5.07		ug/L		101	30 - 180
1,1,2-Trichloroethane	5.00	4.84		ug/L		97	80 - 130
tert-Butylbenzene	5.00	4.90		ug/L		98	80 - 130
Chloromethane	5.00	5.13		ug/L		103	50 - 140
Methylene Chloride	5.00	4.77		ug/L		95	60 - 145
1,1-Dichloroethene	5.00	4.75		ug/L		95	70 - 150
Isopropylbenzene	5.00	4.97		ug/L		99	75 - 120
1,2-Dichloroethane	5.00	4.85		ug/L		97	80 - 140
Tetrachloroethene	5.00	5.04		ug/L		101	40 - 180
1,1,1-Trichloroethane	5.00	5.05		ug/L		101	80 - 140
2,2-Dichloropropane	5.00	4.96		ug/L		99	60 - 150
1,2-Dibromoethane	5.00	4.89		ug/L		98	70 - 130
Bromoform	5.00	4.39		ug/L		88	65 - 130
1,2-Dibromo-3-Chloropropane	5.00	4.27		ug/L		85	55 - 120
Trichlorofluoromethane	5.00	5.10		ug/L		102	30 - 180
Trichloroethene	5.00	4.96		ug/L		99	80 - 130
Bromobenzene	5.00	4.67		ug/L		93	80 - 130
1,2-Dichloropropane	5.00	4.83		ug/L		97	80 - 120
1,1,1,2-Tetrachloroethane	5.00	4.83		ug/L		97	75 - 125
Ethylbenzene	5.00	4.93		ug/L		99	80 - 125
trans-1,2-Dichloroethene	5.00	4.87		ug/L		97	80 - 140
Hexachlorobutadiene	5.00	4.72		ug/L		94	75 - 135
1,1-Dichloroethane	5.00	4.85		ug/L		97	75 - 135
Bromomethane	5.00	5.23		ug/L		105	70 - 135
1,4-Dichlorobenzene	5.00	4.78		ug/L		96	80 - 120
Methyl tert-butyl ether	5.00	4.46		ug/L		89	75 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*75 - 120*
Trifluorotoluene (Surr)	*99*		*80 - 127*
Toluene-d8 (Surr)	*100*		*75 - 125*
1,2-Dichloroethane-d4 (Surr)	*103*		*70 - 128*
Dibromofluoromethane (Surr)	*103*		*85 - 115*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-176110/8
Matrix: Water
Analysis Batch: 176110

