SITEWIDE RI/FS WORK PLAN

Morell's Dry Cleaners

Prepared for:

D.E. Wickham, Successor to Walker Chevrolet

Project No. 080190 • June 4, 2021

Aspect CONSULTING

earth + water

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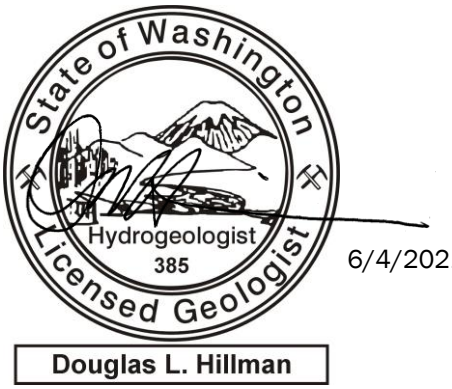

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Acronyms

ARAR	applicable or relevant and appropriate requirement
Aspect	Aspect Consulting, LLC
bgs	below ground surface
cDCE	cis-1,2-dichloroethene
CFR	Code of Federal Regulations
CLARC	Cleanup Level and Risk Calculation
COPC	chemical of potential concern
CSGP	Construction Stormwater General Permit
CSM	Conceptual Site Model
DCE	1,2-dichloroethene
dSFFS	draft Supplemental Focused Feasibility Study
Ecology	Washington Department of Ecology
EDR	Environmental Data Resources, Inc.
ERH	electrical resistance heating
FFS	Focused Feasibility Study
GAC	granular activated carbon
HEPA	heat-enhanced plume attenuation
IDW	investigation-derived waste
IHS	indicator hazardous substance
ISCO	*in situ* chemical oxidation
lbs	pounds
lbs/day	pounds per day
MCL	Maximum Contaminant Level
mg/kg	milligrams per kilograms
µg/L	micrograms per liter
MTCA	Model Toxics Control Act
NAVD88	North American Vertical Datum 1988
NPDES	National Pollution Discharge Elimination System

ORP	oxidation-reduction potential
PCE	tetrachloroethene
PCUL	preliminary cleanup level
PID	photoionization detector
ppm	parts per million
PVC	polyvinyl chloride
RAO	remedial action objective
RCW	Revised Code of Washington
RI/FS	Remedial Investigation/Feasibility Study
ROI	radius of influence
Stemen	Stemen Environmental, Inc.
SVE	soil vapor extraction
SWPPP	Stormwater Pollution Prevention Plan
TCE	trichloroethene
TEE	Terrestrial Ecological Evaluation
TOC	total organic carbon
USCA	United States Code Annotated
VC	vinyl chloride
VCP	Voluntary Cleanup Program
VOC	volatile organic compound
WAC	Washington Administrative Code

1 Introduction

This Data Gaps Investigation Work Plan (Work Plan) was prepared by Aspect Consulting, LLC (Aspect) to describe investigation activities to address remaining data gaps as necessary to select a final cleanup action for the Morell's Dry Cleaners Site (the Site). Site contamination results from chlorinated solvent releases from historical dry cleaner operations[1] at 608 North First Street in Tacoma, Washington (Property; Figure 1) from 1929 until 2009. The Site includes the Property and any off-Property soil and/or groundwater confirmed of being impacted by chemicals released at the Property.

The Property consists of two parcels, referred to in this report as the Building Parcel and the Parking Lot Parcel (Figure 2). The chlorinated solvent releases occurred on the Building Parcel. The Site, as defined by the full extent of impacts, extends both on- and off-Property. See Figure 2 for exploration locations and a generalized depiction of the Site boundary.

The majority of the contamination is located on the Building Parcel, beneath the existing building, and is inaccessible to excavation. Results of pilot testing and *in situ* remediation efforts to date have made substantial progress in removing and treating contamination but suggest that *in situ* treatment will require a long restoration time frame for the Building Parcel. The magnitude and extent of impacts on the hydraulically upgradient Parking Lot Parcel are limited to groundwater and relatively minor.

As a result, in 2020 Aspect proposed a Property-Specific Closure Report for the Parking Lot parcel (PL Closure Report, Aspect, 2020a, draft) as a demonstration that further cleanup actions at the Parking Lot parcel were disproportionately costly relative to the benefit to human health and the environment. Upon review of the PL Closure Report, the Washington State Department of Ecology (Ecology) determined that characterization of the Site was not sufficient to establish cleanup standards and select a cleanup action as documented in "Further Action at the Property associated with a Site: Morell's Dry Cleaners," dated January 6, 2021 (Further Action Letter). This Work Plan outlines interim cleanup actions to date, an updated Conceptual Site Model (CSM), proposes cleanup requirements, establishes data gaps, and concludes with a data gap investigation work plan.

The Site is currently enrolled in the Ecology Voluntary Cleanup Program (VCP) in accordance with the Washington State Model Toxics Control Act (MTCA) and requirements of the Washington Administrative Code (WAC) 173-340-515 (Independent Remedial Actions). The site is listed as VCP Site Number SW 1039.

[1] Petroleum hydrocarbons are also present in the subsurface, the source of which is unknown. A possible source is historical dry-cleaning operations, which may have used petroleum hydrocarbons (e.g., Stoddard solvent) before chlorinated solvents came into use.

2 Background and Previous Investigations

The Building Parcel is approximately 7,930 square feet and contains a single-story, approximately 3,700-square-foot building[2] of slab-on-grade construction (hereafter referred to as the Morrell's building), which is currently occupied by Morrell's Dry Cleaners and Tease Chocolates. The Parking Lot Parcel is approximately 13,450 square feet and is used primarily by patrons of the south-adjacent grocery store. The entire Site outside the Morrell's building footprint is paved with asphalt and concrete.

The Property is zoned by the City of Tacoma as a Neighborhood Commercial Mixed-Use District (NCX), allowing for a mix of residential, office, retail, and commercial service uses. The adjoining property to the south is the Former Walker Chevrolet Site (former VCP No. SW1040). A Thriftway grocery store on that property abuts the southern boundary of the Parking Lot Parcel. The adjoining properties to the north and northeast contain commercial and office space (hereafter referred to as the Northern Building; Figure 2). The Northern Building is separated from the Morrell's building by an approximately 5-foot-wide paved, gated alley.

According to city directories, dry cleaning operations have been performed continuously on the Property beginning in 1929. Tetrachloroethene (PCE) was used in successive dry-cleaning machines from the beginning of the Morrell's tenancy in 1972[3] until early 2009, when Morrell's purchased the existing PCE-free dry-cleaning machine.

2.1 Site Physical Setting

2.1.1 Topography and Surface Cover

The Site is located in the Stadium District of Tacoma between Wright Park and Commencement Bay (Figure 1). The Stadium District is located above an escarpment that descends to Commencement Bay. The Parking Lot parcel is about elevation 278 feet (NAVD88) and the top of the escarpment is about elevation 240 feet. The top of the escarpment is about 500 feet north of the Site boundary. The bottom of the escarpment is about elevation 20 feet at Schuster Parkway, which extends along Commencement Bay.

The Stadium District is predominantly covered with impervious surfaces. The exception is Wright Park, a 32-acre city park located south of the Site. A pond in Wright Park is the closest surface water to the Site, located about 900 feet from the Site and at a higher elevation (approximately 290 feet), making it upgradient from the Site. Commencement Bay is the closest surface water body downslope at approximately 1,200 feet from the Site.

2.1.2 Hydrogeologic Conditions

The Property is underlain by a thick sequence of glacially overridden unconsolidated soils. Site soils consist of approximately 35 feet of dense, fine grained sandy silt and gravel, interpreted as ice-contact deposits (Qvi) and glacial till (Qvt), overlying

[2] As shown on Figure 2, the extreme northern portion of the building extends onto off-property Parcel 2030-12-0012.
[3] PCE was likely also used for dry cleaning at the Site prior to 1972, but records are not available.

approximately 30 feet of sand, interpreted as advance outwash (Qva). Underlying the outwash sand is a sequence consisting primarily of silt and silty sand, with a limited thickness of interbedded slightly silty sand, which is interpreted as Olympia bed interglacial deposits (Qob). This sequence of silt, silty sand, and sand extends to at least 146 feet below ground surface (bgs); the maximum depth drilled on the Site. Figure 3 provides hydrogeologic cross sections beneath the Site (see Figure 2 for cross-section locations).

The advance outwash is the uppermost groundwater-bearing unit at the Site, and the base of the outwash ranged from about 63 to 74 feet bgs with groundwater occurrence at depths below 50 feet. The majority of Site monitoring wells are completed in the advance outwash. The five advance outwash wells constructed along Tacoma Avenue North and North First Street (MW-3, MW-4, MW-6, MW-9, and MW-10; Figure 2) did not yield water over multiple years of monitoring and were decommissioned in 2010. On this basis, the upper water-bearing unit is perched, discontinuous, and estimated to terminate along the approximate boundary shown on Figures 2 and 4.

Borings for MW-3, MW-5, MW-8D, MW-10, MW-11, and MW-12D to MW-14D penetrated through the advance outwash into the Olympia bed interglacial deposits, which are characterized as a leaky lower-confining unit with discontinuous, low-yield sandy intervals. Deeper water-bearing zones were encountered within thin sandy intervals of the Olympia bed interglacial deposits. Wells MW-8D and MW-12D to MW-14D were completed in the interglacial deposits and yield limited quantities of groundwater during sample collection. The intersected water-bearing units are under unconfined conditions. The discontinuous, low-yield, water-bearing units in the Olympia bed interglacial deposits likely contain non-potable groundwater based on low yield (WAC 173-340-720(2)(b)(i)), and unlikely interconnection with potential future sources of drinking water (WAC 173-340-720(2)(c)). Impacted groundwater within the interglacial deposits would be unlikely to reach surface water, which is about 140 feet beneath and 1,200 feet north of the Site boundary.

Horizontal groundwater gradients within the advance outwash are very small. Inferred groundwater flow direction can vary widely from one monitoring round to the next. In order to illustrate the gradient over a larger area, the advance outwash groundwater elevations measured on December 22, 2010, and estimated groundwater elevation contours are shown on Figure 4.[4] The inferred groundwater flow direction is to the north/northwest, consistent with the local topography and the presence of Wright Park (an elevated recharge area) upgradient to the south.

2.2 Previous Reports

The following is a chronological listing of technical reports submitted to Ecology and an Ecology opinion letter regarding investigation and cleanup of the Site. The contents of

[4] Groundwater elevation measurements on this date included wells MW-1 and MW-11 on the Former Walker Chevrolet Site. More recent contours including MW-1 and MW-11 are not available because those wells have since been decommissioned.

each are briefly summarized. All data collected by Aspect for Site characterization purposes5 in included in Appendix A, for reference.

- **Site Conditions Summary** dated July 14, 2009 (Aspect, 2009). This technical memorandum documents due-diligence investigation results performed by Stemen Environmental, Inc. (Stemen) between 2006 and 2008, and follow-up investigations by Aspect in 2009. Investigations were initiated at the Morrell's Dry Cleaners Site after water was encountered beneath the Morrell's building floor slab, and an analysis of the water bill of Tully's Coffee (located across the alley to the north) indicated that an estimated 600,000 gallons of drinking water had been released between May 2006 and September 2007, see Appendix B for documentation.
- **Remedial Investigation (RI) Report** dated February 18, 2011 (Aspect, 2011). This report describes the historical uses and environmental setting, documents investigations completed to date, and develops a preliminary conceptual site model for the Site.
- **Ecology's "further action" opinion letter** dated September 26, 2011 (Ecology, 2011) provides review comments on the RI Report. It states that the perched groundwater in the advance outwash was adequately delineated but requested additional delineation of the deeper groundwater within the interglacial deposits. Ecology also recommended performing a Tier II indoor air sampling assessment in and adjacent to the Morrell's building.
- **Focused Feasibility Study (FFS)** dated March 26, 2012 (Aspect, 2012a). The FFS develops cleanup action objectives and develops and evaluates cleanup alternatives in accordance with MTCA criteria in WAC 173-340-360. The report identifies subslab depressurization, soil vapor extraction (SVE) treatment, and biostimulation as viable cleanup technologies that could be implemented under the current Site use. SVE was recommended to remove chlorinated volatile organic compounds (VOCs) from beneath the Morrell's building floor slab and the glacial till and advance outwash sand beneath the building, using perimeter SVE trenches and peripheral SVE wells that extend beneath the building. Biostimulation was recommended to enhance the natural reductive dechlorination of PCE in groundwater.
- **Data Gaps Investigation** dated May 1, 2012 (Aspect, 2012b). This technical memorandum documents investigations that were conducted to address data gaps identified in Ecology's "further action" opinion letter (Ecology, 2011). This memorandum states that remaining data gaps are the vertical extents of contamination soil beneath the Morell's building and indoor air quality of the Northern Building.
- **Interim Cleanup Action Construction and Design Report** dated May 16, 2014 (Aspect, 2014a). This report documents construction and baseline groundwater

[5] Data in Appendix A has all been included in previous reports. Soil gas data included in Appendix A does not include gas samples collected for soil vapor extraction system performance monitoring. Appendix A does not include data collected by other consultants (pre 2008) as that data is not available electronically and has been superseded by subsequent work.

sampling of wells to be used for biostimulant injection, and construction and pilot testing of wells and a trench to be used for SVE treatment. Pilot test and groundwater sampling results were used to finalize remediation system design and to design a groundwater monitoring and biostimulation program to enhance degradation of contaminants in groundwater.

- **Interim Cleanup Action Construction Completion Report** dated December 23, 2014 (Aspect, 2014b). This report describes the June 2014 biostimulant injection event and specifications, construction, startup, and initial testing of the SVE system.
- **Supplemental Focused Feasibility Study (Draft; dSFFS)** dated August 10, 2018 (Aspect, 2018). This report evaluates biostimulation injection and SVE treatment performance to date and uses that information to develop and evaluate on-Property remedial alternatives for the Site. Active technologies evaluated include expanded biostimulation, expanded SVE, electrical resistance heating (ERH), and heat-enhanced plume attenuation (HEPA). An alternative which utilizes a combination of SVE and biostimulant injection was recommended for interim implementation.
- **Summary of 2019 Interim Actions and SVE System Expansion – Morell's Dry Cleaner Site** dated June 17, 2020 (Aspect, 2020a, Appendix C). This technical memorandum documents the ongoing interim cleanup action activities at the Site. This report has not previously been submitted to Ecology and therefore is included as Appendix C for reference. The 2019 work documented therein includes the installation of 17 wells and provides design information for the connection of the five wells to the soil vapor extraction system (SVE Expansion is included in this memorandum).
- **Property-Specific Closure Report for Parking Lot Parcel** draft dated August 2020 (Aspect 2020b). This report presented the case for the property-specific closure of the Parking Lot Parcel, a subset of the Site. This report documents MW-20 injection pilot test, which did not complete dechlorination and concluded that the radius of influence was less than 15 feet. All biostimulation injections at the Site have been completed without favorable results and a disproportional cost analysis concludes that any benefit from additional treatment of the Parking Lot Parcel to be impracticable. Monitored Natural Attenuation with institutional controls is selected as the alternative and is demonstrated to be protective of human health and the environment. This report is in Draft form and has yet to be approved by Ecology.
- **Ecology's 'Further Action' Opinion Letter** dated January 6, 2021 (Ecology, 2021a) provides review comments on the PL Closure Report. It states that the following must be completed before further cleanup actions at the Parking Lot parcel can be disproportionately costly relative to the benefit to human health and the environment: complete Site characterization, establish cleanup standards, and selection of sitewide cleanup action(s).

3 Interim Cleanup Actions

As referenced above, two FFSs have been completed for the Site, the FFS (Aspect, 2012a) and the dSFFS (Aspect, 2018). Both the FFS and the dSFFS selected a combination of SVE treatment for the vadose zone and *in situ* injections for the treatment of groundwater as the preferred alternatives given existing site conditions and restrictions (such as the Morell's building and access).

3.1 2014 Interim Cleanup Action

The FFS (Aspect 2012a) evaluated cleanup alternatives via the MTCA cleanup action selection process. The FFS compared five alternatives ranging from least aggressive and lowest cost Alternative 1, no action, to most aggressive and highest cost Alternative 5, Removal of On-Property Contaminated Soil to 15-Foot Depth Following Building Demolition and *in situ* chemical oxidation (ISCO) to treat remaining contaminated soil and groundwater. A disproportional cost analysis was completed for the alternatives and Alternative 4 was recommended for implementation, as it had the most benefit to human health and the environment while not being disproportionately expensive. Alternative 4 included SVE treatment paired with biostimulation, and eventual engineering and institutional controls. Alternative 4 from the FFS was implemented as the '2014 Interim Cleanup Action,' which is summarized below; all supporting data can be found in Appendix A.

3.1.1 Biostimulation Injections (2014)

The June 2014 biostimulant injection to nine wells was documented in the Interim Cleanup Action Construction Completion Report (Aspect, 2014b), and injection performance was evaluated in the dSFFS (Aspect, 2018). Remediation products provided by Regenesis were injected into all impacted groundwater wells screened in the advance outwash except MW-5, Figure 2.[6] Each of the nine wells received approximately 550 gallons of a dilute mixture of 3D-Microemulsion (3DMe® Factory Emulsified) and Hydrogen Release Compound (HRC Primer®).

Post-injection groundwater monitoring results indicated that PCE concentrations were successfully reduced by up to two orders of magnitude in all of the June 2014 injection wells[7] with little or no rebound, and the PCE screening level was attained in four of those wells (MW-15, MW-16, MW-19, and MW-20). Trichloroethene (TCE) concentrations decreased significantly, and total molar concentrations of chlorinated VOCs were greatly reduced overall. However, vinyl chloride (VC) concentrations increased significantly, which suggests that incomplete dechlorination resulted in the accumulation of VC.

The radius of influence (ROI) of the 2014 injection appears to be very limited based on persistent contaminants of concern in near proximity (within 10 feet of an injection well)

[6] Well MW-5 was not included in the June 2014 injection because results of the January 2014 sampling of MW-5 indicated no screening level exceedances. As is evident in Table 4, these were erroneous results.

[7] MW-18 has not been sampled post-injection due to a well obstruction.

monitoring wells installed in 2019 (MW-24, MW-25, MW-31, and MW-34).[8] This conclusion is further supported by the natural attenuation parameter results, which indicate that injection products (total organic carbon (TOC) remain elevated in the injection wells but are near background in adjacent non-injection wells.

3.1.2 Soil Vapor Extraction System (2014)

A SVE system has operated in the source area since October 15, 2014. The original SVE system was designed to remove VOC contaminant mass from beneath the northern portion of the Building Parcel and to prevent vapor intrusion into the Morell's building.

The original SVE system installed in 2014 consisted of four angled wells (VE-1 through VE-4), a 48-foot-long SVE trench in the alley on the north side of the Morrell's building (VE-H), and a subslab suction pit (VE-SS) inside the building. The original SVE system's components and conveyance piping are shown on Figure 7. SVE wells VE-1 and VE-2 are completed in the glacial till, with screen intervals of 18 to 32 feet bgs. SVE wells VE-3 and VE-4 are completed in the advance outwash, with screen intervals of 30 to 45 feet bgs.

SVE treatment equipment is situated in the alley and includes a 2-horsepower single-phase regenerative blower, a 55-gallon moisture separator with automatic water transfer pump, and the original configuration included two 55-gallon vapor-phase granular activated carbon (GAC) drums connected in series.

The original SVE system construction and operation has been documented in previous reports. The "Interim Cleanup Action Construction and Design Report" (Aspect, 2014a) documents original system design and installation of the SVE wells. The "Interim Cleanup Action Construction Completion Report" (Aspect, 2014b) documents SVE system construction and start-up.

3.1.3 SVE Performance (2014 to 2020)

SVE System Performance monitoring from installation to expansion is briefly summarized here and expanded upon in Appendix D. An average PCE removal rate of 0.626 pounds per day (lbs/day) was estimated during the first 3 months of operation (mid-October through mid-December 2014), versus 0.133 lbs/day estimated for the first 9 months of 2020, indicating that SVE treatment effectiveness was declining as is standard for the technology. The original orientation of the SVE system removed an estimated 345 pounds (lbs) of PCE from the subsurface through shut down in preparation of expansion on September 21, 2020.

The glacial till wells (VE-1 and VE-2) were estimated to account for approximately 65 percent of the total contaminant mass removed by the SVE system, versus 35 percent removed by the advance outwash wells (VE-3 and VE-4). This may be attributable to higher contaminate mass concentrations in the glacial till unit. Yet, advance outwash soils are more permeable and, therefore, more amenable to SVE. Both glacial till and advance outwash wells are considered valuable to SVE performance. Operating information on

[8] Injection impacts are expected to be most pronounced downgradient of an injection well. While the inferred flow direction is to the northwest, the groundwater gradient is very small and has high variation. There is also a significant downward flow component.

the original SVE configuration, including a demonstration of subslab depressurization beneath the Morell's Building prior to SVE expansion can be found in Appendix D.

3.2 2019-2020 Interim Cleanup Expansion

Cleanup alternatives were most recently re-evaluated via the MTCA cleanup action selection process in the dSFFS (Aspect, 2018). This study compared six alternatives ranging from least aggressive and lowest cost Alternative 1, Long Term Controls and Environmental Covenant, to most aggressive and highest cost Alternative 6, Removal of On-Property Contaminated Soil to 15-Foot Depth Following Building Demolition and ERH of Deeper On-Property Contaminated Soil and Advance Outwash Groundwater. A disproportional cost analysis was completed for the alternatives and Alternative 2 was recommended for implementation, as it was the most cost-effective alternative that included active remediation.

Alternative 2 expanded SVE treatment of vadose zone soil and biostimulation of advance outwash groundwater, the remedial technologies already implemented at the Site. Alternative 2 from the dFFS was implemented via the '2019- 2020 Interim Cleanup Expansion,' as described below and expanded upon in Appendix E. This interim cleanup action also included a data gaps investigation to better define the nature and extent (vertical and lateral) of contamination. The "Summary of 2019 Interim Actions and SVE Expansion Memorandum" (Aspect, 2020a; Appendix C) includes a summary of the investigation and presents a work plan for SVE expansion.

3.2.1 Remediation Injection (2019)

Injection of biostimulants into contaminated advance outwash groundwater in June 2014 showed promise based on the results of post-injection groundwater monitoring through January 2017 in the injection wells. However, the previous injection wellfield covered only a portion of the estimated groundwater exceedance area and the treatment ROI appeared to be limited. A Remediation Injection pilot test was completed to determine the remediation products' ROI and effectiveness for a potential full-scale implementation.

Remediation injection solution was also modified in an attempt to complete dechlorination to non-toxic end products. The injection solution was approximately 4,950 gallons of a dilute mixture of 3D-Microemulsion (3DMe® Factory Emulsified), Chemical Reducing Solution (CRS®, iron amendment), Dehalococcoides sp. Microbial culture (KB-1®), and anaerobic water primer. The results of this remediation injection pilot test were previously reported in the "Property-Specific Closure Report for the Parking Lot" (Aspect, 2020b), which concluded that the injection resulted in incomplete dechlorination, and the ROI is considered to be confirmed at less than 15 feet.