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2-Dichlorobenzene	5.00	4.53		ug/L		91	80 - 130	4	20
2-Chlorotoluene	5.00	4.63		ug/L		93	75 - 130	3	20
1,2,3-Trichloropropane	5.00	4.33		ug/L		87	75 - 120	10	20
Carbon tetrachloride	5.00	5.04		ug/L		101	75 - 140	2	20
cis-1,3-Dichloropropene	5.00	4.60		ug/L		92	70 - 120	6	20
Chlorobenzene	5.00	4.63		ug/L		93	80 - 120	4	20
Vinyl chloride	5.00	4.84		ug/L		97	65 - 140	4	20
sec-Butylbenzene	5.00	4.68		ug/L		94	80 - 125	5	20
Dibromomethane	5.00	4.72		ug/L		94	80 - 130	3	20
m-Xylene & p-Xylene	5.00	4.70		ug/L		94	80 - 130	3	20
o-Xylene	5.00	4.79		ug/L		96	80 - 120	3	20
1,2,4-Trichlorobenzene	5.00	4.42		ug/L		88	60 - 125	7	20
Styrene	5.00	4.87		ug/L		97	75 - 130	3	20
Chlorobromomethane	5.00	4.85		ug/L		97	80 - 125	3	20
Dichlorobromomethane	5.00	4.86		ug/L		97	80 - 125	1	20
1,3-Dichlorobenzene	5.00	4.61		ug/L		92	80 - 120	2	20
Benzene	5.00	4.53		ug/L		91	80 - 120	3	20
Chloroethane	5.00	4.65		ug/L		93	75 - 140	2	20
trans-1,3-Dichloropropene	5.00	4.62		ug/L		92	60 - 140	5	20
1,2,3-Trichlorobenzene	5.00	4.38		ug/L		88	60 - 125	7	20
N-Propylbenzene	5.00	4.67		ug/L		93	80 - 120	4	20
4-Isopropyltoluene	5.00	4.75		ug/L		95	80 - 120	3	20
n-Butylbenzene	5.00	4.70		ug/L		94	75 - 125	4	20
1,1-Dichloropropene	5.00	4.75		ug/L		95	80 - 130	2	20
cis-1,2-Dichloroethene	5.00	4.55		ug/L		91	80 - 130	3	20
1,1,2,2-Tetrachloroethane	5.00	4.33		ug/L		87	75 - 125	7	20
1,2,4-Trimethylbenzene	5.00	4.72		ug/L		94	80 - 125	4	20
Toluene	5.00	4.71		ug/L		94	80 - 120	5	20
Naphthalene	5.00	4.34		ug/L		87	45 - 130	6	20
1,3,5-Trimethylbenzene	5.00	4.69		ug/L		94	80 - 125	3	20
1,3-Dichloropropane	5.00	4.54		ug/L		91	80 - 130	6	20
Chloroform	5.00	4.80		ug/L		96	80 - 130	2	20
4-Chlorotoluene	5.00	4.59		ug/L		92	75 - 130	4	20
Chlorodibromomethane	5.00	4.57		ug/L		91	70 - 120	5	20
Dichlorodifluoromethane	5.00	5.07		ug/L		101	30 - 180	0	20
1,1,2-Trichloroethane	5.00	4.57		ug/L		91	80 - 130	6	20
tert-Butylbenzene	5.00	4.64		ug/L		93	80 - 130	5	20
Chloromethane	5.00	5.07		ug/L		101	50 - 140	1	20
Methylene Chloride	5.00	4.71		ug/L		94	60 - 145	1	20
1,1-Dichloroethene	5.00	4.55		ug/L		91	70 - 150	4	20
Isopropylbenzene	5.00	4.84		ug/L		97	75 - 120	3	20
1,2-Dichloroethane	5.00	4.66		ug/L		93	80 - 140	4	20
Tetrachloroethene	5.00	5.40		ug/L		108	40 - 180	7	20
1,1,1-Trichloroethane	5.00	5.03		ug/L		101	80 - 140	0	20
2,2-Dichloropropane	5.00	5.04		ug/L		101	60 - 150	2	20
1,2-Dibromoethane	5.00	4.57		ug/L		91	70 - 130	7	20
Bromoform	5.00	4.12		ug/L		82	65 - 130	7	20
1,2-Dibromo-3-Chloropropane	5.00	3.99		ug/L		80	55 - 120	7	20

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-176110/8
Matrix: Water
Analysis Batch: 176110

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Trichlorofluoromethane			5.00	5.44		ug/L		109	30 - 180	6	20
Trichloroethene			5.00	4.84		ug/L		97	80 - 130	3	20
Bromobenzene			5.00	4.44		ug/L		89	80 - 130	5	20
1,2-Dichloropropane			5.00	4.69		ug/L		94	80 - 120	3	20
1,1,1,2-Tetrachloroethane			5.00	4.69		ug/L		94	75 - 125	3	20
Ethylbenzene			5.00	4.74		ug/L		95	80 - 125	4	20
trans-1,2-Dichloroethene			5.00	4.77		ug/L		95	80 - 140	2	20
Hexachlorobutadiene			5.00	4.50		ug/L		90	75 - 135	5	20
1,1-Dichloroethane			5.00	4.73		ug/L		95	75 - 135	3	20
Bromomethane			5.00	5.01		ug/L		100	70 - 135	4	20
1,4-Dichlorobenzene			5.00	4.58		ug/L		92	80 - 120	4	20
Methyl tert-butyl ether			5.00	4.32		ug/L		86	75 - 120	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*75 - 120*
Trifluorotoluene (Surr)	*97*		*80 - 127*
Toluene-d8 (Surr)	*99*		*75 - 125*
1,2-Dichloroethane-d4 (Surr)	*101*		*70 - 128*
Dibromofluoromethane (Surr)	*103*		*85 - 115*

Certification Summary

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza (Everett, WA)

TestAmerica Job ID: 250-22768-1

Laboratory: TestAmerica Portland

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-012	12-26-14
California	State Program	9	2597	09-30-15
Oregon	NELAP	10	OR100021	01-09-15
USDA	Federal		P330-11-00092	04-17-17
Washington	State Program	10	C586	06-23-15

Laboratory: TestAmerica Seattle

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alaska (UST)	State Program	10	UST-022	03-04-15
California	State Program	9	2901	01-31-15
L-A-B	DoD ELAP		L2236	01-19-16
L-A-B	ISO/IEC 17025		L2236	01-19-16
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-06-15
USDA	Federal		P330-11-00222	04-08-17
Washington	State Program	10	C553	02-17-15

Method Summary

Client: Apex Companies LLC
Project/Site: Regency Cascade Plaza (Everett, WA)

TestAmerica Job ID: 250-22768-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SEA

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SEA = TestAmerica Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

APEX

CHAIN OF CUSTODY RECORD

Client Name: Apex
Address: 3015 SW First Ave
City/State/Zip: Portland, OR 97201

Telephone Numb
Fax N

250-22768 Chain of Custody

Project Manager: Mark Havighorst
Analytical Lab: Tes
Project Name: Regency Cascade Plaza (Everett, WA)
Report To: mhavighorst@apexcos.com
Project Number: 11277.199
Page: 1 of 1
Sampler Name: J. Mattecheck

Sample ID / Description	Date Sampled	Time Sampled	No. of Containers Shipped	Grab	Composite	Field Filtered	Preservative: Ice	Preservative: HNO_3 (Red Label)	Preservative: HCl (Blue Label)	Preservative: NaOH (Orange Label)	Preservative: H_2SO_4 Plastic (Yellow Label)	Preservative: H_2SO_4 Glass(Yellow Label)	Preservative: None (Black Label)	Preservative: Other (Specify)	Matrix: Groundwater	Matrix: Wastewater	Matrix: Drinking Water	Matrix: Sludge	Matrix: Soil	Matrix: Other (specify):	Analyze For: VOCs (by EPA 8260B)	Analyze For: HVOCs (tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (-DCE), and vinyl chloride)	RUSH TAT (Pre-Schedule)	Standard TAT	Fax Results	Send QC with report
MW-1	11/12/14	1635	3	X			X		X						X						X			X		
MW-2	11/12/14	1617	3	X			X		X						X						X			X		
MW-3	11/12/14	1559	3	X			X		X						X						X			X		
MW-4	11/12/14	1540	3	X			X		X						X						X			X		
MW-4 DUP	11/12/14	1541	3	X			X		X						X						X			X		
																								X		

Special Instructions: **Samples close to end of holding time, please analyze within method holding times. REPORTING LIMITS MUST BE BELOW MTCA CUL.**

Method of Shipment:

Laboratory Comments:
Temperature Upon Receipt:
VOCs Free of Headspace? Y N

Relinquished by: Name/Company	Date	Time	Received by: Name/Company	Date	Time
	11/14/14	1430		11/14/14	1430
	11/14/14	1525	Tom Krenge	11/14	1525

12 IP/C 3.5°C

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 250-22768-1
SDG Number:

Login Number: 22768
List Number: 1
Creator: Krause, Thomas A

List Source: TestAmerica Portland

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: Apex Companies LLC

Job Number: 250-22768-1
SDG Number:

Login Number: 22768
List Number: 2
Creator: Abello, Andrea N

List Source: TestAmerica Seattle
List Creation: 11/18/14 11:16 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	A2TB = 3.2 / 3.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix C

Apex Standard Operating Procedures

Apex Standard Operating Procedures

SOP 2.1 – Standard Field Screening
SOP 2.16 – Water Level Measurement
SOP 2.2 – Surface Soil Sampling
SOP 2.4 – Push-Probe Explorations
SOP 2.5 – Low Flow Groundwater Sampling

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) provides instructions for standard field screening. Field screening results are used to aid in the selection of soil samples for chemical analysis. This procedure is applicable during all Ash Creek Associates (ACA) soil sampling operations.