3.2.2 Soil Vapor Extraction Expansion (2020)

The interim action SVE wells (VE-1 through VE-4) have removed a significant amount of contaminant mass from vadose zone soils beneath the northeast portion of the Morrell's building (Appendix D). However, those wells only targeted contamination beneath the northeast portion of the building. SVE was expanded in 2020 to address the entire Morell's Building footprint area, thus also enhancing subslab depressurization. SVE expansion included the connection of the four new angled wells (VE-5 through VE-8; Figure 8) and one new vertical well (MW-23) to the existing SVE system.

Due to the lack of space in the alley, the new angled wells were connected to the SVE system by tapping into existing laterals attached to VE-1/2 and VE-3/4 in the northwest corner of the parking lot; Figure 8. The calculated mass of PCE removed by the system increased from an average of 0.133 lbs/day (estimated for the first 9 months of 2020) to an average of 0.295 lbs/day (estimated for the first 2 months after expanded SVE startup). As-built details for: construction sequence, trenching and backfill, piping, instrumentation details, vapor emissions control, waste management, expanded SVE startup, and monitoring are included in Appendix E.

4 Updated Conceptual Site Model

An updated CSM is provided here based on all Aspect data collected to date. Note that previous CSMs for this Site included data collected by Stemen between 2006 and 2008 (Appendix B). This data is now excluded due to age of data, absence of Aspect standard quality assurance / quality control, and influence of the drinking water leak on data collected.[9]

4.1 Sources of Contamination

Historical use of the Property and surrounding properties was compiled from a combination of sources including:

- Reverse city directories for years between 1928 and 2011.
- Regulatory agency databases for the vicinity as compiled by Environmental Data Resources, Inc. (EDR).
- Sanborn fire insurance maps from 1885, 1888, 1896, 1912, 1950, and 1969.
- A deposition of Linda Morrell, owner of Morrell's Dry Cleaning, on April 22, 2010 (Morell, 2010).

Historical operations on the Property and on nearby properties with suspected or identified environmental impacts are described below; the sources of contamination presented in this section were originally reported in the RI Report (Aspect, 2011).

The Property and adjacent properties on the same city block were initially developed in the 1880s as the Annie Wright Seminary, a boarding school. Based on the Sanborn maps, the school was present until at least 1912. The 1950 and 1969 Sanborn maps show what appears to be the current building at the Property, with the current location of Morrell's listed as "cleaning and dying."

Reverse city directories list Puget Sound Cleaners as located at the Property from 1929 to 1966. From 1967 to 1972, Marcus Cleaners is listed at the Property. Around 1972 Morrell's began dry cleaning operations at the property.

Mrs. Morell and her former husband purchased the dry-cleaning business in 1972. A Union brand cleaning machine was purchased in or around 1975 to replace the old one that came with the business. The new machine used PCE. Throughout the 1970s and 1980s, PCE was pumped from a delivery truck into the machine as needed. The Union machine was used for approximately 17 years before repairs became too expensive. A Columbia brand machine, which also used PCE, was purchased in 1992. In early 2009, another new Union machine was purchased, which reportedly does not use a PCE-based dry cleaning solvent.

The general cleaning method was to steam the garment, removing spots before placing it into the cleaning machine. The cleaning machines used filter cartridges to separate lint and dirt accumulated during cleaning from the PCE solvent. Approximately every

[9] The water leak was repaired in 2007 and is no longer a current part of the CSM.

6 weeks, Safety-Kleen, a waste disposal service, would collect the used solvent and dirt "sludge." From the time the business was purchased by the Morrell's until 1986, the spent cartridges were placed on the ground in the alley behind the building for storage until the trash was collected. In 1986, regulations governing handling and disposal of the filter cartridges changed and the cartridges were then stored in drums for pickup and disposal. The use of filter cartridges ceased with the purchase of the Columbia cleaning machine equipped with a solvent still in 1992.

In addition to the dry-cleaning machines, a 15-gallon dip tank was used from at least 1972 until the early 2000s to waterproof clothes. The general method was to dip the cleaned clothes into the tank, which held a mixture of PCE and wax, drain the solvent back into the tank, and allow the clothes to dry.

In summary, former possible sources of contamination include the dry-cleaning machine, spent cartridge filter staging and disposal, and a dip tank. While the contamination documented at the Site is not directly attributable to an individual source, each of these features was located on near the northern portion of the Morell's Building and alley, congruent with the source area.

4.2 Chemicals of Potential Concern

The impacted media at the Site are soil, groundwater, and air. For this analysis, chemicals of potential concern (COPCs) are defined by chemicals that exceed the screening level in any Site characterization sample[10] reported in Appendix A. Screening levels are based on values presented in the Cleanup Level and Risk Calculation Tables (CLARC; Ecology, 2021b). For the purposes of analysis, MTCA Method A screening levels were used for soil supplemented with the most stringent Method B value if no Method A exists. For chemicals without Method A screening levels, Target Cleanup Levels for Soil to Groundwater Pathway as identified in CLARC were used for groundwater screening levels, which are based on the Washington State Maximum Contaminant Level (MCL) if available[11] and the most stringent of the Method B noncancer (N), and the Method B cancer (C) if an MCL is not available. Air samples were screened by the Method B cleanup levels for indoor air, and the Method B Subslab screening levels for subslab soil gas. COPCs and their affected media are summarized in Table A.

[10] Deep soil gas as extracted by the SVE system is not included.

[11] The MCL has been adjusted to a lower concentration so that the excess cancer (C) risk is one in 100,000 and the noncancer (N) hazard index is less than or equal to one per WAC 173-340-720(7)(b).

Table A: Contaminants of Potential Concern and Affected Media

Media	Contaminants of Potential Concern	Screening Level
Soil[12]	PCE	0.05 (mg/kg)
	TCE	0.03 (mg/kg)
	Naphthalene	5.0 (mg/kg)
Groundwater	PCE	5 (µg/L)
	TCE	5 (µg/L)
	DCE	16 (µg/L)
	VC	0.2(µg/L)
	2-Hexanone	40 (µg/L)
	Iron	11000 (µg/L)
Indoor Air	PCE	9.6 (µg/m^3)
	TCE	0.33 (µg/m^3)
Subslab Soil Gas	PCE	320 (µg/m^3)
	TCE	11(µg/m^3)
	Acrolein	0.3 (µg/m^3)
	Chloroform	3.6 (µg/m^3)
	Benzene	11 (µg/m^3)
	Naphthalene	2.5 (µg/m^3)
	Total Xylenes	1500 (µg/m^3)

Notes: mg/kg – milligrams per kilogram, µg/L – micrograms per liter, µg/m^3 – micrograms per cubic meter

Other chemicals were either not detected or were detected at concentrations less than their respective screening levels.[13]

4.3 Exposure Pathways and Potential Receptors

4.3.1 Soil Exposure Pathways

Potential exposure pathways and receptors for contaminated soil include:

- **Direct Contact.** Workers contacting contaminated soils in the future (skin contact or incidental ingestion) during excavation or other construction-related activities, if no worker protection controls are in place. While site is currently covered with impervious surfacing, without institutional controls in place this is not guaranteed into the future and the pathway is considered currently mitigated but potentially complete for this Site.

[12]Methylene chloride was detected above its screening level of 0.02 mg/kg (MTCA Method A soil cleanup level) in three of the soil samples collected from MW-23. The laboratory report noted that those detections were due to laboratory contamination and methylene chloride is not retained as a COPC.

[13] Bromodichloromethane was detected in three reconnaissance groundwater samples collected in 2006/2007 by Stemen during the Tully's drinking water leak. Bromodichloromethane is a byproduct of drinking water disinfection, and its presence in these samples is attributable to the water leak. Bromodichloromethane has not been detected in the shallow or deeper water-bearing zones since; and, therefore, is not recognized as an indicator hazardous substance (IHS). Lead was detected above the 15 µg/L screening level in one of the shallow parking lot samples collected in 2006 by Stemen. Lead has not exceeded the screening level in any of the advance outwash groundwater samples and is not recognized as an IHS.

- **Soil Leaching to Groundwater.** Data indicates that soil contamination is contained above the water table (angled borings beneath the Morell's building A-5 through A-8 all had soil results below the screening level, above the water table at ~50 feet bgs). However, groundwater is contaminated at the Site via another mechanism (ex. surface infiltration or plumbing leaks). As noted below, groundwater at the Site is currently not used as a drinking water source and unlikely to be in the future. However, this is not guaranteed and therefore this pathway is considered potentially complete for this Site.
- **Soil to Vapor Inhalation.** Humans in buildings inhaling indoor air contaminated—via vapor intrusion—by volatilization from impacted soils. Pre SVE- soil vapor results indicate that the vapor intrusion pathway may have been complete at the Morrell's building, however current SVE operation maintains adequate subslab depressurization beneath the Morell's building as described in Appendix D. Since SVE is not guaranteed to be operated indefinitely into the future, the pathway is currently mitigated but considered potentially complete for this Site.

  Terrestrial ecological receptors are not considered potential receptors at the Site due to the developed nature of the neighborhood. A terrestrial ecological evaluation is provided in Appendix F.

4.3.2 Groundwater Exposure Pathways

Potential groundwater exposure pathways and receptors include:

- **Groundwater Ingestion.** Humans drinking contaminated groundwater in the future, if groundwater is brought to the surface for this purpose. Advance outwash groundwater is not currently used as a drinking water source. Based on the limited saturated thickness and lateral extent of this unit, it is unlikely to be used for drinking water purposes in the future. However, potential migration of contaminated water from the advance outwash to deeper units that could support future drinking water use cannot be ruled out and the groundwater ingestion pathway is retained.
- **Groundwater to Vapor Inhalation.** Humans in buildings inhaling indoor air contaminated—via vapor intrusion—by volatilization from contaminated groundwater. In general, contaminants in soil gas immediately beneath the building are assumed to originate from contaminated soils or from above-ground sources, not from contaminated groundwater. Since the depth to groundwater is relatively large (greater than 50 feet bgs), dissolved petroleum hydrocarbons, such as benzene, are not a vapor intrusion concern per Ecology guidance.[14]

[14] *Updated Process for Initially Assessing the Potential for Petroleum Vapor Intrusion* (Ecology, 2016b) discusses vertical screening distances for buildings in determining whether the initial VI assessment process is complete.

However, the potential for vapor intrusion impacts by chlorinated VOCs that may volatilize from groundwater cannot be ruled out based on Ecology guidance.[15]

The Groundwater to Surface Water pathway, including aquatic receptor exposure and human consumption of aquatic ecological receptors, is not complete, based on the perched nature and limited lateral extent of the upper water-bearing unit; the more than two orders of magnitude decrease in PCE concentrations between the upper water-bearing unit and the deeper, downgradient water-bearing unit; the 1,200-foot distance from the Property to surface water of Commencement Bay; and the apparent biodegradation of chlorinated VOCs, contaminants in groundwater from the upper water-bearing unit are not discharging to surface water.

[15] Chapter 2 of *Guidance for Evaluating Soil Vapor Intrusion in Washington State* (Ecology, 2016a) discusses the "100-foot rule" as a guideline for determining whether the vapor intrusion pathway must be considered for contaminants other than petroleum hydrocarbons.

5 Cleanup Requirements

This section identifies the applicable or relevant and appropriate requirements (ARARs), remedial action objectives (RAOs), and preliminary cleanup levels (PCULs) used as the basis for developing and evaluating remedial alternatives, as follows:

- Section 5.1 identifies the ARARs that are most likely to have a significant influence on the identification and assembly of remedial alternatives to be evaluated.
- Section 5.2 presents the establishment of indicator hazardous substances (IHSs) by media.
- Section 5.3 describes the preliminary cleanup levels (PCULs).
- Section 5.4 presents the points of compliance.
- Section 5.5 presents the Terrestrial Ecological Evaluation (TEE)

5.1 Applicable or Relevant and Appropriate Requirements

The MTCA (Chapter 70.105D Revised Code of Washington [RCW]) requires that cleanup actions comply with applicable state and federal laws (WAC 173-340-360(2)a(iii)), which include legally applicable requirements, as well as requirements that the department determines are relevant and appropriate. ARARs for cleanup actions often include various construction-related permits, air emission requirements, water discharge requirements, off-site disposal requirements, and other issues related to impacts in and around the site. ARARs can be categorized as follows:

- Chemical-specific ARARs are laws and requirements that establish health- or risk-based numerical values or methodologies for developing such values. These ARARs are used to establish the acceptable concentration of a chemical that may remain in or be discharged to the environment. As such, chemical-specific ARARs are considered in developing cleanup standards (Sections 5.3 and 5.4).
- Action-specific ARARs are performance, design, or other requirements that may place controls or restrictions on a particular remedial action.
- Location-specific ARARs are requirements that are triggered based on the location of the remedial action to be undertaken.

The following ARARs are identified for the Site:

- Washington Dangerous Waste Regulations (Chapter 173-303 WAC) would apply if dangerous wastes are generated, and United State Department of Transportation and Washington State Department of Transportation regulations regarding transport of hazardous materials (49 Code of Federal Regulations [CFR] Parts 171-180) would apply if regulated material is transported off-site as part of the cleanup action.

- If construction-generated dewatering water or stormwater from the cleanup action is discharged to surface waters of the State of Washington, such discharge would need to comply with requirements of a National Pollutant Discharge Elimination System (NPDES) Construction Stormwater General Permit (CSGP). Infiltration of stormwater is not subject to the CSGP, but there are no plans to infiltrate stormwater at this Site. Ecology administers the federal NPDES program in Washington State. Operators of regulated construction sites discharging to surface waters of the state are required to:
  - Submit a Notice of Intent and obtain coverage under the Construction stormwater General Permit.
  - Develop a stormwater pollution prevention plan (SWPPP).
  - Implement sediment, erosion, and pollution prevention control measures, including water quality treatment, as needed, to comply with the SWPPP.
  - The permit also requires that site inspections be conducted by a Certified Erosion and Sediment Control Lead.
- Contaminated water may be also collected, tested, and treated (if warranted) prior to discharge to a nearby sanitary sewer system. The applicable authorities for permitting such discharges are City of Tacoma and Pierce County who maintain the piping and treatment facilities, respectively.
- Occupational Safety and Health Administration and Washington Industrial Safety and Health Act regulations (29 CFR 1910.120; Chapter 296-62 WAC) governing worker safety during cleanup action execution.
- Washington State Water Well Construction Regulations (Chapter 173-160 WAC) regulating groundwater well installation and decommissioning would be applicable as part of the cleanup action.
- The Archeological and Historical Preservation Act (16 United States Code Annotated [USCA] 496a-1) would be applicable if the cleanup action included grading or excavation activities.

Additional ARARs that may be relevant to a remedial action include:

- General Occupational Health Standards (Chapter 296-62 WAC)
- Safety Standards for Construction Work (Chapter 296-155 WAC)
- Underground Injection Control Program (Chapter 173-218 WAC)
- Permits from local municipalities as required for activities at the Site. Examples include Pierce County and City of Tacoma permits for any necessary sewer discharges, grading permits, and/or street-use permits.

Many ARARs are commonly addressed through standard industry practices. For instance, construction of monitoring or remediation wells will be conducted by a Washington State-licensed driller, and construction work is conducted under site-specific health and safety plans in compliance with applicable safety regulations.

5.2 Establishment of Indicator Hazardous Substances

For the purposes of this Work Plan, the Site indicator hazardous substances (IHSs) are proposed as those contaminants with a frequency of exceedance[16] greater than 10 percent and an exceedance factor[17] greater than 2 in soil or groundwater, as identified in orange highlighting in Tables 1–2. Contaminants with a lower exceedance frequency or magnitude contribute a small percentage of the overall threat to human health and the environment and thus are not used to define the site cleanup requirements in accordance with WAC 173-340-703. COPCs that were not retained as IHSs are highlighted in blue in Tables 1–4; exceedances of those COPCs are within the footprint of IHS exceedances. The Site IHSs are:

- PCE and daughter products: TCE, 1,2-dichloroethene (DCE), VC
- Iron, due to use as a remediation injection component

5.3 Nature and Extent of Contamination

This section summarizes the extent of IHSs detected above PCULs in Site media. PCULs were identified based on the screening levels presented in Section 4.1 for the IHSs established in Section 5.2 as summarized in Table B.

Table B: Summary of Preliminary Site Cleanup Levels for IHSs

Contaminant of Concern	Preliminary Cleanup Level by Media		
	Soil (mg/kg)	Groundwater (µg/l)	Indoor Air (µg/m^3)[18]
PCE	0.05	5	9.6
TCE	0.03	5	0.33
DCE	160	16	N/A
VC	0.67	0.2	45.7
Iron	56,000	11,000	N/A

Notes: mg/kg – milligrams per kilogram, µg/L – micrograms per liter, ug/m^3 – micrograms per cubic meter

[16] Frequency of exceedance = number of samples exceeding PCUL / number of samples
[17] Exceedance factor = Maximum detected exceedance / PCUL.
[18] Indoor air cleanup levels are based on unrestricted land use. For a workplace exposure scenario, these CULs (based 168 hours per week exposure) could be adjusted based on a 45-hour work week, consistent with Ecology's Toxics Cleanup Program Implementation Memo #22 (Ecology, 2019). Also, Section 6.6.2 of Ecology's draft *Guidance for Evaluating Soil Vapor Intrusion* (Ecology, 2016a) provides for adjustment of Method B values where the building of concern is being used commercially. Based on a commercial exposure of 40 hours per week rather than continuous exposure (168 hours per week). Adjustments would be referred to as remediation levels, used to monitor worker safety.

5.3.1 Soil

The IHSs detected in soil above PCULs are PCE and TCE. PCE defines the maximum extent of soil contamination, as all other COPCs were located within the zone of PCE contamination. The extent of PCE contamination is shown on Figure 5. The lateral extent of PCE is bound by MW-20, MW-24, MW-25, MW-28, MW-29, MW-32, and MW-33 to the west and south. Soil contamination does not extend onto the Parking Lot Parcel based on soil analytical results from MW-24 through MW-29, MW-32, and MW-33. The lateral extent of PCE is less well defined to the west and north. Monitoring wells MW-6, MW-8, MW-10, MW-12D, MW-13D, and MW-14D were all installed in the City of Tacoma Rights-of-Way along Tacoma Avenue and North First Street but none of them have discrete soil data[19].

Data supports that PCE is vertically contained in the glacial till. While there are a few instances of slight PCE exceedances (maximum concentration of 0.095 mg/kg) in the advance outwash soil, below the water table (MW-21, MW-23, and MW-31) the pre-injection groundwater concentrations at those locations (100 to 500 ug/L) indicate that the soil exceedances may have originated from contaminated pore water in the soil sample and/or sorption from contaminated water onto the soil matrix. Additionally, both MW-21 and MW-31 have results below detection levels above the water table at 40 and 40.5 feet bgs, respectively. MW-23 did not have a soil sample collected in advance outwash, above the water table. While the original direct push investigation (DP-1 through DP-10) of the source area did not define the vertical boundary beneath the building (Ecology 2011), recent investigation completed as part of the 2019 – 2020 Interim Cleanup Expansion did. Angled borings (A-7 through A-7) for SVE Wells VE-5 through VE-7 were extended beneath the Morell's Building and the deepest PCE exceedance was at 24-feet bgs, within the glacial till.

5.3.2 Groundwater

The IHSs detected in groundwater above PCULs include the chlorinated VOCs PCE, TCE, cis-1,2-dichloroethene (cDCE), and vinyl chloride.

The extent of contamination in **advance outwash groundwater** can be defined by the extent of PCE, as all other IHS PCUL exceedances are within the extents of PCE contamination. Extent of PCE contamination in advance outwash groundwater is defined by MW-7 to the west, former Walker Chevrolet Site (VCP. No. SW1040) MW-11 to the south (Figure 4), and the estimated extent of advance outwash groundwater to the west and north. The extent of PCE contamination in advance outwash groundwater is shown on Figure 6.

The extent of contamination in the **deeper water-bearing zones** in the Olympia beds is defined by the extent of both PCE and cDCE and warrants further investigation. MW-8D, screened in the Olympia beds, is closest to the source area and samples are consistently contaminated with cDCE. The deeper water-bearing zone contamination is bounded to the north by MW-12D, which has not had an PCUL exceedance since 2014, and MW-14D to the west, which has not had an PCUL exceedance since 2017. However, the regional groundwater flow direction is to the northwest and a downgradient, deeper

[19] MW-12D and MW-13D each have a composite sample, taken for waste disposal purposes, but are not considered sufficient for Site characterization.

water-bearing zone monitoring well near the intersection of Tacoma Avenue and North First Street is warranted.

5.3.3 Indoor Air and Soil Gas

IHSs detected above PCULs in indoor air or detected above soil gas screening levels in soil gas are PCE and TCE. Contaminants present in soil gas originate from volatilization of soil and groundwater concentrations; therefore, the IHSs are the same for soil gas and indoor air.

PCE and TCE have been detected at levels exceeding the PCUL in indoor air in the Morell's Building in both samples collected pre-SVE startup. Indoor air samples have not been collected since SVE startup, and protection of vapor intrusion has been documented via subslab depressurization (Appendix D and E). PCE and TCE were detected at concentrations that exceed the PCUL in subslab soil gas before SVE operation at vapor points: SV-2, SV-3, VP-2, VP-3, VP-4, and VP-7. In the first 2 years of SVE operation, rebound studies were completed to assess the safety of possibly turning the SVE system off, and during this time IHSs has PCUL exceedances at VP-4 and VP-5; however, at the end of these rebound studies in late 2016, there were no IHS exceedances under steady-state, SVE operation conditions. This indicates that the SVE system was effectively mitigating vapor intrusion risk under that configuration.

5.4 Points of Compliance

In accordance with WAC 173-340-740(6)(d), the soil point of compliance for the direct contact and ingestion exposure pathways extends from the ground surface to a depth of 15 feet bgs. The point of compliance for the soil leaching to groundwater exposure pathway extends from the ground surface throughout the Site. The groundwater point of compliance is established throughout the Site from the uppermost level of the saturated zone extending vertically to the lowest depth that could potentially be affected by the Site. The point of compliance for the indoor air exposure pathway is all occupied spaces within buildings overlying contamination, including the Morell's building and the Northern Building.

5.5 Terrestrial Ecological Evaluation

Under MTCA, a TEE is required for sites with releases of hazardous substances to soil, unless the site meets one or more exclusions. Aspect completed Ecology's TEE Form, included in Appendix F. TEE exclusion is based on the following Undeveloped Land criteria in WAC 173-340-7491(b) under MTCA:

- For Sites not containing any of the chemicals mentioned above, there is less than 1.5-acres of contiguous undeveloped land on or within 500 feet of any area of the Site.

The Site and all adjacent properties are all developed. Wright Park is the nearest undeveloped land and only a small portion of it is within 500 feet of the Site.

6 Data Gaps

The following data gaps are identified for the Site and serve as the basis of Work Plan activities.

1) **Delineation of IHSs in Soil.** The lateral extents of off-Property contamination to the west and north of the Morell's Building is unknown. While many well installations have occurred in the City of Tacoma rights-of-way in Tacoma Ave and N First Street (MW-3, MW-4, MW-6, MW-9, MW-10, MW-12D, MW-13D, MW-14D) none of them have discrete soil data.