Standard field screening techniques include the use of a photoionization detector (PID) to assess for volatile organic compounds (VOCs), for the presence of petroleum hydrocarbons using a sheen test, and for non-aqueous phase liquids (NAPLs) using dyes and UV light. These methods will not detect all potential contaminants, so selection of screening techniques shall be based on an understanding of the site history. The PID is not compound or concentration-specific, but it can provide a qualitative indication of the presence of VOCs. PID measurements are affected by other field parameters such as temperature and soil moisture.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- PID with calibration gas (record daily calibration/calibration check in field notes)
- Glass jars (with aluminum foil) or resealable bags
- NAPL Dye (such as OilScreen DNAPL-Lens) if needed for NAPL screening
- UV Light Box (if needed for NAPL screening)

3. METHODOLOGY

Each soil sample will be field screened for VOCs using a PID (with a 10.2 eV probe) and for the presence of petroleum hydrocarbons using a sheen test. If the presence of NAPLs is suspected, then screening using dye and UV light is also to be completed. The PID used on site will be calibrated on a daily basis according to the manufacturer's specifications. The PID is also used as a safety tool. The PID can be used to monitor air during activities where vapors may be present in the breathing space. Document all calibration activities and field observations. The field screening procedures are summarized below.

PID Calibration Procedure:

- Zero the PID using ambient air from the general area where the work will be done.
- A standard gas of 100 ppm isobutylene gas is then used to calibrate the PID. If questionable readings are encountered, the PID will be recalibrated using new 100 ppm isobutylene gas.

PID Screening Procedure:

- Place a representative portion (approximately one ounce) of freshly exposed, uncompacted soil into a clean resealable plastic bag or glass jar.
- Seal the bag or jar (with aluminum foil) and shake to expose vapors from the soil matrix.
- Allow the bag to sit to reach ambient temperature.
- Carefully insert the intake port of the PID into the plastic bag or jar.
- Record the sample concentration in the field notes.

Sheen Test Procedure:

- Following the PID screen, add enough water to the bag/jar to cover the sample.
- Observe the water surface for signs of discoloration/sheen and characterize.

No Sheen (NS)	No visible sheen on the water surface
Slight Sheen (SS)	Light, colorless, dull sheen, irregular spread, not rapid. Biological content may produce a slight sheen (typically platy/blocky).
Moderate Sheen (MS)	Light to heavy coverage, may have some color/iridescence, spread is irregular to flowing, few remaining areas of no sheen on water surface.
Heavy Sheen (HS)	Heavy sheen coverage with color/iridescence, spread is rapid, entire water surface may be covered with sheen.

NAPL Dye Procedure:

- Dye can be either liquid form, dissolvable tablet, or spray applied.
- Follow manufacturers instructions for specific product used.
- NAPL testing is completed after other field screening and sample collection is complete.
- For OilScreen DNAPL-Lens dye, the remaining soil sample is sprayed along its length so the soil surface is visibly wetted. A royal blue color of the dye about one minute after spraying would be considered a positive indication of NAPL.

UV Light Screening Procedure:

- UV Light Screening involves placement of a portion of the soil sample into a resealable plastic bag (which can be the same as used for PID screening, but before sheen test is performed).
- The sample is then examined in a dark space under UV light using a small, portable UV light box.
- The plastic bag is manipulated during examination to squeeze fluid against the bag beneath the lamp.
- Fluorescence (glowing color) indicates presence of NAPLs.

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes procedures for the collection of groundwater level measurements and separate phase hydrocarbon (SPH) measurements. Measurements may be collected as an independent event or in conjunction with groundwater sampling or SPH removal. This SOP is applicable for all Apex Companies, LLC (Apex) sites and projects.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Water level or oil/water interface probe (as appropriate);
- Field documentation materials;
- Decontamination materials;
- Bailers or tape/paste (to confirm unusual SPH detections) and
- Personal protective equipment (PPE; as required by project Health and Safety Plan).

3. METHODOLOGY

Preparation. Obtain and review table of well construction details and historical groundwater and SPH levels/thicknesses. Bring tables into the field for ready reference.

Field Procedure. Water level and SPH measurements should be collected upon arrival at the site. Appropriate PPE (as required by the project-specific Health and Safety Plan) should be worn during measurement activities. During groundwater sampling events, measurements should be collected (1) prior to, during, and after purging and sampling. Water level measurements during low-flow sampling are conducted to ensure that drawdown is not occurring during purging/sampling. Low-flow sampling methods are described in SOP 2.5. The following procedures should be followed when collecting groundwater level and SPH measurements from wells:

No SPH in monitoring well

1. The electronic probe should be tested to ensure proper instrument response. If response is inadequate, replace batteries or repair probe as needed.
2. Well covers and caps will be opened and the water level allowed to equilibrate under atmospheric conditions. Observe for indications that water levels may not be at equilibrium such as:
    a. Escaping air upon loosening of well cap; or
    b. Water level above the top of the well screen.