2) **Delineation of IHSs in Groundwater.** The lateral extent of off-Property impacts to the deeper water-bearing zone to the northwest of the source area remains unknown. While groundwater data exists to the north of the source area (from MW-12D and MW-13D) and to the west of the source area (from MW-14D), groundwater quality to the northwest is unknown, which is the regional interpretation of groundwater flow direction (Figure 4). Additional temporal groundwater quality data is also needed from both the advance outwash groundwater and the deeper water-bearing zones to assess the statistical significance and rate of advance outwash groundwater natural attenuation.

3) **Evaluation of Off-Property Vapor Intrusion Risk.** The ROI of the original SVE configuration can be conservatively estimated at at-least 30 feet, as the distance between VP-7 to the south (which exhibited negative pressure during SVE operation) and the nearest SVE well (VE-4). Based on that radius, reflected north, the southern portion of the Northern Building is also within the SVE radius of influence. The expanded SVE configuration is presumed to increase the area of SVE influence both further north and further south due to the addition of VE-6 though VE-8 and MW-23. Soil gas data has never been collected beneath the Northern Building. The radius of influence of the expanded SVE system has also not been directly measured, and protection of the Northern Building by the SVE system has not been confirmed.

   While the Further Action Opinion Letter (Ecology, 2021a) also identified indoor air quality in the Morell's building as a Data Gap, indoor air sampling of an active dry cleaner is not an accurate measure of vapor intrusion risk (or completion of the soil and groundwater to vapor inhalation pathway) because the source of contamination may be the building itself. Protection of the Morell's building from contaminants in soil and groundwater is attained by subslab depressurization induced by the SVE system (Appendix D and E).

Work Plan activities to address the identified data gaps are described in the following section.

7 Investigation Work Plan

The investigation scope below is intended to resolve Site characterization data gaps and consists of supplemental soil sampling, groundwater monitoring, soil vapor sampling, and an SVE ROI evaluation.

All samples collected as part of this investigation will be submitted to a Washington State-accredited laboratory. Samples will be collected in laboratory-provided containers and handled under chain-of-custody control.

7.1 Soil Investigation

One soil boring will be advanced into the Olympia bed interglacial deposits and soil samples collected for analysis to address Data Gap #1. The preliminary boring location is shown on Figure 9 as MW-15D. MW-15D is located at the intersection of Tacoma Avenue and North First Street with the objective of being hydraulically downgradient of the source area; the location of MW-15D is the result of a matrix of utilities in the intersection and is subject to City of Tacoma permit review.

7.1.1 Drilling

Aspect will subcontract a Washington State-licensed driller to advance these boring locations. Hollow stem auger drilling technology has been selected for this investigation as it can attain the required depth while not inducing heat or vibration into the subsurface. MW-15D will be drilled vertically with the goal of intersecting the deeper water-bearing zone, which is estimated to be 140 feet bgs.

7.1.2 Soil Sampling / Analysis

All soil will be screened at 2.5-foot intervals using visual, olfactory, and photoionization detector (PID) headspace vapor filed screening techniques. The PID will be calibrated daily in the field using the manufacturer's calibration standard (100 parts per million [ppm] isobutylene gas). Soil samples will be collected from any interval that illicit a PID response; of those, up to six samples will be selected for analysis based on field screening results. Should no PID response occur, six samples will be collected and analyzed, two from each of the geologic units: glacial till, advance outwash, and Olympia bed interglacial deposits. All soil samples submitted for laboratory analysis will be analyzed for chlorinated VOCs via method U.S. Environmental Protection Agency (EPA) 8260C and will be collected in accordance with EPA Method 5035A. The soil aliquot for these analyses will be collected using a laboratory-supplied modified disposable plastic syringe as required by the EPA Method 5035A and placed in preweighed laboratory-supplied vials.

7.1.3 Well Construction

Each boring will be constructed as a monitoring well in accordance with WAC 173-160. Monitoring wells will be constructed with 2-inch diameter threaded Schedule 40 polyvinyl chloride (PVC) slotted screen. Well will be constructed of 0.020-inch (20-slot) screen and the planned length is 15 feet with an artificial filter pack of 12/20 silica sand and an annular seal of hydrated bentonite chips will be placed above the filter pack.

A concrete surface seal will be set at grade for the new monitoring well. A lockable Thermos-type cap will be installed at the top of the PVC well casing. The finished monitoring wells will be protected with a steel flush-mount monument embedded in the concrete surface seal. An Aspect field geologist will oversee and document installation of each boring and monitoring well, including completion of an As-Built Well Completion Diagram.

7.2 Groundwater Sampling

Groundwater sampling of both new and a selection of the existing monitoring wells will be conducted to address Data Gap #2.

- New Well: MW-15D
- **Existing Monitoring Wells:** MW-5, MW-8D, MW-12D, MW-13D, MW-14D, MW-17, MW-21, MW-24, MW-25, MW-28, MW-31, MW-32, and MW-33.

Groundwater monitoring will occur after installation and development of the new deep groundwater monitoring well. A total of fourteen locations will be sampled during the groundwater monitoring event. Due to the depth of the water table below ground surface, bladder pump sampling is required. Monitoring wells to be sampled as part of the data gaps investigation are shown on Figure 9.

Each sample location will be submitted for analysis of chlorinated VOCs via EPA Method 8260C as a metric of groundwater quality. Nitrate, nitrite, and sulfate by EPA Method 300.0, total iron by EPA Method 6020B, and total organic carbon by SM 5310C will also be analyzed for as a metric of natural attenuation potential. Samples will also be tested for dissolved oxygen, oxidation-reduction potential (ORP), and pH using a field meter.

7.3 Vapor Intrusion Investigation

Two possible approaches to evaluating vapor intrusion risk may be implemented to address Data Gap #3. The preferred option is to install permanent vapor points in the City of Tacoma rights-of way along Tacoma Avenue and North First Street. The contingency option, in the event that the City of Tacoma requires an inhibitory level of permitting ($10,000 bond) for each vapor point, will be to investigate the SVE ROI and the soil gas quality in the Morell's Parking Lot Parcel via temporary vapor points. Both Permanent and temporary vapor points would be installed via the Vapor Pin® Standard Operating Procedure (Appendix G).

7.3.1 Permanent Vapor Point Installation

The proposed permanent vapor points VP-8 and VP-9 will be used to bound the area of vapor intrusion risk to the west and north during SVE operation. The points would be installed in the City of Tacoma sidewalk and sampled for Site air COPCs via EPA Method TO-15 with the SVE system in operation. VP-8 is proposed to the west of the Morell's Building and VP-9 is proposed to the north of the Northern building. The permanent vapor points be used to delineate the SVE system's ROI in the north and west directions by measuring the presence or absence of SVE induced subslab

depressurization.[20] Permanent points could also be used to monitor for rebound soil gas concentrations if the SVE system were to be turned off in the future.

7.3.2 Contingency Temporary Vapor Point Installation

Should the contingency temporary vapor point option be necessary, the points would be installed in the Morell's and Parking Lot Parcel to measure the SVE system's ROI to the east. The proposed temporary vapor points are shown on Figure 9 as VP-8B, VP-9B, and VP-10B; VP-8B would be installed first and the others would be adjusted towards (west) or away (east) from the SVE system based on vacuum measured at the first (VP-8B). For example, if temporary vapor point VP-8B did not have measurable vacuum, the remaining points would be installed towards the SVE system (west). The measure of SVE influence would then be applied to the north and west directions to assess the protection of vapor intrusion in the Northern Building. No soil gas sampling is proposed should contingency temporary vapor point installation be the selected option.

7.4 IDW Management

Boring and well installation will generate soil and water to be managed as investigation-derived waste (IDW) in accordance with Ecology Dangerous Waste regulations (Chapter 173-303 WAC). An estimated eight (8) 55-gallon drums will be necessary to contain the soil IDW from the groundwater monitoring wells including soil, development, and sampling purge water.

An Aspect subcontractor will profile the soil and water IDW, coordinate transportation and off-Site disposal, and provide waste manifests. It is assumed that all IDW will be temporarily stored on the Morell's Building parcel prior to off-Site disposal.

[20] The metric for adequate subslab depressurization is 0.005 inches water column.

Schedule and Reporting

Aspect and the Property owner are working with urgency to continue investigation activities at the Site. All activities in this Work Plan are proposed to occur in the summer of 2021.

The results of Work Plan activities, and an updated evaluation of cleanup alternatives for the Site, will be summarized in a Sitewide Remedial Investigation and Feasibility Study (Sitewide RI/FS). The Sitewide RI/FS is proposed to be completed in the fourth quarter of 2021.

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Limitations

Work for this project was performed for D.E. Wickham, Successor to Walker Chevrolet (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

Please refer to Appendix H titled "Report Limitations and Guidelines for Use" for additional information governing the use of this report.

TABLES

Table 1. Soil - Indicator Hazardous Substance Evaluation

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Number of Samples (excluding Field Dups)	Number of Samples with Detected Concentration	Frequency of Detection	Maxumim Detected Concentration	Units	Screening Level	Number of Samples with Screening Level Exceedance	Frquency of Detected Exceedance	Max Exceedance Factor [1]
BTEX									
Benzene	73		0%			0.03		0%	--
Toluene	73		0%			7		0%	--
Ethylbenzene	73		0%			6		0%	--
Total Xylenes	1	1	100%	0.16	mg/kg	9		0%	--
Metals									
Arsenic	2	2	100%	2.84	mg/kg	20		0%	--
Barium	2	2	100%	39.6	mg/kg	16000		0%	--
Cadmium	2		0%			2		0%	--
Chromium	2	2	100%	16.5	mg/kg			0%	No CUL
Lead	10	10	100%	2.81	mg/kg	250		0%	--
Mercury	2		0%			2		0%	--
Selenium	2		0%			400		0%	--
Silver	2		0%			400		0%	--
PAHs									
Naphthalene	73	4	5%	28	mg/kg	5	1	1%	5.6
VOCs									
1,1,1,2-Tetrachloroethane	72		0%			38		0%	--
1,1,1-Trichloroethane	72		0%			2		0%	--
1,1,2,2-Tetrachloroethane	72		0%			5		0%	--
1,1,2-Trichloroethane	72		0%			18		0%	--
1,1-Dichloroethane	72		0%			180		0%	--
1,1-Dichloroethene	73		0%			4000		0%	--
1,1-Dichloropropene	72		0%					0%	--
1,2,3-Trichlorobenzene	72		0%					0%	--
1,2,3-Trichloropropane	72		0%			0.0063		0%	--
1,2,4-Trichlorobenzene	72		0%			34		0%	--
1,2,4-Trimethylbenzene	73	8	11%	76	mg/kg	800		0%	--
1,2-Dibromo-3-chloropropane	72		0%			1.3		0%	--
1,2-Dibromoethane (EDB)	72		0%			0.005		0%	--
1,2-Dichlorobenzene	72		0%			7200		0%	--
1,2-Dichloroethane (EDC)	72		0%			11		0%	--
1,2-Dichloropropane	72		0%			27		0%	--
1,3,5-Trimethylbenzene	73	6	8%	26	mg/kg	800		0%	--
1,3-Dichlorobenzene	72		0%					0%	--
1,3-Dichloropropane	72		0%					0%	--
1,4-Dichlorobenzene	72		0%			190		0%	--
2,2-Dichloropropane	72		0%					0%	--
2-Butanone	72		0%			48000		0%	--
2-Chlorotoluene	72		0%			1600		0%	--
2-Hexanone	72		0%			400		0%	--
4-Chlorotoluene	72		0%					0%	--
4-Methyl-2-pentanone	72		0%			6400		0%	--
Acetone	72		0%			72000		0%	--
Bromobenzene	72		0%			640		0%	--
Bromodichloromethane	72		0%			16		0%	--
Bromoform	72		0%			130		0%	--
Bromomethane	72		0%			110		0%	--
Carbon Tetrachloride	73		0%			14		0%	--
Chlorobenzene	72		0%			1600		0%	--
Chloroethane	73		0%					0%	--
Chloroform	73	3	4%	0.15	mg/kg	32		0%	--
Chloromethane	72		0%					0%	--
cis-1,2-Dichloroethene (cDCE)	73	6	8%	0.34	mg/kg	160		0%	--
cis-1,3-Dichloropropene	72		0%					0%	--
Dibromochloromethane	72		0%			12		0%	--
Dibromomethane	72		0%			800		0%	--
Dichlorodifluoromethane	72		0%			16000		0%	--
Isopropylbenzene	72	3	4%	0.43	mg/kg	8000		0%	--
m,p-Xylenes	72	1	1%	0.51	mg/kg	16000		0%	--
Methyl tert-butyl ether (MTBE)	72		0%			0.1		0%	--
Methylene Chloride	73	3	4%	1.4	mg/kg	0.02	3	4%	70
n-Hexane	43		0%			4800		0%	--
n-Propylbenzene	72	3	4%	1.6	mg/kg	8000		0%	--
o-Xylene	72	1	1%	0.65	mg/kg	16000		0%	--
p-Isopropyltoluene	73	8	11%	12	mg/kg			0%	No CUL
sec-Butylbenzene	73	9	12%	1.8	mg/kg	8000		0%	--
Styrene	72		0%			16000		0%	--
tert-Butylbenzene	73	3	4%	0.43	mg/kg	8000		0%	--
Tetrachloroethene (PCE)	73	34	47%	120	mg/kg	0.05	28	38%	2400
trans-1,2-Dichloroethene	73		0%			1600		0%	--
trans-1,3-Dichloropropene	72		0%					0%	--
Trichloroethene (TCE)	73	8	11%	1.5	mg/kg	0.03	7	10%	50
Trichlorofluoromethane	72		0%			24000		0%	--
Vinyl Chloride	73		0%			0.67		0%	--

Notes:

Orange Shading indicates chemical selected as Indicator Hazardous Substance (IHS).

Blue Shading indicates chemical was a Contaminant of Possible Concern (COPC), not retained as IHS.

1) Max Exceedance Factor = Maximum Detected / Screening Level (SL)

2) Methylene chloride was due to laboratory contamination and is not listed as a COPC for the Site.

Table 2. Water - Indicator Hazardous Substance Evaluation

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Number of Samples	Number of Samples with Detected Concentration	Frequency of Detection	Maxumim Detected Concentration	Units	Screening Level	Number of Screening Level Exceedances	Frequency of Detected Exceedance	Max Exceedance Factor[1]
BTEX									
Benzene	86	1	1%	1.1	ug/L	5		0%	--
Toluene	80		0%			1000		0%	--
Ethylbenzene	80		0%			700		0%	--
Metals									
Iron	63	63	100%	294000	ug/L	11000	30	48%	26.7
Lead	10	2	20%	5.8	ug/L	15		0%	--
PAHs									
Naphthalene	80	3	4%	2	ug/L	160		0%	--
VOCs									
1,1,1,2-Tetrachloroethane	80		0%			1.7		0%	--
1,1,1-Trichloroethane	159		0%			200		0%	--
1,1,2,2-Tetrachloroethane	80		0%			0.22		0%	--
1,1,2-Trichloroethane	80		0%			0.77		0%	--
1,1,2-Trichlorotrifluoroethane	3		0%			240000		0%	--
1,1-Dichloroethane	159		0%			7.7		0%	--
1,1-Dichloroethene	159	17	11%	10	ug/L	400		0%	--
1,1-Dichloropropene	80		0%					0%	No SL
1,2,3-Trichlorobenzene	80		0%					0%	No SL
1,2,3-Trichloropropane	80		0%			0.00038		0%	--
1,2,4-Trichlorobenzene	80		0%			1.5		0%	--
1,2,4-Trimethylbenzene	80		0%			80		0%	--
1,2-Dibromo-3-chloropropane	80		0%			0.055		0%	--
1,2-Dibromoethane (EDB)	80		0%			0.01		0%	--
1,2-Dichlorobenzene	80		0%			720		0%	--
1,2-Dichloroethane (EDC)	159		0%					0%	No SL
1,2-Dichloropropane	80		0%			1.2		0%	--
1,3,5-Trimethylbenzene	80		0%			80		0%	--
1,3-Dichlorobenzene	80		0%					0%	No SL
1,3-Dichloropropane	80		0%					0%	No SL
1,4-Dichloro-2-Butene	3		0%					0%	No SL
1,4-Dichlorobenzene	80		0%			8.1		0%	--
2,2-Dichloropropane	80		0%					0%	No SL
2-Butanone	80	9	11%	500	ug/L	4800		0%	--
2-Chloroethyl Vinyl Ether	3		0%					0%	--
2-Chlorotoluene	80		0%			160		0%	--
2-Hexanone	80	11	14%	120	ug/L	40	4	5%	3
4-Chlorotoluene	80		0%					0%	No SL
4-Methyl-2-pentanone	80	1	1%	15	ug/L	640		0%	--
Acetone	80	14	18%	320	ug/L	7200		0%	--
Acrolein	3		0%			4		0%	--
Acrylonitrile	3		0%			0.081		0%	--
Bromobenzene	80		0%			64		0%	--
Bromochloromethane	3		0%					0%	No SL
Bromodichloromethane	80		0%			7.06		0%	--
Bromoethane	3		0%					0%	No SL
Bromoform	80		0%			5.5		0%	--
Bromomethane	80		0%			11		0%	--
Carbon Disulfide	3		0%			800		0%	--
Carbon Tetrachloride	87	23	26%	7	ug/L	5	1	1%	1.4
Chlorobenzene	80		0%			160		0%	--
Chloroethane	166	1	1%	8.1	ug/L			0%	No SL
Chloroform	87	29	33%	5	ug/L	14.1		0%	--
Chloromethane	80	1	1%	15	ug/L			0%	No SL
cis-1,2-Dichloroethene (cDCE)	166	146	88%	7100	ug/L	16	96	58%	443.75
cis-1,3-Dichloropropene	80		0%					0%	No SL
Dibromochloromethane	80		0%			0.52		0%	--
Dibromomethane	80		0%			80		0%	--
Dichlorodifluoromethane	77		0%			1600		0%	--
Isopropylbenzene	80		0%			800		0%	--
m,p-Xylenes	80		0%			1600		0%	--
Methyl tert-butyl ether (MTBE)	73		0%			20		0%	--
Methylene Chloride	159	5	3%	6.2	ug/L	5	5	3%	1.24
Methyliodide	3		0%					0%	No SL
n-Butylbenzene	3		0%			400		0%	--
n-Hexane	30		0%			480		0%	--
n-Propylbenzene	80		0%			800		0%	--
o-Xylene	80		0%			1600		0%	--
p-Isopropyltoluene	80		0%					0%	No SL
sec-Butylbenzene	80		0%			800		0%	--
Styrene	75		0%			1600		0%	--
tert-Butylbenzene	80		0%			800		0%	--
Tetrachloroethene (PCE)	166	135	81%	2900	ug/L	5	111	67%	580
trans-1,2-Dichloroethene	166	18	11%	7.6	ug/L	160		0%	--
trans-1,3-Dichloropropene	80		0%					0%	No SL
Trichloroethene (TCE)	165	119	72%	1100	ug/L	5	63	38%	220
Trichlorofluoromethane	80		0%			2400		0%	--
Vinyl Acetate	3		0%			8000		0%	--
Vinyl Chloride	166	57	34%	19	ug/L	0.292	57	34%	65

Notes:

Orange Shading indicates chemical selected as Indicator Hazardous Substance (IHS).

Blue Shading indicates chemical was a Contaminant of Possible Concern, not retained as IHS.

1) Max Exceedance Factor = Maximum Detected / Screening Level (SL)

Table 3. Soil Gas - Indicator Hazardous Substance Evaluation

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Number of Samples	Number of Samples with Detected Concentration	Frequency of Detection	Maxumim Detected Concentration	Units	Screening Level	Number of Samples Exceeding Screening Level	Frequency of Detected Exceedance	Max Exceedance Factor[1]
(None)									
Acetaldehyde	4	1	25%	16	ug/m3	38		0%	--
APH									
C5 - C8 Aliphatic Hydrocarbons	4	4	100%	5600	ug/m3			0%	No SL
C9 - C12 Aliphatic Hydrocarbons	4	4	100%	3600	ug/m3			0%	No SL
C9 - C10 Aromatic Hydrocarbons	4		0%					0%	--
BTEX									
Benzene	15	3	20%	1300	ug/m3	11	1	7%	118
Toluene	15	9	60%	2600	ug/m3	76000		0%	--
Ethylbenzene	15	5	33%	1700	ug/m3	15000		0%	--
Total Xylenes	11	9	82%	4600	ug/m3	1500	1	9%	3
Other SVOCs									
1,4-Dioxane	6		0%					0%	--
Hexachlorobutadiene	10		0%			3.8		0%	--
PAHs									
Naphthalene	11	4	36%	3	ug/m3	2.5	2	18%	1.2
VOCs									
1,1,1,2-Tetrachloroethane	4		0%			11		0%	--
1,1,1-Trichloroethane	12		0%			76000		0%	--
1,1,2,2-Tetrachloroethane	12		0%			1.4		0%	--
1,1,2-Trichloroethane	12		0%			3		0%	--
1,1,2-Trichlorotrifluoroethane	6		0%			76000		0%	--
1,1-Dichloroethane	12		0%			52		0%	--
1,1-Dichloroethene	12		0%			3000		0%	--
1,1-Dichloropropene	4		0%					0%	No SL
1,2,3-Trichlorobenzene	4		0%					0%	No SL
1,2,3-Trichloropropane	4		0%					0%	No SL
1,2,3-Trimethylbenzene	4		0%					0%	No SL
1,2,4-Trichlorobenzene	10	1	10%	0.75	ug/m3	30		0%	--
1,2,4-Trimethylbenzene	10	3	30%	3.8	ug/m3	910		0%	--
1,2-Dibromo-3-chloropropane	4		0%					0%	No SL
1,2-Dibromoethane (EDB)	12		0%			0.14		0%	--
1,2-Dichlorobenzene	10		0%			3000		0%	--
1,2-Dichloroethane (EDC)	12		0%			3.2		0%	--
1,2-Dichloropropane	10		0%			23		0%	--
1,3,5-Trimethylbenzene	10		0%					0%	No SL
1,3-Dichlorobenzene	10		0%					0%	No SL
1,3-Dichloropropane	4		0%					0%	No SL
1,4-Dichlorobenzene	12		0%			7.6		0%	--
1-Propene	4	3	75%	10	ug/m3			0%	No SL
2,2-Dichloropropane	4		0%					0%	No SL
2-Butanone	10	1	10%	5.3	ug/m3	76000		0%	--
2-Chlorotoluene	4		0%					0%	No SL
2-Hexanone	10		0%					0%	No SL
2-Pentanone	4		0%					0%	No SL
3-Hexanone	4		0%					0%	No SL
3-Pentanone	4		0%					0%	No SL
4-Chlorotoluene	4		0%					0%	No SL
4-Methyl-2-pentanone	10	2	20%	17	ug/m3	46000		0%	--
Acetone	10	5	50%	1000	ug/m3			0%	No SL
Acetonitrile	4		0%			910		0%	--
Acrolein	4	1	25%	5.9	ug/m3	0.3	1	25%	20
Acrylonitrile	8		0%			1.2		0%	--
Allyl Chloride	2		0%					0%	No SL
Bromobenzene	4		0%			910		0%	--
Bromochloromethane	4		0%					0%	No SL
Bromodichloromethane	10		0%			2.3		0%	--
Bromoform	10		0%			76		0%	--
Bromomethane	10		0%			76		0%	--
Butyraldehyde	4		0%					0%	No SL
Carbon Disulfide	6		0%			11000		0%	--
Carbon Tetrachloride	12		0%			14		0%	--
Chlorobenzene	10		0%			760		0%	--
Chlorodifluoromethane	4	2	50%	1.5	ug/m3	760000		0%	--
Chloroethane	12		0%			150000		0%	--
Chloroform	12	2	17%	18	ug/m3	3.6	1	8%	5
Chloromethane	12	1	8%	0.36	ug/m3	1400		0%	--
cis-1,2-Dichloroethene (cDCE)	15	5	33%	8.6	ug/m3			0%	No SL
cis-1,3-Dichloropropene	10		0%					0%	No SL
Cyclohexane	6	2	33%	150	ug/m3			0%	No SL
Cyclopentane	4	2	50%	5.3	ug/m3			0%	No SL
Dibromochloromethane	10		0%					0%	No SL
Dibromomethane	4		0%					0%	No SL
Dichlorodifluoromethane	12	3	25%	2.3	ug/m3	1500		0%	--
Ethanol	5	3	60%	31	ug/m3			0%	No SL
Hexaldehyde	4	1	25%	7.6	ug/m3			0%	No SL
Isobutylene	4	2	50%	6.3	ug/m3			0%	No SL
Isoprene	4		0%					0%	No SL
Isopropyl Alcohol	6	2	33%	63	ug/m3			0%	No SL
Isopropylbenzene	6	1	17%	9.4	ug/m3	6100		0%	--
m,p-Xylenes	15	10	67%	3400	ug/m3	1500	1	7%	2
Methacrolein	4		0%					0%	No SL
Methyl tert-butyl ether (MTBE)	12		0%			320		0%	--
Methyl vinyl ketone	4		0%					0%	No SL
Methylene Chloride	10	3	30%	150	ug/m3	2200		0%	--
Methyliodide	4		0%					0%	No SL
Methysticin	4		0%					0%	No SL
n-Butyl alcohol	4	1	25%	12	ug/m3			0%	No SL
n-Butylbenzene	4		0%					0%	No SL
n-Hexane	6	2	33%	89	ug/m3	11000		0%	--
n-Propylbenzene	6		0%					0%	No SL