    For either of these conditions, equilibrium should be verified by repeating water level measurements over five-minute intervals until successive equal measurements are obtained. Otherwise allow water levels to equilibrate for a minimum of five minutes before measurements are taken. Unless otherwise indicated in the work scope of site-specific sampling plan, water level measurements should be taken from the most contaminated wells first to avoid cross-contamination.
3. Locate the reference point on the well riser pipe.
4. Slowly lower the probe until the probe signal indicates that water has been contacted.
5. Record the depth-to-water (DTW) probe reading at the reference point. Measurements should be collected to the nearest 0.01 foot.
6. Withdraw the probe and repeat steps 5 and 6. Measurements should agree within a precision of 0.01 feet. Repeat if needed until a precision of 0.01 feet is obtained.
7. If the work scope or site specific sampling plan requires that the depth-to-bottom (DTB) of monitoring wells is measured, then the probe should be lowered to the bottom of the well and the DTB reading at the reference point should be measured to the nearest 0.01 foot.
8. Remove probe and decontaminate probe and leader that have come in contact with well water using alcohol wipes.

SPH in monitoring well

1. Repeat above steps 1 through 5.
2. Slowly lower the oil/water interface probe until the signal indicates that SPH has been contacted (generally a steady tone and signal light).
3. Record the depth-to-product (DTP) probe reading at the reference point. Measurements should be collected to the nearest 0.01 foot.
4. Continue lowering the probe until the signal indicates that water has been contacted (generally an intermittent tone and signal light).
5. Record the DTW probe reading at the reference point. Measurements should be collected to the nearest 0.01 foot.
6. Withdraw the probe and repeat steps 5 and 6. Measurements should agree within a precision of 0.01 feet. Repeat if needed until a precision of 0.01 feet is obtained.
7. Remove probe and initially decontaminate using alcohol wipes then wash/scrub in a detergent (Alconox®) solution, rinse with tap water, and a final deionized water rinse. Describe in field notes unusual characteristics of SPH that may bias thickness readings (e.g. unusually viscous product).
8. If unusual SPH thicknesses are detected (e.g. SPH is detected in well with no prior history of SPH or thicknesses are greater than prior detections), verify presence/thickness using alternative technique (e.g. bailer, tape and water/petroleum colorimetric paste).

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods used for obtaining surface soil samples for physical and/or chemical analysis. For purposes of this SOP, surface soil (including shallow subsurface soil) is loosely defined as soil that is present within 3 feet of the ground surface at the time of sampling. Various types of sampling equipment are used to collect surface soil samples including spoons, scoops, trowels, shovels, and hand augers.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Spoons, scoops, trowels, shovels, and/or hand augers. Stainless steel is preferred.
- Stainless steel bowls
- Field documentation materials
- Decontamination materials
- Personal protective equipment (as required by Health and Safety Plan)

3. METHODOLOGY

Project-specific requirements will generally dictate the preferred type of sampling equipment used at a particular site. The following parameters should be considered: sampling depth, soil density, soil moisture, use of analyses (e.g., chemical versus physical testing), type of analyses (e.g., volatile versus non-volatile). Analytical testing requirements will indicate sample volume requirements that also will influence the selection of the appropriate type of sampling tool. The project sampling plan should define the specific requirements for collection of surface soil samples at a particular site.

Collection of Samples

- Volatile Analyses. Surface soil sampling for volatile organics analysis (VOA) is different than other routine physical or chemical testing because of the potential loss of volatiles during sampling. To limit volatile loss, the soil sample must be obtained as quickly and as directly as possible. If a VOA sample is to collected as part of a multiple analyte sample, the VOA sample portion will be obtained first. The VOA sample should be obtained from a discrete portion of the entire collected sample and should not be composited or homogenized. Sample bottles should be filled to capacity, with no headspace. Specific procedures for collecting VOA samples using the EPA Method 5035 are discussed under a separate SOP.
- Other Analyses. Once the targeted sample interval has been collected, the soil sample will be thoroughly homogenized in a stainless steel bowl prior to bottling. Sample homogenizing is accomplished by manually mixing the entire soil sample in the stainless steel bowl with the sampling tool or with a clean teaspoon or spatula until a uniform mixture is achieved. If packing of the samples into the bottles is necessary, a clean stainless steel teaspoon or spatula may be used.