Table 3. Soil Gas - Indicator Hazardous Substance Evaluation

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Number of Samples	Number of Samples with Detected Concentration	Frequency of Detection	Maxumim Detected Concentration	Units	Screening Level	Number of Samples Exceeding Screening Level	Frequency of Detected Exceedance	Max Exceedance Factor[1]
o-Xylene	15	9	60%	1200	ug/m3	1500		0%	--
Pentane	4	2	50%	6.7	ug/m3			0%	No SL
p-Isopropyltoluene	4		0%					0%	No SL
sec-Butylbenzene	4		0%					0%	No SL
Styrene	10	3	30%	3.5	ug/m3	15000		0%	--
tert-Butylbenzene	4		0%					0%	No SL
Tetrachloroethene (PCE)	15	14	93%	680000	ug/m3	320	10	67%	2125
Tetrahydrofuran	2		0%					0%	No SL
trans-1,2-Dichloroethene	15	2	13%	2.7	ug/m3			0%	No SL
trans-1,3-Dichloropropene	10		0%					0%	No SL
Trichloroethene (TCE)	15	10	67%	5100	ug/m3	11	6	40%	464
Trichlorofluoromethane	10	3	30%	1.2	ug/m3	11000		0%	--
Vinyl Acetate	4	1	25%	52	ug/m3	3000		0%	--
Vinyl Chloride	15		0%			9.5		0%	--
1,3-Butadiene	6		0%			2.8		0%	--
2,2,4-Trimethylpentane	2		0%					0%	No SL
4-Ethyltoluene	2	1	50%	2.6	ug/m3			0%	No SL
alpha-Chlorotoluene	6		0%			1.7		0%	--
Freon 114	8		0%					0%	No SL
Heptane	2		0%					0%	No SL

Notes:

Orange Shading indicates chemical selected as Indicator Hazardous Substance (IHS).

Blue Shading indicates chemical was a Contaminant of Possible Concern, not retained as IHS.

1) Max Exceedance Factor = Maximum Detected / Screening Level (SL)

Table 4. Indoor Air - Indicator Hazardous Substance Evaluation

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Number of Samples	Number of Samples with Detected Concentration	Frequency of Detection	Maxumim Detected Concentration	Units	Screening Level	Number of Samples with Exceedance	Frequency of Detected Exceedance	Max Exceedance Factor[3]
BTEX									
Benzene	3	3	100%	2.2	ug/m3	0.32	1 [2]	33%	6.25 [2]
Toluene	3	3	100%	9	ug/m3	2300		0%	--
Ethylbenzene	3	3	100%	2.2	ug/m3	460		0%	--
Total Xylenes	3	3	100%	11.2	ug/m3	45.7		0%	--
PAHs									
Naphthalene	3		0%			0.073		0%	--
VOCs									
cis-1,2-Dichloroethene (cDCE)	3		0%					0%	--
m,p-Xylenes	3	3	100%	8.1	ug/m3	45.7		0%	--
o-Xylene	3	3	100%	3.1	ug/m3	45.7		0%	--
Tetrachloroethene (PCE)	3	3	100%	22	ug/m3	9.6	2	67%	2.29
trans-1,2-Dichloroethene	3		0%					0%	--
Trichloroethene (TCE)	3	2	67%	9	ug/m3	0.33	2	67%	27.27
Vinyl Chloride	3		0%			0.28		0%	--

Notes:

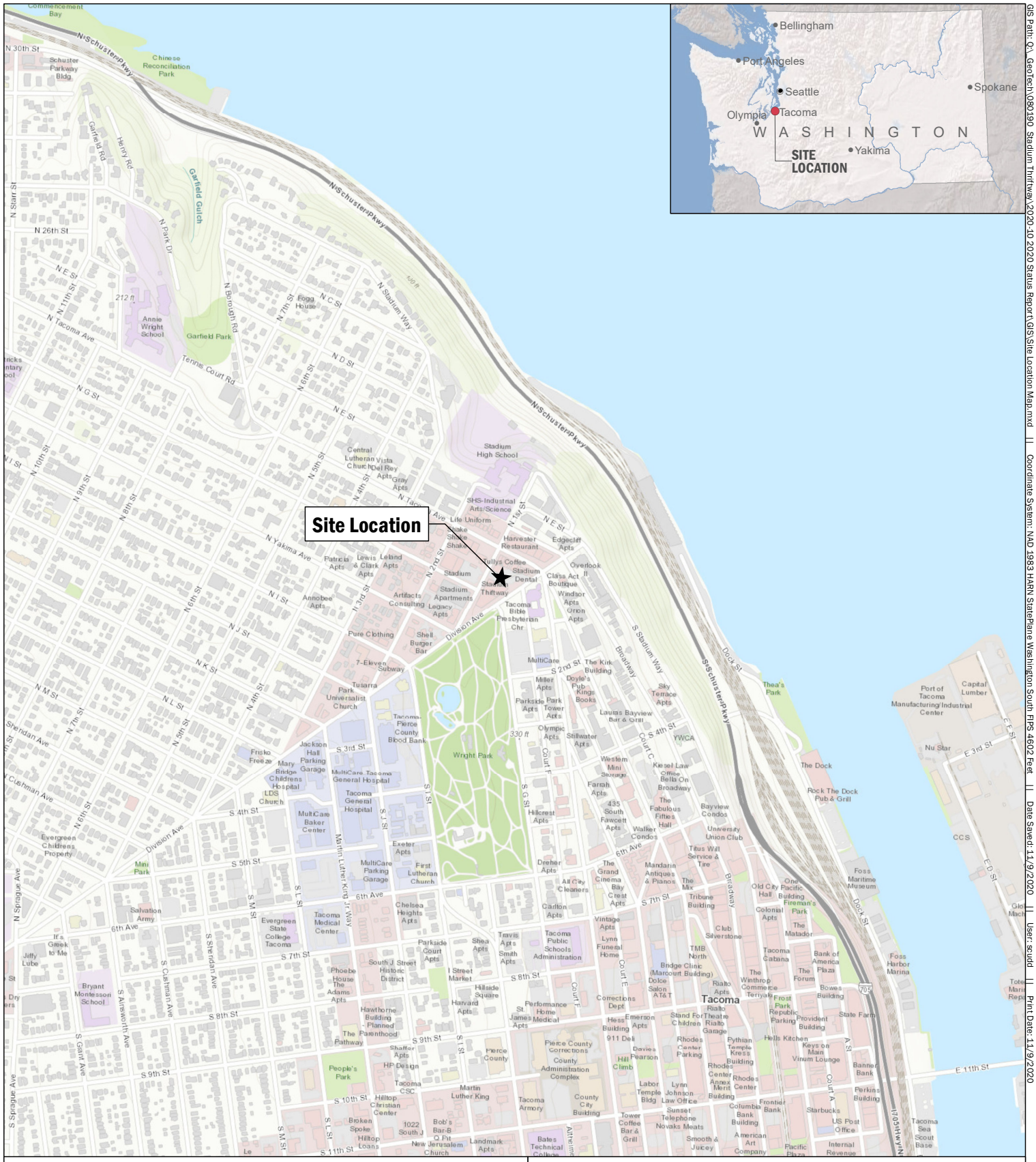
Orange shading indicates chemical retained as Indicator Hazardous Substance

1) Indoor Air analytical results corrected by subtracting background detected results from indoor air results.

2) This sample was the outdoor/backgdound sample. Benzene not retained as IHS.

3) Max Exceedance Factor = Maximum Detected / Screening Level (SL)

FIGURES



Site Location Map

Sitewide RI/FS Work Plan
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma,
Washington

Aspect CONSULTING	NOV-2020	BY: BMG/SCC	FIGURE NO. 1
	PROJECT NO. 080190	REV BY: SCC	

GIS Path: Q:_GeoTech\080190 Stadium Thriftway\2020-10 2020 Status Report\GIS\Site Location Map.mxd || Coordinate System: NAD 1983 HARN StatePlane Washington South FIPS 4602 Feet || Date Saved: 11/9/2020 || User: scudd || Print Date: 11/9/2020

4 THE BOYS COMPANY, LLC
T.P.N. 2030-12-0012
(NORTHERN BUILDING)

STADIUM, LLC
T.P.N. 2030-12-0013

T.P.N. 2030-12-0012

T.P.N. 2030-12-0013

ALLEY

NORTH FIRST STREET

MORRELL'S
DRY CLEANERS

TEASE
CHOCOLATES

MORRELL'S
BUILDING PARCEL
T.P.N. 2030-12-0031

MORRELL'S
PARKING LOT PARCEL
T.P.N. 2030-12-0033

FORMER WALKER CHEVROLET SITE
(VCP NO. SW1040)
T.P.N. 2030-12-0032

MW-21
MW-15
MW-31
MW-8
VE-5
VE-6
VE-SS
VE-1
MW-8D
MW-33
VE-3
VE-2
VE-4
MW-16
MW-30
VE-7
MW-17
MW-2
MW-18
MW-32
MW-14D
VE-8
MW-23
MW-29
MW-7
MW-25
MW-19
MW-35
MW-20
MW-24
MW-28
MW-34
MW-26
MW-27
MW-5

A
A'
B

OHP
SS
SD
W

0
20
40
Feet

LEGEND

- Blue Halo Indicates Injection of Biostimulants in June 2014
- Yellow Halo Indicates Remediation Injection in July 2019
- Horizontal Projection Screened Interval
- Existing Vertical Monitoring Well
- Existing Angled Monitoring Well Existing
- Angled SVE Well
- Existing Sub-Slab Suction Pit
- Estimated Extent of Groundwater in Advanced Outwash
- Parcel Bounday
- Property Boundary
- On-Property Parcel Boundary

REV.	DESCRIPTION	DATE	APPR.				

REVISED BY: BMG
DRAWN BY: SCC
DESIGNED BY: DAH
PROJECT NUMBER: 080190
REVISION: -
DATE: Jun-2021

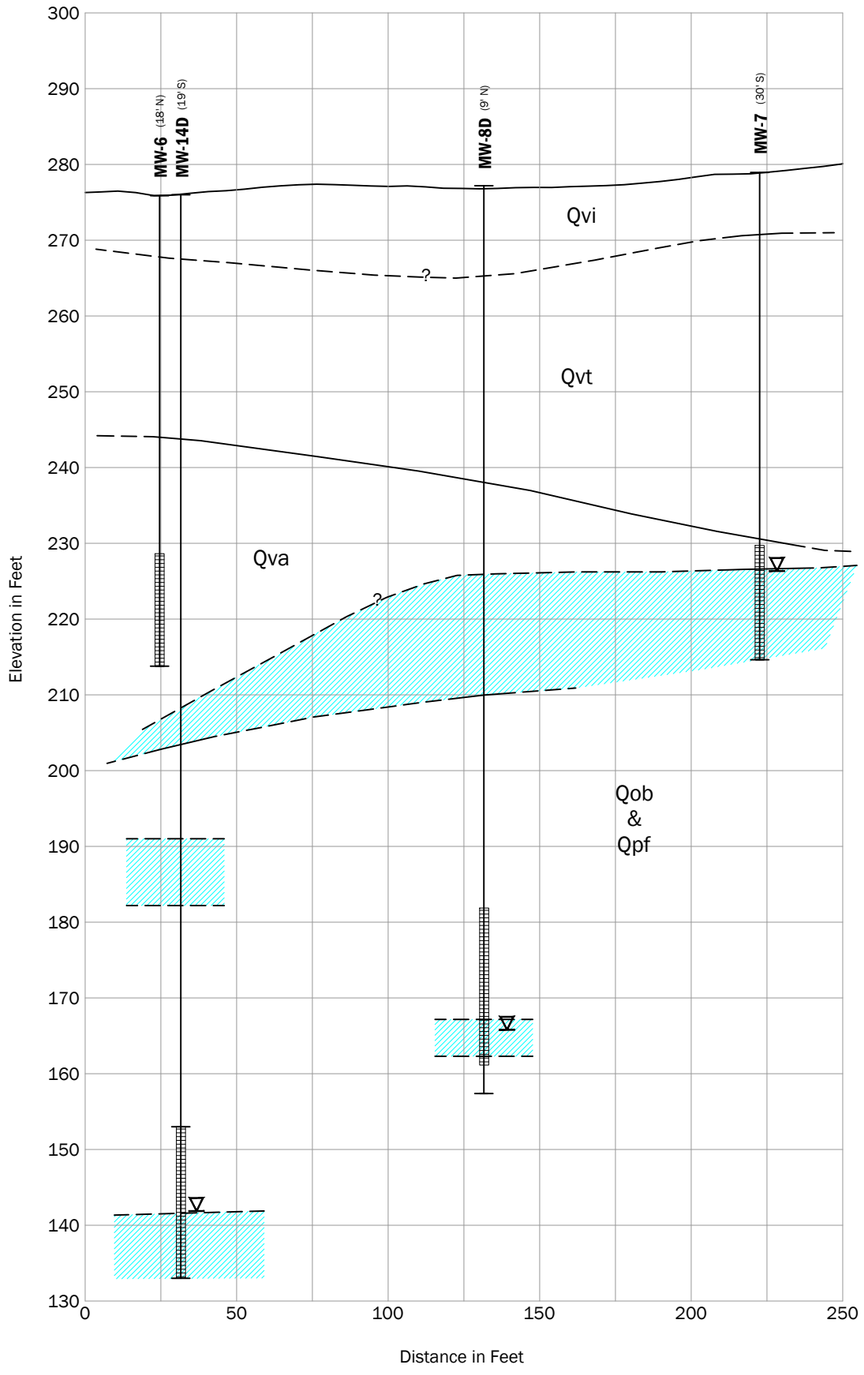
Aspect CONSULTING

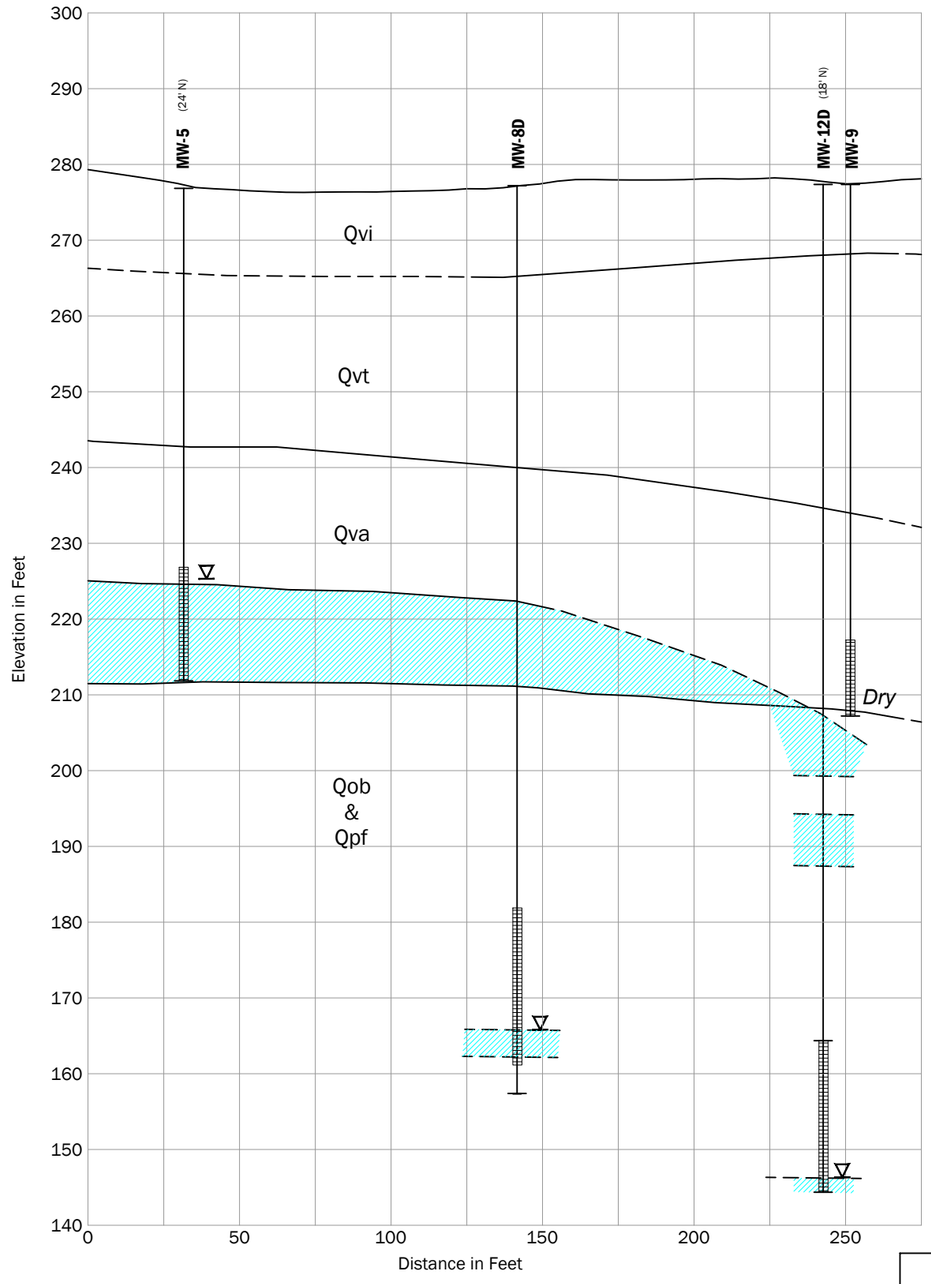
Site Plan
Sitewide RI Data Gaps Work Plan
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

FIGURE NO.

2

CAD Path: Q:_GeoTech\080190 Stadium Thriftway\2021-03 Data Gaps\080190-02 Site Plan with Wells and SVE v2.dwg 02 Site Plan | | Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet | | Date Saved: Jun 01, 2021 3:50pm | | User: tigner





LEGEND

MW-8 (45' NW) — Monitoring Well Location and Designation

Water Level (Dec 2010)

Screened Interval

Saturated Interval

Qvi - Vashon Stade Ice-Contact Deposits

Qvt - Vashon Stade Glacial-Till Deposits

Qva - Advance Outwash Deposits

Qob - Olympia Bed Interglacial Deposits

Qpf - Pre-Fraser Glacial and Interglacial Deposits

Horizontal Scale: 1" = 50'
Vertical Scale: 1" = 20'
Vertical Exaggeration 2.5x

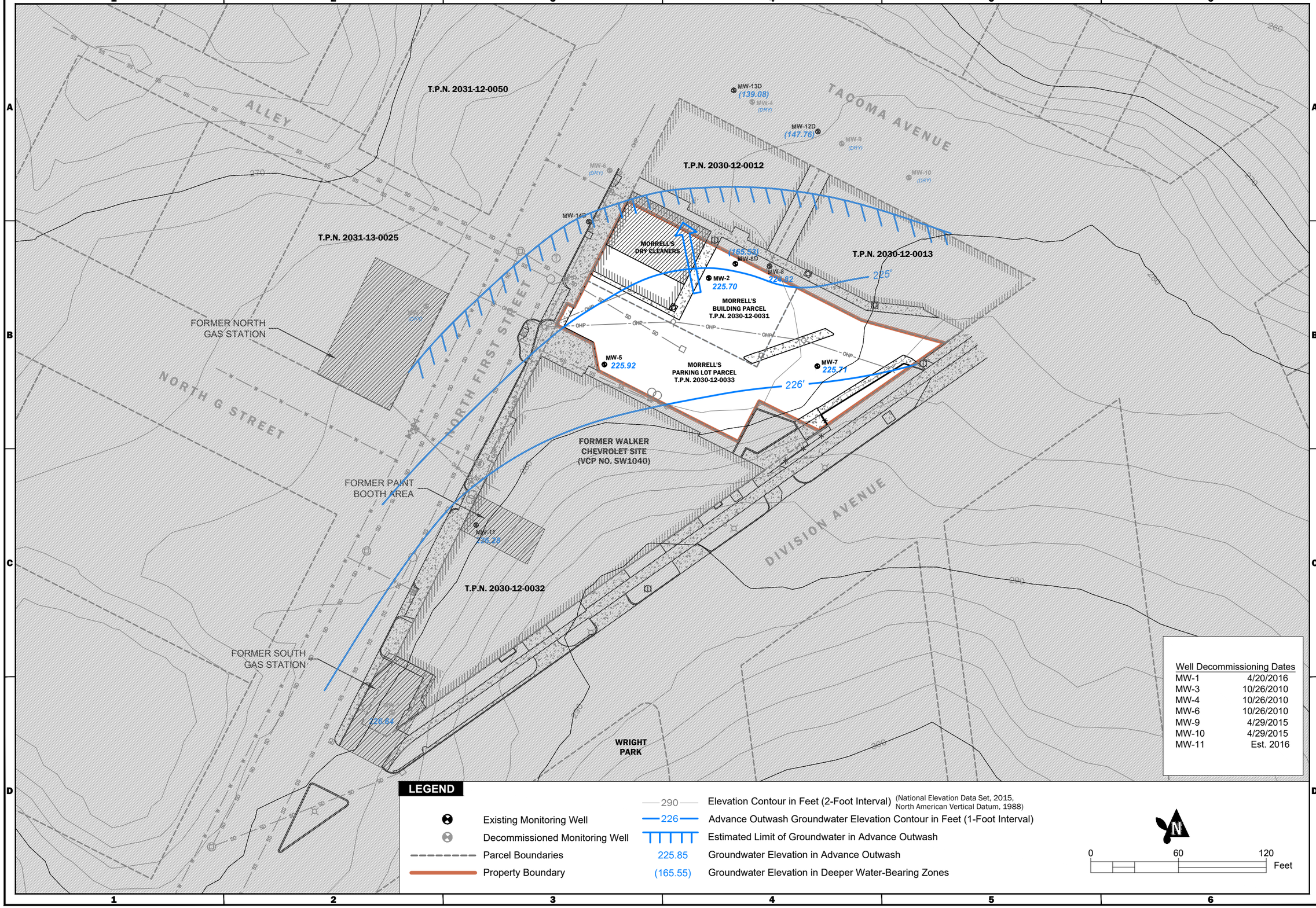
0 50 100 Feet

Cross Sections A-A' and B-B'

Sitewide RI/FS Work Plan
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

Aspect Consulting	Apr-2021	BY: BMG/SCC	FIGURE NO. 3
	PROJECT NO. 080190	REVISED BY: SCC	

CAD Path: Q:_GeoTech\080190 Stadium Thriftway\2021-03 Data Gaps\080190-AABB.dwg 03 Cross Sections A-A and B-B' || Date Saved: Apr 27, 2021 12:09pm || User: bgreer



Well Decommissioning Dates	
MW-1	4/20/2016
MW-3	10/26/2010
MW-4	10/26/2010
MW-6	10/26/2010
MW-9	4/29/2015
MW-10	4/29/2015
MW-11	Est. 2016

LEGEND

- Existing Monitoring Well
- Decommissioned Monitoring Well
- Parcel Boundaries
- Property Boundary
- 290 — Elevation Contour in Feet (2-Foot Interval) (National Elevation Data Set, 2015, North American Vertical Datum, 1988)
- 226 — Advance Outwash Groundwater Elevation Contour in Feet (1-Foot Interval)
- Estimated Limit of Groundwater in Advance Outwash
- 225.85 — Groundwater Elevation in Advance Outwash
- (165.55) — Groundwater Elevation in Deeper Water-Bearing Zones

N

0 60 120 Feet

Groundwater Elevations & Gradient Map in Advance Outwash-December 22, 2010

Sitewide RI/FS Work Plan
Morrell's Dry Cleaners (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

FIGURE NO.

4

Aspect CONSULTING

DATE	REVISION	PROJECT NUMBER	DESIGNED BY	DRAWN BY	REVISED BY
Apr-2021	-	080190	AN	SCC	SCC

DATE	DESCRIPTION	REV.	APPR.

CAD Path: Q:_GeoTech\080190 Stadium Thriftway 2021\03 Data\Gis\080190-04 GW Gradient Map.mxd 12-10 || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: Apr 27, 2021 12:07pm || User: tigner

T.P.N. 2030-12-0012

T.P.N. 2030-12-0013

ALLEY

NORTH FIRST STREET

MORRELL'S DRY CLEANERS

MORRELL'S BUILDING PARCEL
T.P.N. 2030-12-0031

MORRELL'S PARKING LOT PARCEL
T.P.N. 2030-12-0033

TEASE CHOCOLATES

DIVISION AVENUE

FORMER WALKER CHEVROLET SITE
(VCP NO. SW1040)
T.P.N. 2030-12-0032

TRENCH-BT-W 0.25 at 4.5 ft

TRENCH-BT-C 0.26 at 4.5 ft

TRENCH-BT-E 0.16 at 4.5 ft

DP-01 2.1 at 2 ft, 1.9 at 4 ft

DP-02 0.8 at 1 ft

DP-03 1.9 at 3 ft

DP-04 1.4 at 4 ft, 0.64 at 6 ft

DP-05

DP-07 3.1 at 2 ft, 35 at 3.5 ft

DP-08 7.3 at 24 ft

DP-09 120 at 15.5 ft, 1.4 at 6.7 ft

DP-10 0.24 at 5.5 ft

DP-11

DP-12 ND at 5.5 ft

DP-13 ND at 7 ft

DP-14 ND at 5 ft

DP-15

DP-16

DP-17

MW-2

MW-5

MW-7

MW-8

MW-8D

MW-14D

MW-15

MW-16

MW-17

MW-18

MW-19

MW-20

MW-21 0.63 at 11 ft, 44 at 15.5 ft, ND at 25 ft, ND at 45 ft, 0.095 at 55 ft

MW-23 0.40 at 10.5 ft, 0.045 at 20.5 ft, 2.3 at 25.5 ft, 0.095 at 55.5 ft

MW-24 ND at 5.5 ft, ND at 30.5 ft, ND at 50.5 ft

MW-25 ND at 5.5 ft, ND at 30.5 ft, ND at 50.5 ft

MW-26

MW-27

MW-28 0.038 at 30.5 ft, ND at 55.5 ft

MW-29 0.043 at 15 ft, 0.043 at 50 ft

MW-30 0.084 at 10.5 ft, 0.10 at 35.5 ft, 0.026 at 60.5 ft

MW-31 ND at 5.5 ft, ND at 40.5 ft, 0.058 at 55.5 ft, 0.058 at 60.5 ft

MW-32 ND at 15.5 ft, ND at 55.5 ft

MW-33 ND at 10 ft, ND at 55.5 ft

MW-34

MW-35

VE-1

VE-2

VE-3

VE-4

VE-5

VE-6

VE-7

VE-8

VE-SS

0 20 40 Feet

LEGEND

Horizontal Projection
Screened Interval

- Vertical Monitoring Well
- Angled Monitoring Well
- Angled SVE Well
- Sub-Slab Suction Pit
- Soil Sample Location

(Only detections and bounding non-detections are shown)

- SVE Conveyance Pipe
- Property Boundary
- On-Property Parcel Boundary
- Off-Property Parcel Bounday
- Estimated Extent of Soil with Cleanup Level Exceedances

PCE Concentration in mg/kg
(Purple Value Exceeds PCE Screening Level of 0.05 mg/kg)
(ND = Non-Detect; ND)

0.058 at 55.5 ft ← Depth Below Ground Surface in Feet

NO.	DESCRIPTION	DATE	APPR.
-	-	-	-

DESIGNED BY: DAH
DRAWN BY: SCC
REVISED BY: BMG

Aspect CONSULTING

PROJECT NUMBER: 080190
REVISION: -
DATE: Jun-2021

Estimated Extent of PCE Exceedances in Soil

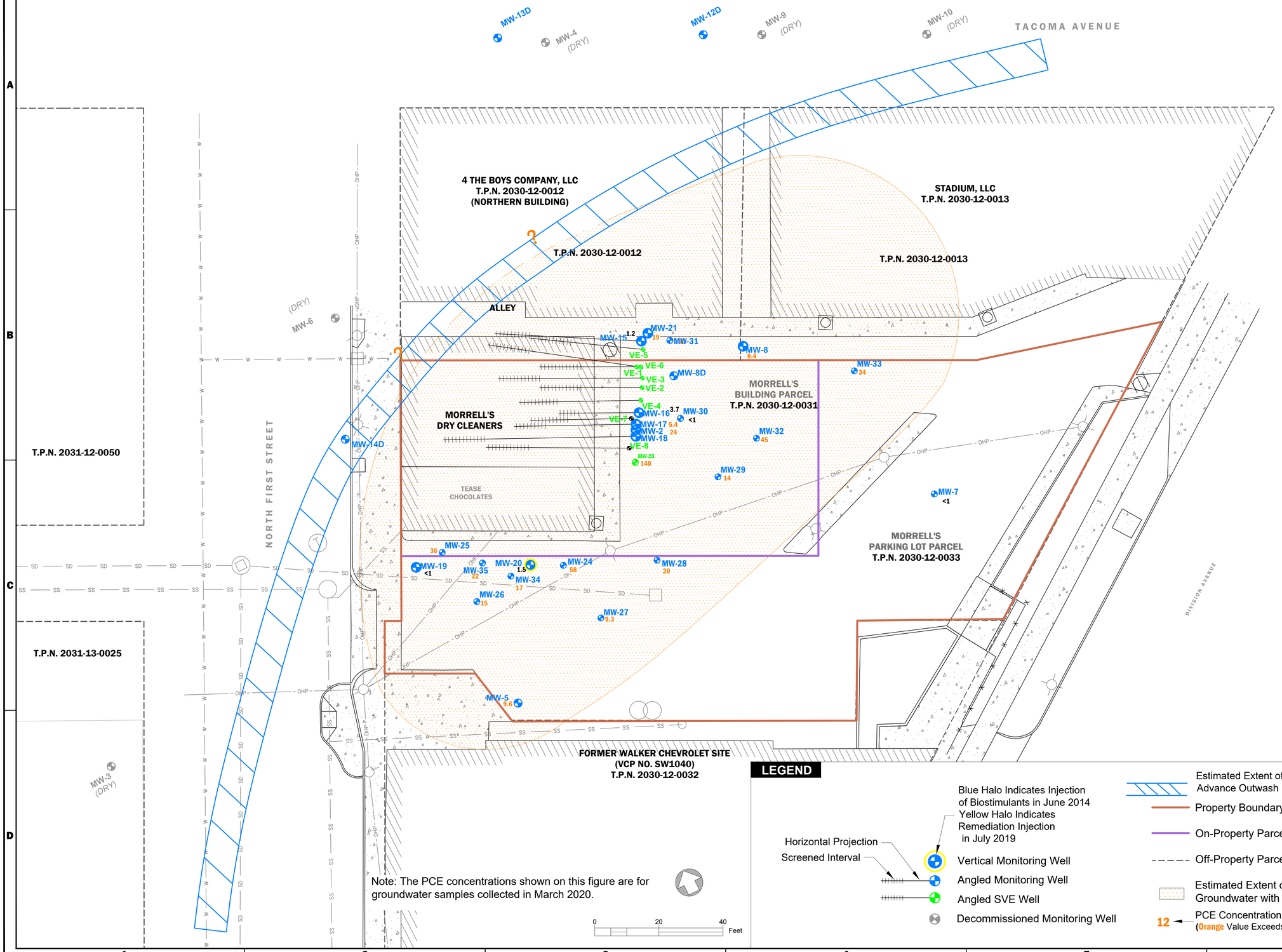
Sitewide RI Data Gaps Work Plan
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

FIGURE NO.

5

Date Saved: Jun 01, 2021 3:55pm | | User: tigheer

Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet | | CAD Path: Q:_GeoTech\080190 Stadium Thriftway\2021-03 Data Gaps\080190-02 Site Plan with Wells and SVE v2.dwg 05-PCE Soil



LEGEND

- Blue Halo Indicates Injection of Biostimulants in June 2014
- Yellow Halo Indicates Remediation Injection in July 2019
- Horizontal Projection
- Screened Interval
- Vertical Monitoring Well
- Angled Monitoring Well
- Angled SVE Well
- Decommissioned Monitoring Well
- Estimated Extent of Groundwater in Advance Outwash
- Property Boundary
- On-Property Parcel Boundary
- Off-Property Parcel Bounday
- Estimated Extent of Advance Outwash Groundwater with Cleanup Level Exceedances
- 12 PCE Concentration in µg/L (Orange Value Exceeds PCE Screening Level of **5 µg/L**)

Note: The PCE concentrations shown on this figure are for groundwater samples collected in March 2020.

Extent of PCE Exceedances in Advance Outwash Groundwater

Sitewide RI Data Gaps Work Plan
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

Aspect CONSULTING

DATE	REVISION:	PROJECT NUMBER:
Jun-2021	-	080190

DESIGNED BY: DAH
DRAWN BY: SCC
REVISED BY: BMG

FIGURE NO.

6

CAD Path: Q:_GeoTech\080190 Stadium Thriftway\2021-03 Data Gaps\080190-02 Site Plan with Wells and SVE v2.dwg 06-PCE GW || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: Jun 01, 2021 3:58pm || User: hgherr

T.P.N. 2030-12-0012
(Northern Building)

T.P.N. 2030-12-0013

ALLEY

SVE Blower

SVE Trench (VE-H)

VP-1

2/9/2012 Pre SVE
PCE 270

SV-2

1/21/2009 Pre SVE
PCE 6,500

VP-2

2/9/2012 Pre SVE
PCE 150,000

VP-3

2/9/2012 Pre SVE
PCE 380

VE-SS

VE-5

VE-6

VE-1

VE-3

VE-2

VE-4

VE-7

VE-8

MW-23

VP-4

10/14/2014 pre SVE
PCE 680,000
TCE 5,100
12/28/2016 with
VE-SS
PCE 16
TCE 8.8

MORRELL'S
DRY CLEANERS

MORRELL'S
BUILDING PARCEL
T.P.N. 2030-12-0031

VP-5

4/21/2015 pre VE-SS
PCE 2,800
TCE 110
12/28/2016 with
VE-SS
PCE 26
TCE 7.3

(Former Thriftway Office)

TEASE
CHOCOLATES

VP-7

10/14/2014 Pre SVE
PCE 3,200
TCE 140

VP-6

SV-4

1/21/2009 Pre SVE
PCE 200

SV-1

1/21/2009 Pre SVE
PCE (ND)

MORRELL'S
PARKING LOT PARCEL
T.P.N. 2030-12-0033

Notes:
Only Indicator Hazardous Substances, PCE and TCE analytical results are shown. ND indicates Non-Detect.
Intermittent sampling while adjusting VE-SS and VE-H are excluded (4/21/2015 and 9/7/2016).
Units are in micrograms per cubic meter.

0 20 40 Feet

LEGEND

- VP-5 — Active Sub-Slab Vapor Point
- VP-6 — Decommissioned Sub-Slab Vapor Point
  - VP - 2012 - 2016
  - SV- 2009
- Horizontal Projection
- Angled SVE Wells
- Sub-Slab Suction Pit
- SVE Conveyance Pipe - Original Configuration
- SVE Conveyance Pipe - Expanded Configuration
- Property Boundary
- On-Property Parcel Boundary
- Off-Property Parcel Boundary

NO.	DESCRIPTION	DATE	APPR.
-	-	-	-

REVISED BY: BMG
DRAWN BY: SCC
DESIGNED BY: DAH
PROJECT NUMBER: 080190
REVISION: -
DATE: Jun-2021

Aspect CONSULTING

Soil Vapor and Indoor Air Sample Locations

Sitewide RI Data Gaps Work Plan
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

FIGURE NO.

7

CAD Path: Q:_GeoTech\080190 Stadium Thriftway\2021-03 Data Gaps\080190-02-05-07-09 Site Plans.dwg 07-SV || User: tgreer
Date Saved: Jun 07, 2021 9:21am || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet

Plugged Vapor Sample Point VP-3

MW-21
MW-31
MW-15
VE-5
MW
See Detail 1/F7
VE-6
VE-1
VE-3
MW-8D
VE-2
VE-4
MW-16
VE-7
MW-30
MW-17
MW-2
MW-18
VE-8
MW-23
MW-29

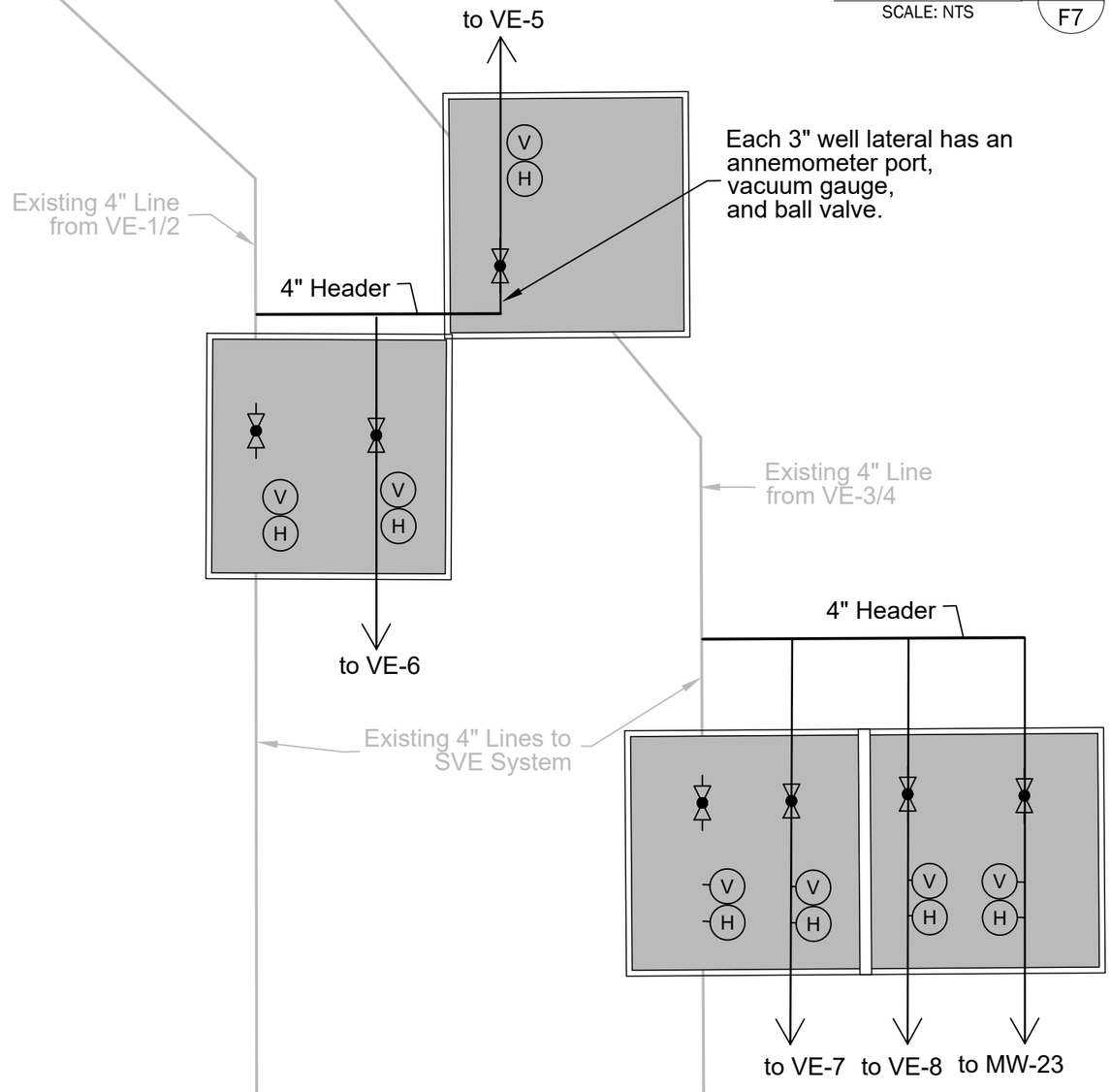
Approximate Asphalt Patch Extents

0 15 30 Feet

Shallow SVE Vault

SCALE: NTS

1/F7



LEGEND

- Vertical Monitoring Well, 2019 Installation
- Angled SVE Well, 2019 Installation
- Blue Halo Indicates Injection of Biostimulants in June 2014
- Yellow Halo Indicates Injection of Biostimulants in July 2019
- Horizontal Projection
- Screened Interval
- Pre-Existing Vertical Monitoring Well
- Pre-Existing Angled Monitoring Well
- Pre-Existing Angled SVE Well
- 2014 SVE Conveyance Pipe
- 2020 SVE Conveyance Pipe
- Parcel Bounday
- Property Boundary
- Proposed Component
- Existing Component
- Ball Valve
- V — Vacuum Gauge (0-30" water)
- H — 1/4" Hole with Threaded Plug

REV.	DESCRIPTION	DATE	APPR.

REVISED BY: BMG
DRAWN BY: SCC
DESIGNED BY: DAH
PROJECT NUMBER: 080190
REVISION: -
DATE: Apr-2021

Aspect CONSULTING

SVE Layout & Vault Detail

Sitewide RI/FS Work Plan

Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

FIGURE NO.

8

DWG Path: Q:_GeoTech\080190 Stadium Thriftway\2021-03 Data Gaps\080190-07 SVE As-Built.dwg 4-SVE Layout | | Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet | | Date Saved: Apr 26, 2021 5:03pm | | User: bgreer

TACOMA AVENUE

4 THE BOYS COMPANY, LLC
T.P.N. 2030-12-0012
(NORTHERN BUILDING)

STADIUM, LLC
T.P.N. 2030-12-0013

T.P.N. 2030-12-0012

T.P.N. 2030-12-0013

ALLEY

MORRELL'S
DRY CLEANERS

MORRELL'S
BUILDING PARCEL
T.P.N. 2030-12-0031

MORRELL'S
PARKING LOT PARCEL
T.P.N. 2030-12-0033

TEASE
CHOCOLATES

NORTH FIRST STREET

12-0050

13-0025

FORMER WALKER CHEVROLET SITE
(VCP NO. SW1040)
T.P.N. 2030-12-0032

MW-13D
MW-4 (DRY)
MW-12D
MW-9 (DRY)
MW-10 (DRY)
MW-15D
VP-9
MW-6 (DRY)
VP-8
MW-14D
MW-3 (DRY)
MW-21
MW-31
MW-15
VE-5
MW-8
VE-6
VE-1
VE-3
VE-2
MW-8D
VE-SS4
VP-8B
MW-33
VP-9B
VP-10B
VE-4
MW-16
MW-30
VE-7
MW-17
MW-2
MW-18
VE-8
MW-23
MW-32
MW-29
MW-7
MW-25
MW-19
MW-35
MW-20
MW-34
MW-24
MW-28
MW-26
MW-27
MW-5

0 20 40 Feet

Data Gaps Proposal Notes:
1) Proposed MW-15D to address bounding soil and downgradient groundwater quality data gap.

2) Proposed soil vapor points VP-8 and VP-9 to address bounding soil vapor data gap and measure radius of influence of SVE. Proposed soil vapor points VP-8B, VP-9B, and VP-10B to address SVE radius of influence data gap ONLY if permanent VP-8 and VP-9 are not granted City of Tacoma permitting.

LEGEND

- Blue Halo Indicates Injection of Biostimulants in June 2014
- Yellow Halo Indicates Remediation Injection in July 2019
- Horizontal Projection
- Screened Interval
- Existing Vertical Monitoring Well
- Existing Angled Monitoring Well Existing
- Angled SVE Well
- Existing Sub-Slab Suction Pit
- Proposed Deep Monitoring Well
- Proposed Vapor Point
- Proposed Groundwater Sampling in 2021
- Estimated Extent of Groundwater in Advance Outwash
- Parcel Bounday
- Property Boundary
- On-Property Parcel Boundary
- Estimated Extent of Soil with Cleanup Level Exceedances
- Estimated Extent of Advance Outwash Groundwater with Cleanup Level Exceedances

NO.	DESCRIPTION	DATE	APPR.
-	-	-	-

REVISED BY: BMG
DRAWN BY: SCC
DESIGNED BY: BMG
PROJECT NUMBER: 080190
REVISION: -
DATE: Jun-2021

Aspect CONSULTING

Data Gaps Investigation

Sitewide RI Data Gaps Work Plan
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

FIGURE NO.