General Sampling Procedure:

- Decontaminate sampling equipment in accordance with the Sampling and Analysis Plan (SAP) before and after each individual soil sample.
- Remove surface debris that blocks access to the actual soil surface or loosen dense surface soils, such as those encountered in heavy traffic areas. If sampling equipment is used to remove surface debris,

the equipment should be decontaminated prior to sampling to reduce the potential for sample interferences.

- When using a hand auger, push and rotate downward until the auger becomes filled with soil. Usually a 6- to 12-inch long core of soil is obtained each time the auger is inserted. Once filled, remove the auger from the ground and empty into a stainless steel bowl. If a VOA sample is required, the sample should be taken directly from the auger using a teaspoon or spatula and/or directly filling the sample container from the auger. Repeat the augering process until the desired sample interval has been augered and placed into the stainless steel bowl.

Backfilling Sample Locations:

Backfill in accordance with federal and state regulations including OAR 690-240 (e.g., bentonite requirements). The soils from the excavation will be used as backfill unless project-specific or state requirements include the use of clean backfill material.

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods for observing and sampling from push-probes (i.e., GeoProbe™). Subsurface soil cores may be obtained using this system for purposes of determining subsurface soil conditions and for obtaining soil samples for physical and/or chemical evaluation. Grab groundwater samples may be collected using temporary well screens. Soil vapor samples may be obtained using temporary well points. Shallow (less than 50 feet), small-diameter (2-inch max) pre-packed wells may also be installed using push-probe equipment. This procedure is applicable during all Apex Companies, LLC (Apex) push-probe activities.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Traffic cones, measuring tape, spatula, and buckets/drums
- Sampling equipment (water level probe, pumps, tubing) and laboratory-supplied sample containers
- Field documentation materials
- Decontamination materials
- Personal protective equipment (as required by project Health and Safety Plan)

3. METHODOLOGY

Coring Procedure (Conducted by Drilling Subcontractor):

The sampling procedure includes driving a 2-inch outside-diameter, 5-foot-long, push-probe soil sampler to the desired depth using a combination of hydraulic pressure and mechanical hammer blows. When the sampling depth is reached, the pin attaching the sampler's tip is released (if a tip is used), which allows the tip to slide inside the sampler (Macro-Core Sampler with removable plastic liner). The sampler is driven the length of the sampler to collect a soil core, which is then withdrawn from the exploration. When the sampler is retrieved from the borehole the drive head/cutting shoe is detached and the liner is removed. Soil cores are collected continuously to the full depth of the exploration unless otherwise specified in a project-specific sampling and analysis plan (SAP). Verify that the subcontractor decontaminates the sampling device (per SOP 1.2) prior to its initial use and following collection of each soil sample.

Logging and Soil Sample Collection:

Remove the soil core from the sampler for field screening, description, and placement into sample jars. Soil samples will be collected for field screening and possible chemical analysis on two foot intervals unless otherwise specified in a project-specific SAP. The sampling interval will be determined in the field based on recovery, soil variability, and evidence of contamination. Complete field screening as specified in SOP-2.1. Soil samples should be collected using different procedures for volatile on non-volatile analyses, as follows.

- Volatile Analyses. Sampling for volatile organics analysis (VOA) is different than other routine physical or chemical testing because of the potential loss of volatiles during sampling. To limit volatile loss, the soil sample must be obtained as quickly and as directly as possible. If a VOA sample is to collected as part of a multiple analyte sample, the VOA sample portion will be obtained first. The VOA sample should be obtained from a discrete portion of the entire collected sample and should not be composited or homogenized. Sample bottles should be filled to capacity, with no headspace. Specific procedures for collecting VOA samples using the EPA Method 5035 are discussed in SOP 2.7.
- Other Analyses. Soil samples for non-volatile analyses will be thoroughly homogenized in a stainless steel bowl prior to bottling. Sample homogenizing is accomplished by manually mixing the entire soil

sample in the stainless steel bowl with a clean sampling tool until a uniform mixture is achieved. The sample jar should be filled completely.