9

CAD Path: Q:_GeoTech\080190 Stadium Thriftway\2021-03 Data Gaps\080190-02 Site Plan with Wells and SVE (2).dwg 09-Data gaps || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: Jun 01, 2021 4:04pm || User: bgreer

APPENDIX A

Aspect Data

Table A-2. Soil Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

		Location	A-5 / VE-5		A-6 / VE-6			A-7 / VE-7			A-8 / VE-8		A-8 / VE-8		DC-1	DP-01		DP-02	DP-04	DP-05		DP-07	
		Date	02/26/2019	02/26/2019	02/27/2019	02/27/2019	02/28/2019	02/28/2019	03/01/2019	03/01/2019	A-8 / VE-8 02/26/2019	02/27/2019	02/27/2019	08/31/2006	10/21/2010	10/21/2010	10/21/2010	10/20/2010	10/20/2010	10/20/2010	10/21/2010	10/21/2010
		Depth	22.5 ft	32 ft	13 ft	36 ft	57.5 ft	9.5 ft	22 ft	37 ft	14 ft	34 ft	47 ft	8 ft	1 ft	2 ft	1 ft	2 ft	3 ft	6 ft	2 ft	2.5 ft
Analyte	**Unit**	**Screening Level** [1]																				
BTEX																						
Benzene	mg/kg	0.03	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03	< 0.03 U	< 0.03	< 0.03 U	< 0.03 U	< 0.03 U	< 0.02 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U
Toluene	mg/kg	7	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Ethylbenzene	mg/kg	6	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Total Xylenes	mg/kg	9	--	--	--	--	--	--	--	--	--	--	--	**0.16**	--	--	--	--	--	--	--	--
Metals																						
Arsenic	mg/kg	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	16000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other SVOCs																						
Hexachlorobutadiene	mg/kg	13	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25	< 0.25 U	< 0.25	< 0.25 U	< 0.25 U	< 0.25 U	--	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
PAHs																						
Naphthalene	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	**0.44**	< 0.05	**0.1**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
VOCs																						
1,1,1,2-Tetrachloroethane	mg/kg	38	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,1-Trichloroethane	mg/kg	2	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2,2-Tetrachloroethane	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2-Trichloroethane	mg/kg	18	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethane	mg/kg	180	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethene	mg/kg	4000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	< 0.5 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,3-Trichlorobenzene	mg/kg		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25	< 0.25 U	< 0.25	< 0.25 U	< 0.25 U	< 0.25 U	--	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,3-Trichloropropane	mg/kg	0.0063	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,4-Trichlorobenzene	mg/kg	34	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25	< 0.25 U	< 0.25	< 0.25 U	< 0.25 U	< 0.25 U	--	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,4-Trimethylbenzene	mg/kg	800	**0.069**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	**5.4**	< 0.05	**0.91**	**0.88**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dibromo-3-chloropropane	mg/kg	1.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichlorobenzene	mg/kg	7200	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloroethane (EDC)	mg/kg	11	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloropropane	mg/kg	27	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3,5-Trimethylbenzene	mg/kg	800	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	**3**	< 0.05	**1**	**0.76**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichlorobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,4-Dichlorobenzene	mg/kg	190	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2,2-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Butanone	mg/kg	48000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Chlorotoluene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Hexanone	mg/kg	400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Chlorotoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
4-Methyl-2-pentanone	mg/kg	6400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Acetone	mg/kg	72000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	mg/kg	640	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromodichloromethane	mg/kg	16	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromoform	mg/kg	130	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromomethane	mg/kg	110	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon Tetrachloride	mg/kg	14	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chlorobenzene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloroethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.05 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	mg/kg	32	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloromethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene (cDCE)	mg/kg	160	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	**0.16**	< 0.05 U	< 0.05	**0.34**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	**0.11**
cis-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromochloromethane	mg/kg	12	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromomethane	mg/kg	800	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dichlorodifluoromethane	mg/kg	16000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Isopropylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	**0.43**	< 0.05	**0.084**	**0.12**	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
m,p-Xylenes	mg/kg	16000	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1	< 0.1 U	< 0.1	< 0.1 U	< 0.1 U	< 0.1 U	--	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Methylene Chloride	mg/kg	0.02	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Hexane	mg/kg	4800	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25	< 0.25 U	< 0.25	< 0.25 U	< 0.25 U	< 0.25 U	--	--	--	--	--	--	--	--	--
n-Propylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	**1.6**	< 0.05	**0.27**	**0.4**	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
o-Xylene	mg/kg	16000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
p-Isopropyltoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	**0.12**	< 0.05	**0.57**	**0.55**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
sec-Butylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	**1.6**	< 0.05	**0.35**	**1.2**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Styrene	mg/kg	16000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
tert-Butylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	**0.094**	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Tetrachloroethene (PCE)	mg/kg	0.05	< 0.025 U	< 0.025 U	**0.47**	< 0.025 U	< 0.025 U	**1.4**	**120**	< 0.025	**0.089**	**7.3**	**0.047**	< 0.02 U	**2.1**	**1**	**0.8**	**1.8**	**1.4**	**0.54**	**2.7**	**36**
trans-1,2-Dichloroethene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
trans-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Trichloroethene (TCE)	mg/kg	0.03	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	**0.16**	**1.5**	< 0.02	< 0.02 U	**0.15**	< 0.02 U	< 0.02 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	**0.14**
Trichlorofluoromethane	mg/kg	24000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5	< 0.5 U	< 0.5	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vinyl Chloride	mg/kg	0.67	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05	< 0.05 U	< 0.05	< 0.05 U	< 0.05 U	< 0.05 U	< 0.01 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U

Notes:
1) Soil screening levels are based on the MTCA Method A cleanup levels and Method B cleanup levels if A does not exist.
Bold - detected
Blue Shaded - Detected result or non-detected RL exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
UJ - Analyte not detected and the Reporting Limit (RL) is an estimate
"--" - indicates results not available

Table A-2. Soil Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Unit	Location / Date / Depth / Screening Level [1]	DP-08 10/20/2010 3 ft	DP-08 10/20/2010 4.5 ft	DP-09 10/20/2010 3 ft	DP-09 10/20/2010 6 ft	DP-10 02/08/2012 8.5 ft	DP-11 02/08/2012 4 ft	DP-12 02/08/2012 5.5 ft	DP-13 02/08/2012 7 ft	DP-14 02/08/2012 7 ft	DP-15 02/08/2012 4 ft	DP-16 02/08/2012 4 ft	DP-17 02/08/2012 4 ft	MW-8D 05/11/2009 -	MW-9 05/11/2009 -	MW-10 05/11/2009 -	MW-12D 10/27/2010 -	MW-13D 10/28/2010 -	MW-21 10/11/2013 11 ft	MW-21 10/11/2013 15.5 ft	MW-21 10/11/2013 25 ft	MW-21 10/11/2013 40 ft
BTEX																							
Benzene	mg/kg	0.03	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	--	< 0.03 U	< 0.03 U	< 0.03 U	--	--	--	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U
Toluene	mg/kg	7	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Ethylbenzene	mg/kg	6	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Total Xylenes	mg/kg	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																							
Arsenic	mg/kg	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**2.84**	**2.55**	--	--	--	--
Barium	mg/kg	16000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**39.6**	**34.5**	--	--	--	--
Cadmium	mg/kg	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	--	--	--	--
Chromium	mg/kg		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**15.6**	**16.5**	--	--	--	--
Lead	mg/kg	250	--	--	--	--	**1.7**	**1.17**	**1.75**	**1.66**	**2.08**	**1.33**	**2.81**	**1.96**	--	--	--	**1.99**	**2.29**	--	--	--	--
Mercury	mg/kg	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 U	< 0.2 U	--	--	--	--
Selenium	mg/kg	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	--	--	--	--
Silver	mg/kg	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	< 1 U	--	--	--	--
Other SVOCs																							
Hexachlorobutadiene	mg/kg	13	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	--	< 0.25 U	< 0.25 U	< 0.25 U	--	--	--	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 UJ	< 0.25 UJ
PAHs																							
Naphthalene	mg/kg	5	**28**	**0.22**	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
VOCs																							
1,1,1,2-Tetrachloroethane	mg/kg	38	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,1-Trichloroethane	mg/kg	2	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2,2-Tetrachloroethane	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2-Trichloroethane	mg/kg	18	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethane	mg/kg	180	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethene	mg/kg	4000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 UJ	--	< 0.05 UJ	< 0.05 UJ	< 0.05 UJ	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,3-Trichlorobenzene	mg/kg		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	--	< 0.25 U	< 0.25 U	< 0.25 U	--	--	--	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,3-Trichloropropane	mg/kg	0.0063	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,4-Trichlorobenzene	mg/kg	34	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	--	< 0.25 U	< 0.25 U	< 0.25 U	--	--	--	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,4-Trimethylbenzene	mg/kg	800	**76**	**0.49**	< 0.05 U	< 0.05 U	**0.054**	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dibromo-3-chloropropane	mg/kg	1.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichlorobenzene	mg/kg	7200	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloroethane (EDC)	mg/kg	11	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloropropane	mg/kg	27	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3,5-Trimethylbenzene	mg/kg	800	**26**	**0.35**	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichlorobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,4-Dichlorobenzene	mg/kg	190	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2,2-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Butanone	mg/kg	48000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Chlorotoluene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Hexanone	mg/kg	400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Chlorotoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
4-Methyl-2-pentanone	mg/kg	6400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Acetone	mg/kg	72000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	mg/kg	640	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromodichloromethane	mg/kg	16	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromoform	mg/kg	130	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromomethane	mg/kg	110	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon Tetrachloride	mg/kg	14	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chlorobenzene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloroethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	mg/kg	32	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	**0.14 J**	**0.1 J**	
Chloromethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene (cDCE)	mg/kg	160	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	**0.051**	< 0.05 U	< 0.05 U
cis-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromochloromethane	mg/kg	12	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromomethane	mg/kg	800	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dichlorodifluoromethane	mg/kg	16000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	--	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Isopropylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
m,p-Xylenes	mg/kg	16000	**0.51**	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	--	< 0.1 U	< 0.1 U	< 0.1 U	--	--	--	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Methylene Chloride	mg/kg	0.02	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	--	< 0.5 U	< 0.5 U	< 0.5 U	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Hexane	mg/kg	4800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
o-Xylene	mg/kg	16000	**0.65**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
p-Isopropyltoluene	mg/kg		**12**	**0.099**	< 0.05 U	< 0.05 U	**0.21**	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
sec-Butylbenzene	mg/kg	8000	**1.8**	**0.14**	< 0.05 U	< 0.05 U	**0.94**	--	**0.13**	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Styrene	mg/kg	16000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
tert-Butylbenzene	mg/kg	8000	**0.43**	< 0.05 U	< 0.05 U	< 0.05 U	**0.083**	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Tetrachloroethene (PCE)	mg/kg	0.05	< 0.025 U	< 0.025 U	< 0.025 U	**0.13**	**0.24**	--	< 0.025 U	< 0.025 U	< 0.025 U	--	--	--	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	**0.63**	**44**	< 0.025 U	< 0.025 U
trans-1,2-Dichloroethene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 UJ	--	< 0.05 UJ	< 0.05 UJ	< 0.05 UJ	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
trans-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Trichloroethene (TCE)	mg/kg	0.03	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	--	< 0.03 U	< 0.03 U	< 0.03 U	--	--	--	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	**0.57**	< 0.03 U	< 0.03 U
Trichlorofluoromethane	mg/kg	24000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	--	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	--	--	--	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vinyl Chloride	mg/kg	0.67	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	--	< 0.05 U	< 0.05 U	< 0.05 U	--	--	--	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U

Notes:
1) Soil screening levels are based on the MTCA Method A cleanup levels and Method B cleanup levels if A does not exist.
Bold - detected
Blue Shaded - Detected result or non-detected RL exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
UJ - Analyte not detected and the Reporting Limit (RL) is an estimate
"--" - indicates results not available

Table A-2. Soil Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Unit	Location / Date / Depth / Screening Level [1]	MW-23 10/11/2013 55 ft	MW-23 02/06/2019 5.5 ft	MW-23 02/06/2019 10.5 ft	MW-23 02/06/2019 20.5 ft	MW-23 02/06/2019 25.5 ft	MW-23 02/06/2019 55.5 ft	MW-24 01/30/2019 5.5 ft	MW-24 01/30/2019 30.5 ft	MW-24 01/31/2019 50.5 ft	MW-25 01/28/2019 5.5 ft	MW-25 01/28/2019 30.5 ft	MW-25 01/29/2019 50.5 ft	MW-26 01/29/2019 5.5 ft	MW-26 01/29/2019 30.5 ft	MW-26 01/30/2019 50.5 ft	MW-27 01/31/2019 5.5 ft	MW-27 01/31/2019 30.5 ft	MW-27 01/31/2019 50.5 ft
BTEX																				
Benzene	mg/kg	0.03	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U
Toluene	mg/kg	7	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Ethylbenzene	mg/kg	6	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Total Xylenes	mg/kg	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																				
Arsenic	mg/kg	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	16000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other SVOCs																				
Hexachlorobutadiene	mg/kg	13	< 0.25 UJ	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
PAHs																				
Naphthalene	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
VOCs																				
1,1,1,2-Tetrachloroethane	mg/kg	38	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,1-Trichloroethane	mg/kg	2	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2,2-Tetrachloroethane	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2-Trichloroethane	mg/kg	18	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethane	mg/kg	180	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethene	mg/kg	4000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,3-Trichlorobenzene	mg/kg		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,3-Trichloropropane	mg/kg	0.0063	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,4-Trichlorobenzene	mg/kg	34	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,4-Trimethylbenzene	mg/kg	800	< 0.05 U	**0.14 J**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dibromo-3-chloropropane	mg/kg	1.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichlorobenzene	mg/kg	7200	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloroethane (EDC)	mg/kg	11	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloropropane	mg/kg	27	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3,5-Trimethylbenzene	mg/kg	800	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	**0.11 J**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichlorobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,4-Dichlorobenzene	mg/kg	190	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2,2-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Butanone	mg/kg	48000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Chlorotoluene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Hexanone	mg/kg	400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Chlorotoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
4-Methyl-2-pentanone	mg/kg	6400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Acetone	mg/kg	72000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	mg/kg	640	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromodichloromethane	mg/kg	16	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromoform	mg/kg	130	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromomethane	mg/kg	110	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon Tetrachloride	mg/kg	14	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chlorobenzene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloroethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	mg/kg	32	**0.15 J**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloromethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene (cDCE)	mg/kg	160	**0.095**	< 0.05 U	**0.19 J**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
cis-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromochloromethane	mg/kg	12	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromomethane	mg/kg	800	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dichlorodifluoromethane	mg/kg	16000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Isopropylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
m,p-Xylenes	mg/kg	16000	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Methylene Chloride	mg/kg	0.02	< 0.5 U	< 0.5 U	**1.4 C**	**0.5 C**	< 0.5 U	**0.83 C**	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Hexane	mg/kg	4800	--	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
n-Propylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
o-Xylene	mg/kg	16000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
p-Isopropyltoluene	mg/kg		< 0.05 U	**0.058 J**	< 0.05 U	< 0.05 U	**0.094 J**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
sec-Butylbenzene	mg/kg	8000	< 0.05 U	**0.059 J**	< 0.05 U	< 0.05 U	**0.064 J**	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Styrene	mg/kg	16000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
tert-Butylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Tetrachloroethene (PCE)	mg/kg	0.05	**0.095**	< 0.025 U	**0.4 J**	**0.045 J**	**2.3 J**	**0.095 J**	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U
trans-1,2-Dichloroethene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
trans-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Trichloroethene (TCE)	mg/kg	0.03	**0.032**	< 0.02 U	**0.18 J**	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U
Trichlorofluoromethane	mg/kg	24000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vinyl Chloride	mg/kg	0.67	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U

Notes:
1) Soil screening levels are based on the MTCA Method A cleanup levels and Method B cleanup levels if A does not exist.
Bold - detected
Blue Shaded - Detected result or non-detected RL exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
UJ - Analyte not detected and the Reporting Limit (RL) is an estimate
"--" - indicates results not available

Table A-2. Soil Quality

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

			MW-28		MW-29		MW-30			MW-31				MW-32		MW-33		TRENCH-BT-C-4.5	TRENCH-BT-E-4.5	TRENCH-BT-W-4.5
		Location																		
		Date	03/14/2019	03/15/2019	03/11/2019	03/12/2019	02/07/2019	02/07/2019	02/07/2019	02/05/2019	02/05/2019	02/05/2019	02/05/2019	03/13/2019	03/13/2019	03/12/2019	03/13/2019	12/09/2013	12/09/2013	12/09/2013
		Depth	30.5 ft	55.5 ft	15 ft	50 ft	10.5 ft	35.5 ft	60.5 ft	15.5 ft	40.5 ft	55.5 ft	60.5 ft	15.5 ft	55.5 ft	10 ft	55.5 ft	4.5 ft	4.5 ft	4.5 ft
Analyte	Unit	Screening Level [1]																		
BTEX																				
Benzene	mg/kg	0.03	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U	< 0.03 U
Toluene	mg/kg	7	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Ethylbenzene	mg/kg	6	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Total Xylenes	mg/kg	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																				
Arsenic	mg/kg	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	16000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cadmium	mg/kg	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	mg/kg	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury	mg/kg	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Selenium	mg/kg	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other SVOCs																				
Hexachlorobutadiene	mg/kg	13	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
PAHs																				
Naphthalene	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
VOCs																				
1,1,1,2-Tetrachloroethane	mg/kg	38	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,1-Trichloroethane	mg/kg	2	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2,2-Tetrachloroethane	mg/kg	5	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1,2-Trichloroethane	mg/kg	18	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethane	mg/kg	180	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloroethene	mg/kg	4000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,1-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,3-Trichlorobenzene	mg/kg		< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,3-Trichloropropane	mg/kg	0.0063	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2,4-Trichlorobenzene	mg/kg	34	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U
1,2,4-Trimethylbenzene	mg/kg	800	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dibromo-3-chloropropane	mg/kg	1.3	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
1,2-Dibromoethane (EDB)	mg/kg	0.005	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichlorobenzene	mg/kg	7200	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloroethane (EDC)	mg/kg	11	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,2-Dichloropropane	mg/kg	27	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3,5-Trimethylbenzene	mg/kg	800	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichlorobenzene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,3-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
1,4-Dichlorobenzene	mg/kg	190	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2,2-Dichloropropane	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Butanone	mg/kg	48000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
2-Chlorotoluene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
2-Hexanone	mg/kg	400	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
4-Chlorotoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
4-Methyl-2-pentanone	mg/kg	6400	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Acetone	mg/kg	72000	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Bromobenzene	mg/kg	640	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromodichloromethane	mg/kg	16	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromoform	mg/kg	130	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Bromomethane	mg/kg	110	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Carbon Tetrachloride	mg/kg	14	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chlorobenzene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloroethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Chloroform	mg/kg	32	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Chloromethane	mg/kg		< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
cis-1,2-Dichloroethene (cDCE)	mg/kg	160	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
cis-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromochloromethane	mg/kg	12	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dibromomethane	mg/kg	800	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Dichlorodifluoromethane	mg/kg	16000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 UJ	< 0.5 U	< 0.5 U	< 0.5 U
Isopropylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
m,p-Xylenes	mg/kg	16000	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U	< 0.1 U
Methyl tert-butyl ether (MTBE)	mg/kg	0.1	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Methylene Chloride	mg/kg	0.02	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
n-Hexane	mg/kg	4800	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	< 0.25 U	--	--	--
n-Propylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
o-Xylene	mg/kg	16000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
p-Isopropyltoluene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
sec-Butylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Styrene	mg/kg	16000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
tert-Butylbenzene	mg/kg	8000	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Tetrachloroethene (PCE)	mg/kg	0.05	**0.038**	< 0.025 U	**0.043**	**0.043**	**0.084**	**0.1**	**0.026**	< 0.025 U	< 0.025 U	**0.058**	**0.058**	< 0.025 U	< 0.025 U	< 0.025 U	< 0.025 U	**0.26**	**0.16**	**0.25**
trans-1,2-Dichloroethene	mg/kg	1600	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
trans-1,3-Dichloropropene	mg/kg		< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U
Trichloroethene (TCE)	mg/kg	0.03	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	**0.021**	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.02 U	< 0.03 U	< 0.03 U	< 0.03 U
Trichlorofluoromethane	mg/kg	24000	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U	< 0.5 U
Vinyl Chloride	mg/kg	0.67	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U	< 0.05 U

Notes:

1) Soil screening levels are based on the MTCA Method A cleanup levels and Method B cleanup levels if A does not exist.