Any extra soil generated during probing activities will be placed in Department of Transportation (DOT) approved drums.

Grab Groundwater Sample Collection:

Collect grab groundwater samples using a sampling attachment with a 4 to 5-foot-long temporary screen (decontaminated stainless steel or disposable PVC). Obtain samples using a peristaltic pump with new tubing for each boring. Record field parameters (e.g., temperature, conductivity, and pH) prior to sampling.

Backfilling the Excavation (Conducted by Drilling Subcontractor):

After sampling activities are completed, abandon each exploration in accordance with Oregon Water Resources Department (OWRD) regulations and procedures. The abandonment procedure typically consists of filling the exploration with granular bentonite and hydrating the bentonite with water. Match the surface completion to the surrounding materials.

1. PURPOSE AND SCOPE

This Standard Operating Procedure (SOP) describes the methods for collection of groundwater samples from monitoring wells applying low flow protocols. Low flow sampling is a method of collecting samples that does not require the removal of large volumes of water and therefore does not overly agitate the water, suspend particles, or potentially aspirate VOCs. Typical flow rates for low flow sampling range from 0.1 L/min to 0.5 L/min depending on site characteristics. The groundwater monitoring activities will consist of measuring water levels, purging and sampling groundwater, and measuring groundwater field parameters. This procedure is applicable during all Apex Companies, LLC (Apex) low flow groundwater sampling activities.

2. EQUIPMENT AND MATERIALS

The following materials are necessary for this procedure:

- Traffic cones, tools, keys, and buckets/drums
- Sampling equipment (water level probe, pumps, tubing) and laboratory-supplied sample containers
- Field documentation materials
- Decontamination materials
- Personal protective equipment (as required by project Health and Safety Plan)

3. METHODOLOGY

Water Levels:

Water levels in the wells will be measured and recorded for the purpose of determining groundwater elevations and gradient. The wells will be opened and the water level allowed to equilibrate before the measurements are taken. Measurements of the depth to water will be made to the nearest 0.01 foot using an electronic probe.

Purging:

Purge using low-flow sampling equipment (e.g., peristaltic pump or bladder pump) at a rate no greater than the recharge rate of the groundwater to prevent water table drawdown. Unless specified otherwise in the project-specific sampling and analysis plan (SAP) the sample tubing/pump will be lowered to one foot below the water table (petroleum hydrocarbons) or to the middle of the screened interval (all other analytes). To assess the effectiveness of purging, groundwater field parameters (pH, electrical conductivity, and temperature) will be measured using a flow cell connected to the discharge tubing of the sample pump. Purging will be considered complete when the water quality parameters (i.e., pH, temperature, and specific conductance) stabilize within 10 percent for three consecutive 3-minute intervals. Consult the project-specific SAP for additional parameters and stabilization criteria. Purge water will be placed in Department of Transportation (DOT) approved drums.

Sample Collection:

After the purging of each well is complete, collect groundwater samples for chemical analyses using the same pump used for the well purging.

Low Yield Sampling Procedure:

If a well pumps dry during purging discontinue measurement of water quality parameters. Collect groundwater samples once the water level recovers to 90 percent of the pre-purge water column. Contact project manager in the event of slow recharge conditions. Always collect samples for VOC analysis as soon after recharge as possible.

Appendix D

Ecological Exclusion Supporting Information

Zoning Map

Site Investigation Work Plan
Cascade Plaza
Everett, Washington

City of Everett Growth Management Comprehensive Plan
Land Use Map provided is found at
http://www.everettwa.org/Get_PDF.aspx?pdfID=7665

Apex Companies, LLC
3015 SW First Avenue
Portland, Oregon 97201

Project Number	11277-199	Attachment
July 2014		D-1

NOTES: Base map prepared from 2013 - Google Imagery.
Aerial dated May 4, 2013.

0 200 400
Approximate Scale in Feet

Aerial Photograph of Site Vicinity

Site Investigation Work Plan
Cascade Plaza
Everett, Washington

Apex Companies, LLC 3015 SW First Avenue Portland, Oregon 97201	Project Number	11277-199	Attachment
	July 2014		D-2