Bold - detected

Blue Shaded - Detected result or non-detected RL exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

"--" - indicates results not available

Table A-3. Advance Outwash Groundwater Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Unit	Screening Level	Location	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-5	MW-7
			Date	08/28/2007	01/30/2008	10/02/2008	05/12/2009	12/22/2010	02/07/2012	12/12/2013	01/21/2015	07/30/2015	09/08/2015	02/02/2016	09/22/2016	01/04/2017	11/28/2018	03/26/2020	01/22/2008	01/30/2008	10/02/2008	05/11/2009	12/22/2010	02/07/2012	01/09/2014	04/28/2015	09/09/2015	02/02/2016	09/07/2016	01/04/2017	11/28/2018	03/25/2020	01/22/2008
BTEX																															
Benzene	ug/L	5	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.35 U	< 35 U	< 0.35 U	< 0.35 U	--	--	--	--	--	< 0.35 U	--	< 1 U	< 1 U	< 1 U	< 1 U	**1.1**	< 0.35 U	< 0.2 U	< 0.35 U	--	--	--	--	< 0.35 U	--	< 1 U
Toluene	ug/L	1000	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Ethylbenzene	ug/L	700	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Other SVOCs																															
1,4-Dioxane	ug/L	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/L	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.1 U	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	0.56	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--	< 1 U	--	--
Naphthalene	ug/L	160	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	**0.14**	< 1 U	--	--	--	--	< 1 U	--	--
VOCs																															
1,1,1,2-Tetrachloroethane	ug/L	1.7	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,1,1-Trichloroethane	ug/L	200	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	--
1,1,2,2-Tetrachloroethane	ug/L	0.22	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,1,2-Trichloroethane	ug/L	0.77	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,1,2-Trichlorotrifluoroethane	ug/L	240000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/L	7.7	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	--
1,1-Dichloroethene	ug/L	400	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	< 1 U	**1.6**	**4.2**	**3.8**	**3.8**	**3.8**	**3.8**	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	--
1,1-Dichloropropene	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,2,3-Trichlorobenzene	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	< 1 U	--	--
1,2,3-Trichloropropane	ug/L	0.00038	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	< 1 U	--	--
1,2,4-Trichlorobenzene	ug/L	1.5	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	< 1 U	--	--
1,2,4-Trimethylbenzene	ug/L	80	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,2-Dibromo-3-chloropropane	ug/L	0.055	--	--	< 1 U	< 1 U	< 10 U	< 1000 U	< 10 U	< 10 U	< 10 U	--	--	--	--	--	< 10 U	--	--	--	< 1 U	< 1 U	< 10 U	< 10 U	< 0.5 U	< 10 U	--	--	--	--	< 10 U	--	--
1,2-Dibromoethane (EDB)	ug/L	0.01	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,2-Dichlorobenzene	ug/L	720	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,2-Dichloroethane (EDC)	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	--
1,2-Dichloropropane	ug/L	1.2	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,3,5-Trimethylbenzene	ug/L	80	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,3-Dichlorobenzene	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,3-Dichloropropane	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
1,4-Dichloro-2-Butene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/L	8.1	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
2,2-Dichloropropane	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
2-Butanone	ug/L	4800	--	--	< 10 U	< 10 U	< 10 U	< 1000 U	< 10 U	**27**	--	--	--	--	--	--	< 10 U	--	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	< 10 U	--	--
2-Chloroethyl Vinyl Ether	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	ug/L	160	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
2-Hexanone	ug/L	40	--	--	< 10 U	< 10 U	< 10 U	< 1000 U	< 10 U	**22**	--	--	--	--	--	**120**	--	--	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	< 10 U	--	--
4-Chlorotoluene	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
4-Methyl-2-pentanone	ug/L	640	--	--	< 10 U	< 10 U	< 10 U	< 1000 U	< 10 U	< 10 U	--	--	--	--	--	--	< 10 U	--	--	--	< 10 U	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	< 10 U	--	--
Acetone	ug/L	7200	--	--	< 10 U	< 10 U	**16**	< 1000 U	< 10 U	< 10 U	--	--	--	--	--	--	< 50 U	--	--	--	< 10 U	< 10 U	**15**	< 10 U	< 5 U	< 10 U	--	--	--	--	< 50 U	--	--
Acrolein	ug/L	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 5 U	--	--	--	--	--	--	--	--	--
Acrylonitrile	ug/L	0.081	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--	--	--	--
Bromobenzene	ug/L	64	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Bromochloromethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	7.06	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Bromoethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--
Bromoform	ug/L	5.5	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Bromomethane	ug/L	11	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	< 1 U	--	--
Carbon Disulfide	ug/L	800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/L	5	**1**	< 1 U	**1**	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	**3.3**	**2**	**1.2**	< 1 U	**3.2**	**4.6**	< 0.2 U	**2.1**	--	--	--	--	< 1 U	--	< 1 U
Chlorobenzene	ug/L	160	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Chloroethane	ug/L		**8.1**	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	ug/L	14.1	**1**	**2.5**	**3.5**	**4**	**5**	< 100 U	**3.3 J**	< 1 U	--	--	--	--	--	--	< 1 U	--	**2.1**	**1.8**	**1.9**	< 1 U	**2.9**	**2.3**	**0.35**	**1.1**	--	--	--	--	**1.3**	--	< 1 U
Chloromethane	ug/L		--	--	< 1 U	< 2 U	< 10 U	< 1000 U	< 10 U	< 10 U	--	--	--	--	--	--	< 10 U	--	--	--	< 1 U	< 1 U	< 10 U	< 10 U	< 0.5 U	< 10 U	--	--	--	--	< 10 U	--	--
cis-1,2-Dichloroethene (cDCE)	ug/L	16	**7100**	**2000**	**2300**	**2400**	**2100**	**1400**	**1200**	**150**	**600**	**610**	**640**	**480**	**520**	**490**	**540**	**13**	**4.5**	**17**	**44**	**41**	**25**	< 0.2 U	**6.4**	**3.6**	**2.5**	**1.4**	**1.3**	< 1 U	< 1 U	< 1 U
cis-1,3-Dichloropropene	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Dibromochloromethane	ug/L	0.52	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Dibromomethane	ug/L	80	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Dichlorodifluoromethane	ug/L	1600	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	--	< 1 U	--	--	--	--	< 1 U	--	--
Isopropylbenzene	ug/L	800	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
m,p-Xylenes	ug/L	1600	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 200 U	< 2 U	< 2 U	--	--	--	--	--	< 2 U	--	--	--	< 2 U	< 2 U	< 2 U	< 2 U	< 0.4 U	< 2 U	--	--	--	--	< 2 U	--	--
Methyl tert-butyl ether (MTBE)	ug/L	20	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	--	< 1 U	--	--	--	--	< 1 U	--	--
Methylene Chloride	ug/L	5	--	--	< 5 U	< 5 U	< 5 U	< 5 U	< 500 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	--	--	< 5 U	< 5 U	< 5 U	< 5 U	< 1 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	--
Methyliodide	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--	--	--	--
n-Butylbenzene	ug/L	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--
n-Hexane	ug/L	480	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	--
n-Propylbenzene	ug/L	800	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
o-Xylene	ug/L	1600	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
p-Isopropyltoluene	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
sec-Butylbenzene	ug/L	800	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Styrene	ug/L	1600	--	--	< 50 U	< 50 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
tert-Butylbenzene	ug/L	800	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	< 1 U	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Tetrachloroethene (PCE)	ug/L	5	**2900**	**1400**	**1900**	**1600**	**2100**	**1600**	**1600**	**19**	**17**	**18**	**22**	**16**	**18**	**28**	**24**	**67**	**31**	**75**	**17**	**190**	**140**	< 0.2 U	**67**	**31**	**27**	**12**	**14**	**13**	**9.6**	**6.6**
trans-1,2-Dichloroethene	ug/L	160	**7.4**	**3**	**5.3**	**5.7**	**4.8**	< 100 U	**2.7**	< 1 U	**1.8**	**2**	**1.8**	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U
trans-1,3-Dichloropropene	ug/L		--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Trichloroethene (TCE)	ug/L	5	--	**520**	**880**	**930**	**1100**	**810**	**830**	**25**	**46**	**77**	**190**	**110**	**80**	**14**	**7.1**	**3**	**1.1**	**3.2**	**1.1**	**14**	**8.7**	**0.46**	**6.2**	**3.6**	**2.7**	**1.4**	**1.4**	**1.4**	< 1 UJ	< 1 U
Trichlorofluoromethane	ug/L	2400	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 1 U	< 1 U	--	--	--	--	--	< 1 U	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	< 1 U	--	--
Vinyl Acetate	ug/L	8000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/L	0.292	**19**	< 0.2 U	**3.1**	**2.7**	**2.7 J**	< 20 U	**0.84**	**0.77**	**15**	**17**	**15**	**7.8**	**7.4**	**5.9**	**5.6**	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Notes;
Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
"--" - indicates results not available

Table A-3. Advance Outwash Groundwater Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Unit	Location / Date / Screening Level	MW-7 01/30/2008	MW-7 10/02/2008	MW-7 05/11/2009	MW-7 12/22/2010	MW-7 02/06/2012	MW-7 01/07/2014	MW-7 03/26/2020	MW-8 04/22/2008	MW-8 10/02/2008	MW-8 05/12/2009	MW-8 12/22/2010	MW-8 02/07/2012	MW-8 12/17/2013	MW-8 01/20/2015	MW-8 07/30/2015	MW-8 09/10/2015	MW-8 02/01/2016	MW-8 09/07/2016	MW-8 09/22/2016	MW-8 01/05/2017	MW-8 11/28/2018	MW-8 03/25/2020	MW-15 12/17/2013	MW-15 09/08/2015	MW-15 02/01/2016	MW-15 09/07/2016	MW-15 01/04/2017	MW-15 11/28/2018	MW-15 03/23/2020
BTEX																															
Benzene	ug/L	5	< 1 U	< 1 U	< 1 U	< 0.35 U	< 0.35 U	< 0.35 U	--	< 1 U	< 1 U	< 1 U	< 0.35 U	< 35 U	< 17 U	< 1.7 U	--	--	--	--	--	--	< 0.35 U	--	< 3.5 U	--	--	--	--	< 0.35 U	--
Toluene	ug/L	1000	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Ethylbenzene	ug/L	700	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Other SVOCs																															
1,4-Dioxane	ug/L	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/L	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	0.56	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Naphthalene	ug/L	160	--	< 1 U	< 1 U	< 1 U	< 1 U	< 0.1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
VOCs																															
1,1,1,2-Tetrachloroethane	ug/L	1.7	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,1,1-Trichloroethane	ug/L	200	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	< 1 U	< 1 U	< 1 U	< 50 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 10 U	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 1 UJ
1,1,2,2-Tetrachloroethane	ug/L	0.22	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,1,2-Trichloroethane	ug/L	0.77	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,1,2-Trichlorotrifluoroethane	ug/L	240000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/L	7.7	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	< 1 U	< 1 U	< 1 U	< 50 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 10 U	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 1 UJ
1,1-Dichloroethene	ug/L	400	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	**10**	**4.3**	**3.7**	< 100 U	< 50 U	**6.4**	**1.5**	**4.2**	**2.5**	< 50 U	**2.2**	**1.8**	< 1 U	< 1 UJ	< 10 U	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 1 UJ
1,1-Dichloropropene	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,2,3-Trichlorobenzene	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,2,3-Trichloropropane	ug/L	0.00038	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,2,4-Trichlorobenzene	ug/L	1.5	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,2,4-Trimethylbenzene	ug/L	80	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,2-Dibromo-3-chloropropane	ug/L	0.055	--	< 1 U	< 1 U	< 10 U	< 10 U	< 10 U	--	--	< 1 U	< 1 U	< 10 U	< 1000 U	< 500 U	< 50 U	--	--	--	--	--	--	< 10 U	--	< 100 U	--	--	--	--	< 10 U	--
1,2-Dibromoethane (EDB)	ug/L	0.01	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,2-Dichlorobenzene	ug/L	720	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,2-Dichloroethane (EDC)	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	< 1 U	< 1 U	< 1 U	< 50 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 10 U	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 1 UJ
1,2-Dichloropropane	ug/L	1.2	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,3,5-Trimethylbenzene	ug/L	80	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,3-Dichlorobenzene	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,3-Dichloropropane	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
1,4-Dichloro-2-Butene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/L	8.1	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
2,2-Dichloropropane	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
2-Butanone	ug/L	4800	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	--	--	< 10 U	< 10 U	< 10 U	< 1000 U	< 500 U	< 50 U	--	--	--	--	--	--	**130**	--	< 100 U	--	--	--	--	< 10 U	--
2-Chloroethyl Vinyl Ether	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	ug/L	160	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
2-Hexanone	ug/L	40	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	--	--	< 10 U	< 10 U	< 10 U	< 1000 U	< 500 U	< 50 U	--	--	--	--	--	--	**56**	--	< 100 U	--	--	--	--	< 10 U	--
4-Chlorotoluene	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
4-Methyl-2-pentanone	ug/L	640	--	< 10 U	< 10 U	< 10 U	< 10 U	< 10 U	--	--	< 10 U	< 10 U	< 10 U	< 1000 U	< 500 U	< 50 U	--	--	--	--	--	--	< 10 U	--	< 100 U	--	--	--	--	< 10 U	--
Acetone	ug/L	7200	--	< 10 U	< 10 U	**11**	< 10 U	< 10 U	--	--	< 10 U	< 10 U	**10**	< 1000 U	< 500 U	**71**	--	--	--	--	--	--	**170**	--	< 100 U	--	--	--	--	< 50 U	--
Acrolein	ug/L	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	ug/L	0.081	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	ug/L	64	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Bromochloromethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	7.06	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Bromoethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/L	5.5	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Bromomethane	ug/L	11	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Carbon Disulfide	ug/L	800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/L	5	**1.5**	**1.5**	**2**	**3.3**	**2.2**	**1.6**	--	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Chlorobenzene	ug/L	160	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Chloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	< 1 U	< 1 U	< 1 U	< 50 U	< 1 U	< 1 U	< 1 U	< 1 U	< 10 U	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 1 U
Chloroform	ug/L	14.1	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	**2.5**	**2.5**	**2.5**	**2.2**	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Chloromethane	ug/L		--	< 1 U	< 1 U	< 10 U	< 10 U	< 10 U	--	--	< 1 U	< 2 U	< 10 U	< 1000 U	< 500 U	< 50 U	--	--	--	--	--	--	< 10 U	--	< 100 U	--	--	--	--	< 10 U	--
cis-1,2-Dichloroethene (cDCE)	ug/L	16	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**2400**	**3600**	**2600**	**1800**	**1600**	**1300**	**1200**	**740**	**1000**	**830**	**560**	**500**	**480**	**280**	**210**	**380**	**220**	**290**	**330**	**520**	**65**	**67**
cis-1,3-Dichloropropene	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Dibromochloromethane	ug/L	0.52	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Dibromomethane	ug/L	80	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Dichlorodifluoromethane	ug/L	1600	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Isopropylbenzene	ug/L	800	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
m,p-Xylenes	ug/L	1600	--	< 2 U	< 2 U	< 2 U	< 2 U	< 2 U	--	--	< 2 U	< 2 U	< 2 U	< 200 U	< 100 U	< 10 U	--	--	--	--	--	--	< 2 U	--	< 20 U	--	--	--	--	< 2 U	--
Methyl tert-butyl ether (MTBE)	ug/L	20	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	--	< 5 U	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--	< 1 U	--
Methylene Chloride	ug/L	5	--	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	--	< 5 U	< 5 U	< 5 U	< 500 U	< 250 U	< 25 U	< 5 U	< 5 U	< 5 U	< 250 U	< 5 U	< 5 U	< 5 U	< 5 U	< 50 U	< 5 U	< 5 U	< 25 U	< 5 U	< 5 U	< 5 U
Methyliodide	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	ug/L	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Hexane	ug/L	480	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--	< 1 U	--
n-Propylbenzene	ug/L	800	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
o-Xylene	ug/L	1600	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
p-Isopropyltoluene	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
sec-Butylbenzene	ug/L	800	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Styrene	ug/L	1600	--	--	--	< 1 U	< 1 U	< 1 U	--	--	< 100 U	< 50 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
tert-Butylbenzene	ug/L	800	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Tetrachloroethene (PCE)	ug/L	5	**1.5**	< 1 U	**1.1**	**1.4**	< 1 U	**1.4**	< 1 U	**1300**	**680**	**780**	**470**	**960**	**940**	**14**	**41**	**18**	**21**	< 50 U	**16**	**19**	**14**	**8.4**	**460**	**86**	**43**	**15**	**6.6**	**3.3**	**1.2**
trans-1,2-Dichloroethene	ug/L	160	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**6.3**	**7.6**	**3.7**	**3.3**	< 100 U	< 50 U	< 5 U	**1.1**	**1.5**	**1.2**	< 50 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 10 U	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 1 UJ
trans-1,3-Dichloropropene	ug/L		--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Trichloroethene (TCE)	ug/L	5	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**780**	**390**	**370**	**150**	**610**	**560**	**8.5**	**17**	**13**	**13**	< 50 U	**11**	**12**	**5.2**	**2.9 J**	**110**	**53**	**25**	**8.4**	**3.3**	**1.6**	< 1 UJ
Trichlorofluoromethane	ug/L	2400	--	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	< 1 U	< 1 U	< 1 U	< 100 U	< 50 U	< 5 U	--	--	--	--	--	--	< 1 U	--	< 10 U	--	--	--	--	< 1 U	--
Vinyl Acetate	ug/L	8000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/L	0.292	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	**6.9**	**2**	**1.4**	< 20 U	< 10 U	**9.4**	**8.9**	**12**	**7.1**	< 10 U	**5.4**	**5.6**	**3.7**	**2.4**	< 2 U	**4**	**7.4**	**4**	**4.9**	**0.78**	**7.9**

Notes;
Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
"--" - indicates results not available

Table A-3. Advance Outwash Groundwater Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

		Location	MW-16	MW-16	MW-16	MW-16	MW-17	MW-17	MW-17	MW-18	MW-19	MW-19	MW-19	MW-19	MW-19	MW-19	MW-19	MW-19	MW-20	MW-20	MW-20	MW-20	MW-20	MW-20	MW-20
		Date	12/13/2013	01/21/2015	11/28/2018	03/25/2020	12/13/2013	11/28/2018	03/24/2020	12/12/2013	01/08/2014	01/21/2015	09/09/2015	02/02/2016	09/07/2016	09/22/2016	01/04/2017	11/28/2018	03/24/2020	01/08/2014	01/20/2015	09/09/2015	02/02/2016	09/07/2016	09/22/2016	01/04/2017	11/28/2018
Analyte	Unit	Screening Level																									
BTEX																											
Benzene	ug/L	5	< 0.35 U	< 1.7 U	< 0.35 U	--	< 0.35 U	< 0.35 U	--	< 0.35 U	< 0.35 U	< 1.7 U	--	--	--	--	--	< 0.35 U	--	< 0.35 U	< 0.35 U	--	--	--	--	--	< 0.35 U
Toluene	ug/L	1000	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Ethylbenzene	ug/L	700	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Other SVOCs																											
1,4-Dioxane	ug/L	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/L	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	0.56	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Naphthalene	ug/L	160	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
VOCs																											
1,1,1,2-Tetrachloroethane	ug/L	1.7	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,1,1-Trichloroethane	ug/L	200	< 1 U	< 5 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,1,2-Trichloroethane	ug/L	0.77	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/L	7.7	< 1 U	< 5 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	ug/L	400	< 1 U	< 5 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	**1.1**	**1.1**	< 1 U
1,1-Dichloropropene	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,2,3-Trichlorobenzene	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,2,3-Trichloropropane	ug/L	0.00038	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,2,4-Trichlorobenzene	ug/L	1.5	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,2,4-Trimethylbenzene	ug/L	80	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,2-Dibromo-3-chloropropane	ug/L	0.055	< 10 U	< 50 U	< 10 U	--	< 10 U	< 10 U	--	< 10 U	< 10 U	< 50 U	--	--	--	--	--	< 10 U	--	< 10 U	< 10 U	--	--	--	--	--	< 10 U
1,2-Dibromoethane (EDB)	ug/L	0.01	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,2-Dichlorobenzene	ug/L	720	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,2-Dichloroethane (EDC)	ug/L		< 1 U	< 5 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/L	1.2	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,3,5-Trimethylbenzene	ug/L	80	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,3-Dichlorobenzene	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,3-Dichloropropane	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
1,4-Dichloro-2-Butene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/L	8.1	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
2,2-Dichloropropane	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
2-Butanone	ug/L	4800	< 10 U	< 50 U	< 10 U	--	< 10 U	**31**	--	< 10 U	< 10 U	**57**	--	--	--	--	--	< 10 U	--	< 10 U	**38**	--	--	--	--	--	**34**
2-Chloroethyl Vinyl Ether	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	ug/L	160	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
2-Hexanone	ug/L	40	< 10 U	< 50 U	< 10 U	--	< 10 U	**31**	--	< 10 U	< 10 U	**73**	--	--	--	--	--	**19**	--	< 10 U	**25**	--	--	--	--	--	**32**
4-Chlorotoluene	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
4-Methyl-2-pentanone	ug/L	640	< 10 U	< 50 U	< 10 U	--	< 10 U	< 10 U	--	< 10 U	< 10 U	< 50 U	--	--	--	--	--	< 10 U	--	< 10 U	< 10 U	--	--	--	--	--	< 10 U
Acetone	ug/L	7200	< 10 U	**210**	< 50 U	--	< 10 U	< 50 U	--	< 10 U	< 10 U	**130**	--	--	--	--	--	< 50 U	--	< 10 U	**51**	--	--	--	--	--	< 50 U
Acrolein	ug/L	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	ug/L	0.081	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	ug/L	64	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Bromochloromethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	7.06	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Bromoethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/L	5.5	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Bromomethane	ug/L	11	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Carbon Disulfide	ug/L	800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/L	5	**2.2**	< 5 U	< 1 U	--	**3**	< 1 U	--	< 1 U	**7**	< 5 U	--	--	--	--	--	< 1 U	--	**3.6**	< 1 U	--	--	--	--	--	< 1 U
Chlorobenzene	ug/L	160	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Chloroethane	ug/L		< 1 U	< 5 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U
Chloroform	ug/L	14.1	**2.5 J**	< 5 U	< 1 U	--	**2.4 J**	< 1 U	--	**1.3 J**	**3.8**	< 5 U	--	--	--	--	--	< 1 U	--	**2.2**	< 1 U	--	--	--	--	--	< 1 U
Chloromethane	ug/L		< 10 U	< 50 U	< 10 U	--	< 10 U	< 10 U	--	< 10 U	< 10 U	< 50 U	--	--	--	--	--	< 10 U	--	< 10 U	< 10 U	--	--	--	--	--	< 10 U
cis-1,2-Dichloroethene (cDCE)	ug/L	16	**360**	**180**	**230**	**74**	**81**	**83**	**77**	**360**	**20**	**45**	**35**	**43**	< 20 U	**16**	**36**	**53**	**46**	**43**	**79**	**150**	**250**	**250**	**250**	**240**	**59**
cis-1,3-Dichloropropene	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Dibromochloromethane	ug/L	0.52	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Dibromomethane	ug/L	80	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Dichlorodifluoromethane	ug/L	1600	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Isopropylbenzene	ug/L	800	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
m,p-Xylenes	ug/L	1600	< 2 U	< 10 U	< 2 U	--	< 2 U	< 2 U	--	< 2 U	< 2 U	< 10 U	--	--	--	--	--	< 2 U	--	< 2 U	< 2 U	--	--	--	--	--	< 2 U
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Methylene Chloride	ug/L	5	< 5 U	< 25 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 25 U	< 5 U	< 5 U	< 100 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 100 U	< 5 U	< 5 U	< 5 U
Methyliodide	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	ug/L	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Hexane	ug/L	480	--	--	< 1 U	--	--	< 1 U	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--	--	--	< 1 U
n-Propylbenzene	ug/L	800	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
o-Xylene	ug/L	1600	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
p-Isopropyltoluene	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
sec-Butylbenzene	ug/L	800	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Styrene	ug/L	1600	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
tert-Butylbenzene	ug/L	800	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Tetrachloroethene (PCE)	ug/L	5	**450**	**14**	**11**	**3.7**	**170**	**9.7**	**5.4**	**460**	**62**	**9.7**	**7.6**	**8.5**	< 20 U	**8.5**	**12**	**2.5**	< 1 U	**140**	**7.4**	**11**	< 1 U	< 20 U	**4.9**	**6.2**	**4.9**
trans-1,2-Dichloroethene	ug/L	160	< 1 U	< 5 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 5 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	ug/L		< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Trichloroethene (TCE)	ug/L	5	**98**	**6.3**	**2.8**	< 1 UJ	**24**	**2.1**	< 1 UJ	**57**	**4.8**	< 5 U	**3.9**	**5.1**	< 20 U	**4.1**	**4.6**	**1.6**	< 1 UJ	**16**	**5.3**	**5.8**	< 1 U	< 20 U	**1.7**	**2**	< 1 U
Trichlorofluoromethane	ug/L	2400	< 1 U	< 5 U	< 1 U	--	< 1 U	< 1 U	--	< 1 U	< 1 U	< 5 U	--	--	--	--	--	< 1 U	--	< 1 U	< 1 U	--	--	--	--	--	< 1 U
Vinyl Acetate	ug/L	8000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/L	0.292	**0.49**	**2.2**	**2.6**	**0.83**	< 0.2 U	**0.72**	**0.86**	**0.53**	< 0.2 U	< 1 U	**1.5**	**1.5**	< 4 U	**0.43**	**0.97**	**0.56**	**0.51**	< 0.2 U	**1.8**	**1.5**	**1.9**	< 4 U	**1.8**	**2.5**	**0.84**

Notes;
Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
"--" - indicates results not available

Table A-3. Advance Outwash Groundwater Quality

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Unit	Screening Level	MW-20 12/12/2019	MW-20 03/24/2020	MW-21 12/17/2013	MW-21 01/20/2015	MW-21 09/08/2015	MW-21 02/01/2016	MW-21 09/22/2016	MW-21 01/04/2017	MW-21 11/28/2018	MW-21 03/25/2020	MW-23 03/14/2019	MW-23 03/26/2020	MW-24 02/13/2019	MW-24 08/27/2019	MW-24 12/12/2019	MW-24 03/26/2020	MW-25 02/13/2019	MW-25 03/26/2020	MW-26 02/13/2019	MW-26 08/28/2019	MW-26 12/13/2019
BTEX																							
Benzene	ug/L	5	< 0.35 U	--	< 3.5 U	< 1.7 U	--	--	--	--	< 0.35 U	--	< 0.35 U	--	< 0.35 U	< 0.35 U	< 0.35 U	--	< 0.35 U	--	< 0.35 U	< 0.35 U	< 0.35 U
Toluene	ug/L	1000	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Ethylbenzene	ug/L	700	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Other SVOCs																							
1,4-Dioxane	ug/L	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/L	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	0.56	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Naphthalene	ug/L	160	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
VOCs																							
1,1,1,2-Tetrachloroethane	ug/L	1.7	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,1,1-Trichloroethane	ug/L	200	< 1 U	< 1 UJ	< 10 U	< 5 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,1,2-Trichloroethane	ug/L	0.77	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,1,2-Trichlorotrifluoroethane	ug/L	240000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/L	7.7	< 1 U	< 1 UJ	< 10 U	< 5 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U
1,1-Dichloroethene	ug/L	400	< 1 U	< 1 UJ	< 10 U	< 5 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,1-Dichloropropene	ug/L		< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,2,3-Trichlorobenzene	ug/L		< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,2,3-Trichloropropane	ug/L	0.00038	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,2,4-Trichlorobenzene	ug/L	1.5	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,2,4-Trimethylbenzene	ug/L	80	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,2-Dibromo-3-chloropropane	ug/L	0.055	< 10 U	--	< 100 U	< 50 U	--	--	--	--	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U
1,2-Dibromoethane (EDB)	ug/L	0.01	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,2-Dichlorobenzene	ug/L	720	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,2-Dichloroethane (EDC)	ug/L		< 1 U	< 1 UJ	< 10 U	< 5 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/L	1.2	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,3,5-Trimethylbenzene	ug/L	80	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,3-Dichlorobenzene	ug/L		< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,3-Dichloropropane	ug/L		< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
1,4-Dichloro-2-Butene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/L	8.1	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
2,2-Dichloropropane	ug/L		< 1 UJ	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 UJ	--	< 1 U	--	< 1 U	< 1 U	< 1 UJ
2-Butanone	ug/L	4800	**500 J**	--	< 100 U	**100**	--	--	--	--	**27**	--	< 10 U	--	< 10 U	< 10 UJ	< 10 U	--	< 10 U	--	< 10 U	< 10 UJ	< 10 U
2-Chloroethyl Vinyl Ether	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	ug/L	160	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
2-Hexanone	ug/L	40	**58 J**	--	< 100 U	< 50 U	--	--	--	--	**27**	--	< 10 U	--	< 10 U	< 10 U	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U
4-Chlorotoluene	ug/L		< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
4-Methyl-2-pentanone	ug/L	640	**15**	--	< 100 U	< 50 U	--	--	--	--	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U
Acetone	ug/L	7200	**320 J**	--	< 100 U	**200**	--	--	--	--	< 50 U	--	< 50 U	--	< 50 U	< 50 UJ	< 50 UJ	--	< 50 U	--	< 50 U	< 50 UJ	< 50 UJ
Acrolein	ug/L	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	ug/L	0.081	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	ug/L	64	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Bromochloromethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	7.06	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Bromoethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/L	5.5	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Bromomethane	ug/L	11	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Carbon Disulfide	ug/L	800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/L	5	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Chlorobenzene	ug/L	160	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Chloroethane	ug/L		< 1 U	< 1 U	< 10 U	< 5 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	ug/L	14.1	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	**1.2**	--	**1.1**	**1.2**	**1.5**
Chloromethane	ug/L		< 10 U	--	< 100 U	< 50 U	--	--	--	--	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U
cis-1,2-Dichloroethene (cDCE)	ug/L	16	**14**	**9.8**	**460**	**270**	**510**	**650**	**320**	**340**	**190**	**230**	**18**	**20**	**5.4**	**5.1**	**4.2**	**4.1**	**3**	**3**	**2.1**	**2.2**	**2**
cis-1,3-Dichloropropene	ug/L		< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Dibromochloromethane	ug/L	0.52	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Dibromomethane	ug/L	80	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Dichlorodifluoromethane	ug/L	1600	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Isopropylbenzene	ug/L	800	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
m,p-Xylenes	ug/L	1600	< 2 U	--	< 20 U	< 10 U	--	--	--	--	< 2 U	--	< 2 U	--	< 2 U	< 2 U	< 2 U	--	< 2 U	--	< 2 U	< 2 U	< 2 U
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U	--	--	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Methylene Chloride	ug/L	5	< 5 U	< 5 U	< 50 U	< 25 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	**5.6 C**	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	**6.2 C**	< 5 U
Methyliodide	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	ug/L	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Hexane	ug/L	480	< 1 U	--	--	--	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
n-Propylbenzene	ug/L	800	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
o-Xylene	ug/L	1600	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
p-Isopropyltoluene	ug/L		< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
sec-Butylbenzene	ug/L	800	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Styrene	ug/L	1600	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
tert-Butylbenzene	ug/L	800	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Tetrachloroethene (PCE)	ug/L	5	< 1 U	**1.5**	**500**	**15**	**7.1**	**18**	**12**	**15**	**14**	**19**	**100**	**140**	**66**	**42**	**50**	**58**	**37**	**36**	**20**	**20**	**19**
trans-1,2-Dichloroethene	ug/L	160	< 1 U	< 1 UJ	< 10 U	< 5 U	**1.6**	**1.7**	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	ug/L		< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Trichloroethene (TCE)	ug/L	5	< 1 U	< 1 UJ	**130**	**12**	**9.2**	**17**	**13**	**14**	**7.6**	**9.6 J**	**25**	**23**	**12**	**10**	**11**	**11**	**3.6**	**3.2**	**2.4**	**2.7**	**2.3**
Trichlorofluoromethane	ug/L	2400	< 1 U	--	< 10 U	< 5 U	--	--	--	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U
Vinyl Acetate	ug/L	8000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/L	0.292	**1.5**	**0.65**	< 2 U	< 1 U	**7.4**	**9.7**	**4.1**	**4.2**	**2.3**	**1.5**	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Notes;
Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
"--" - indicates results not available

Table A-3. Advance Outwash Groundwater Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Location			MW-26	MW-27	MW-27	MW-28	MW-28	MW-29	MW-29	MW-30	MW-30	MW-31	MW-31	MW-32	MW-32	MW-33	MW-33	MW-34	MW-34	MW-34	MW-34	MW-35	MW-35	MW-35
Date			03/25/2020	02/13/2019	03/24/2020	03/26/2019	03/25/2020	03/26/2019	03/25/2020	02/25/2019	03/26/2020	02/25/2019	03/26/2020	03/26/2019	03/26/2020	03/26/2019	03/26/2020	07/15/2019	08/27/2019	12/13/2019	03/25/2020	08/28/2019	12/13/2019	03/25/2020
Analyte	Unit	Screening Level																						
BTEX																								
Benzene	ug/L	5	--	< 0.35 U	--	< 0.35 U	--	< 0.35 U	--	< 0.35 U	--	< 0.35 U	--	< 0.35 U	--	< 0.35 U	--	< 0.35 U	< 0.35 U	< 0.35 U	--	< 0.35 U	< 0.35 U	--
Toluene	ug/L	1000	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Ethylbenzene	ug/L	700	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Other SVOCs																								
1,4-Dioxane	ug/L	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/L	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	0.56	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Naphthalene	ug/L	160	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
VOCs																								
1,1,1,2-Tetrachloroethane	ug/L	1.7	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,1,1-Trichloroethane	ug/L	200	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U
1,1,2,2-Tetrachloroethane	ug/L	0.22	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,1,2-Trichloroethane	ug/L	0.77	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,1,2-Trichlorotrifluoroethane	ug/L	240000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/L	7.7	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 UJ
1,1-Dichloroethene	ug/L	400	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U
1,1-Dichloropropene	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,2,3-Trichlorobenzene	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,2,3-Trichloropropane	ug/L	0.00038	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,2,4-Trichlorobenzene	ug/L	1.5	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,2,4-Trimethylbenzene	ug/L	80	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,2-Dibromo-3-chloropropane	ug/L	0.055	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U	--	< 10 U	< 10 U	--
1,2-Dibromoethane (EDB)	ug/L	0.01	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,2-Dichlorobenzene	ug/L	720	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,2-Dichloroethane (EDC)	ug/L		< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U
1,2-Dichloropropane	ug/L	1.2	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,3,5-Trimethylbenzene	ug/L	80	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,3-Dichlorobenzene	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,3-Dichloropropane	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
1,4-Dichloro-2-Butene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/L	8.1	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
2,2-Dichloropropane	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 UJ	--	< 1 U	< 1 UJ	--
2-Butanone	ug/L	4800	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 UJ	--	< 10 UJ	--	< 10 U	--	< 10 U	--	< 10 U	< 10 UJ	< 10 U	--	< 10 UJ	< 10 U	--
2-Chloroethyl Vinyl Ether	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	ug/L	160	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
2-Hexanone	ug/L	40	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 UJ	--	< 10 UJ	--	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U	--	**15 J**	< 10 U	--
4-Chlorotoluene	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
4-Methyl-2-pentanone	ug/L	640	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	< 10 U	< 10 U	--	< 10 U	< 10 U	--
Acetone	ug/L	7200	--	< 50 U	--	< 50 U	--	< 50 U	--	< 50 U	--	< 50 U	--	< 50 U	--	< 50 U	--	< 50 U	< 50 UJ	< 50 UJ	--	< 50 UJ	< 50 UJ	--
Acrolein	ug/L	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	ug/L	0.081	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	ug/L	64	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Bromochloromethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	7.06	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Bromoethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/L	5.5	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Bromomethane	ug/L	11	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Carbon Disulfide	ug/L	800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/L	5	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Chlorobenzene	ug/L	160	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Chloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	ug/L	14.1	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	**1.3**	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Chloromethane	ug/L		--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	< 10 U	--	**15**	< 10 U	< 10 U	--	< 10 U	< 10 U	--
cis-1,2-Dichloroethene (cDCE)	ug/L	16	< 1 U	< 1 U	< 1 U	**2.1**	**1.8**	< 1 U	< 1 U	**6.3**	< 1 U	**28**	**34**	**2.8**	**4.9**	**1.6**	**2.4**	< 1 U	**1.3**	**20**	**10**	**2.8**	**7.2**	**4.9**
cis-1,3-Dichloropropene	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Dibromochloromethane	ug/L	0.52	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Dibromomethane	ug/L	80	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Dichlorodifluoromethane	ug/L	1600	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Isopropylbenzene	ug/L	800	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
m,p-Xylenes	ug/L	1600	--	< 2 U	--	< 2 U	--	< 2 U	--	< 2 U	--	< 2 U	--	< 2 U	--	< 2 U	--	< 2 U	< 2 U	< 2 U	--	< 2 U	< 2 U	--
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Methylene Chloride	ug/L	5	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	**5.6 C**	< 5 U	< 5 U	**5.4 C**	< 5 U	**5.3 C**
Methyliodide	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	ug/L	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Hexane	ug/L	480	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
n-Propylbenzene	ug/L	800	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
o-Xylene	ug/L	1600	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
p-Isopropyltoluene	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
sec-Butylbenzene	ug/L	800	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Styrene	ug/L	1600	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
tert-Butylbenzene	ug/L	800	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Tetrachloroethene (PCE)	ug/L	5	**15**	**9.4**	**9.3**	**20**	**20**	**12**	**14**	**27**	< 1 U	**150**	**160**	**36**	**45**	**28**	**34**	**18**	**25**	**11**	**17**	**39**	**23**	**22**
trans-1,2-Dichloroethene	ug/L	160	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U
trans-1,3-Dichloropropene	ug/L		--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Trichloroethene (TCE)	ug/L	5	**1.4 J**	**1.6**	**1.5 J**	**5.1**	**2.7 J**	**1.1**	**1.4 J**	**6.2**	< 1 U	**45**	**40**	**8.7**	**9.1**	**3.9**	**5.4**	**1.4**	**2.2**	**1.4**	**2.5 J**	**4.9**	**3.2**	**3.6**
Trichlorofluoromethane	ug/L	2400	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	--	< 1 U	< 1 U	< 1 U	--	< 1 U	< 1 U	--
Vinyl Acetate	ug/L	8000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/L	0.292	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Notes;
Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
"--" - indicates results not available

Table A-3. Advance Outwash Groundwater Quality

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

			Location	MW-2	MW-2	MW-2	MW-2	MW-2	MW-2	MW-5	MW-5	MW-5	MW-7	MW-7	MW-7	MW-8	MW-8	MW-8	MW-8
			Date	02/07/2012	12/12/2013	01/21/2015	11/28/2018	02/27/2019	03/26/2020	01/09/2014	11/28/2018	03/25/2020	02/06/2012	01/07/2014	03/26/2020	02/07/2012	12/17/2013	01/20/2015	11/28/2018
			Sample	MW-2-020712	MW-2-121213	MW-2-012115	MW-2-112818	MW-2-022719	MW-2-032620	MW-5-010914	MW-5-112818	MW-5-032520	MW-7-020612	MW-07-010714	MW-7-032620	MW-8-020712	MW-8-121713	MW-8-012015	MW-8-112818
Analyte	**Fraction**	**Unit**	**Screening Level**																
Conventionals																			
Chloride	T	mg/L		--	--	--	--	**50.6**	--	--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	T	mg/L	26	--	--	--	--	< 0.100 U	**0.452**	**0.7**	--	**0.492**	--	--	**1.75**	--	--	--	--
Nitrite as Nitrogen	T	mg/L	1.6	--	--	--	--	**0.675**	**0.726**	< 0.1 U	--	< 0.100 U	--	--	< 0.200 U	--	--	--	--
Sulfate	T	mg/L		--	--	--	--	**1.22**	< 0.600 U	**20.6**	--	**6.84**	--	--	**29.6**	--	--	--	--
Total Organic Carbon	T	mg/L		--	--	--	--	**209**	**209**	< 1.5 U	--	**2.66**	--	--	< 0.500 U	--	--	--	--
Dissolved Gases																			
Ethane	T	mg/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethene	T	mg/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methane	T	mg/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																			
Iron	T	ug/L	11000	--	**6170**	**294000**	--	**49200**	**38000**	**11500**	--	**4030**	--	**14500**	**21100**	--	**77300**	**89100**	--
Lead	D	ug/L	15	< 1 U	--	--	--	--	--	--	--	--	< 1 U	--	--	< 1 U	--	--	--
Lead	T	ug/L	15	--	--	--	--	--	--	**5.8**	--	--	--	**3.53**	--	--	--	--	--
PCBAro																			
Aroclor 1016	T	ug/L		--	--	--	--	--	--	< 0.1 U	--	--	--	< 0.1 U	--	--	--	--	--
Aroclor 1221	T	ug/L		--	--	--	--	--	--	< 0.1 U	--	--	--	< 0.1 U	--	--	--	--	--
Aroclor 1232	T	ug/L		--	--	--	--	--	--	< 0.1 U	--	--	--	< 0.1 U	--	--	--	--	--
Aroclor 1242	T	ug/L		--	--	--	--	--	--	< 0.1 U	--	--	--	< 0.1 U	--	--	--	--	--
Aroclor 1248	T	ug/L		--	--	--	--	--	--	< 0.1 U	--	--	--	< 0.1 U	--	--	--	--	--
Aroclor 1254	T	ug/L	0.044	--	--	--	--	--	--	< 0.1 U	--	--	--	< 0.1 U	--	--	--	--	--
Aroclor 1260	T	ug/L	0.044	--	--	--	--	--	--	< 0.1 U	--	--	--	< 0.1 U	--	--	--	--	--

Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
D - Dissolved Fraction (filtered) sample result
T - Total Fraction (unfiltered) sample result
"--" - indicates results not available

Table A-3. Advance Outwash Groundwater Quality

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

			Location	MW-8	MW-15	MW-15	MW-15	MW-16	MW-16	MW-16	MW-16	MW-17	MW-17	MW-17	MW-18	MW-19	MW-19	MW-19
			Date	03/25/2020	12/17/2013	11/28/2018	03/23/2020	12/13/2013	01/21/2015	11/28/2018	03/25/2020	12/13/2013	11/28/2018	03/24/2020	12/12/2013	01/08/2014	01/21/2015	11/28/2018
			Sample	MW-8-032520	MW-15-121713	MW-15-112818	MW-15-032320	MW-16-121313	MW-16-012115	MW-16-112818	MW-16-032520	MW-17-121313	MW-17-112818	MW-17-032420	MW-18-121213	MW-19-010814	MW-19-012115	MW-19-112818
Analyte	**Fraction**	**Unit**	**Screening Level**															
Conventionals																		
Chloride	T	mg/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	T	mg/L	26	< 0.100 U	--	--	< 0.100 U	--	--	--	**0.122**	--	--	**0.222**	--	--	--	--
Nitrite as Nitrogen	T	mg/L	1.6	< 0.100 UJ	--	--	< 0.100 U	--	--	--	< 0.100 U	--	--	**0.402**	--	--	--	--
Sulfate	T	mg/L		**0.557**	--	--	**16**	--	--	--	**2.09**	--	--	**1.93**	--	--	--	--
Total Organic Carbon	T	mg/L		**157**	--	--	**6.59**	--	--	--	**63.4**	--	--	**258**	--	--	--	--
Dissolved Gases																		
Ethane	T	mg/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethene	T	mg/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methane	T	mg/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																		
Iron	T	ug/L	11000	**20300**	**968**	--	**3630**	**4130**	**62500**	--	**21500**	**32800**	--	**36400**	**216**	**113000**	**59400**	--
Lead	D	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	T	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCBAro																		
Aroclor 1016	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	T	ug/L	0.044	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	T	ug/L	0.044	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
D - Dissolved Fraction (filtered) sample result
T - Total Fraction (unfiltered) sample result
"--" - indicates results not available

Table A-3. Advance Outwash Groundwater Quality

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

			Location	MW-19	MW-20	MW-20	MW-20	MW-20	MW-20	MW-20	MW-20	MW-21	MW-21	MW-21	MW-21	MW-23	MW-23	MW-24
			Date	03/24/2020	01/08/2014	01/20/2015	11/28/2018	02/28/2019	07/15/2019	12/12/2019	03/24/2020	12/17/2013	01/20/2015	11/28/2018	03/25/2020	03/14/2019	03/26/2020	02/13/2019
			Sample	MW-19-032420	MW-20-010814	MW-20-012015	MW-20-112818	MW-20-022819	MW-20-071519	MW-20-121219	MW-20-032420	MW-21-121713	MW-21-012015	MW-21-112818	MW-21-032520	MW-23-031419	MW-23-032620	MW-24-021319
Analyte	**Fraction**	**Unit**	**Screening Level**															
Conventionals																		
Chloride	T	mg/L		--	--	--	--	**31.4**	--	--	--	--	--	--	--	--	--	**32.9**
Nitrate as Nitrogen	T	mg/L	26	< 0.200 UJ	--	--	--	< 0.100 U	--	**0.252 J**	**0.105 J**	--	--	--	**0.566**	--	**0.912**	**0.606 J**
Nitrite as Nitrogen	T	mg/L	1.6	< 0.200 UJ	--	--	--	**0.128**	--	**2.74 J**	**1.3**	--	--	--	**1.1**	--	< 0.100 UJ	< 0.200 UJ
Sulfate	T	mg/L		< 0.600 U	--	--	--	< 0.300 U	--	< 0.3	< 0.300 U	--	--	--	**8.42**	--	**24.9**	**12.6**
Total Organic Carbon	T	mg/L		**142**	--	--	--	**179**	--	**809**	**304**	--	--	--	**241**	--	< 0.500 U	**0.751**
Dissolved Gases																		
Ethane	T	mg/L		--	--	--	--	--	< 0.0162 U	< 0.0162	--	--	--	--	--	--	--	--
Ethene	T	mg/L		--	--	--	--	--	< 0.0151 U	< 0.0151	--	--	--	--	--	--	--	--
Methane	T	mg/L		--	--	--	--	--	**10.2**	**3.73**	--	--	--	--	--	--	--	--
Metals																		
Iron	T	ug/L	11000	**89000**	**40800**	**50600**	--	**71000**	--	**114000**	**73000**	**79100**	**42200**	--	**34300**	--	**4950**	**3640**
Lead	D	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	T	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCBAro																		
Aroclor 1016	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	T	ug/L	0.044	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	T	ug/L	0.044	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
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D - Dissolved Fraction (filtered) sample result
T - Total Fraction (unfiltered) sample result
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Table A-3. Advance Outwash Groundwater Quality

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

			Location	MW-24	MW-24	MW-24	MW-25	MW-25	MW-26	MW-26	MW-26	MW-26	MW-27	MW-27	MW-28	MW-28	MW-29	MW-29
			Date	08/27/2019	12/12/2019	03/26/2020	02/13/2019	03/26/2020	02/13/2019	08/28/2019	12/13/2019	03/25/2020	02/13/2019	03/24/2020	03/26/2019	03/25/2020	03/26/2019	03/25/2020
			Sample	MW-24-082719	MW-24-121219	MW-24-032620	MW-25-021319	MW-25-032620	MW-26-021319	MW-26-082719	MW-26-121319	MW-26-032520	MW-27-021319	MW-27-032420	MW-28-032619	MW-28-032520	MW-29-032619	MW-29-032520
Analyte	**Fraction**	**Unit**	**Screening Level**															
Conventionals																		
Chloride	T	mg/L		--	--	--	**48.5**	--	**46.9**	--	--	--	**298**	--	--	--	--	--
Nitrate as Nitrogen	T	mg/L	26	**0.566**	**0.307 J**	< 0.200 U	**0.624 J**	**0.556**	**1.78 J**	**1.92**	**1.85 J**	**1.69**	**2.41 J**	**2.01**	--	**1.76**	--	**1.29**
Nitrite as Nitrogen	T	mg/L	1.6	< 0.2 UJ	< 0.1 UJ	< 0.200 U	**0.308 J**	< 0.200 U	< 0.200 UJ	< 0.2 UJ	< 0.1 UJ	< 0.100 U	< 1.00 UJ	< 0.200 U	--	< 0.200 U	--	< 0.100 U
Sulfate	T	mg/L		**11.6**	**9.69**	**8.86**	**16.1**	**13.3**	**14.4**	**13.7**	**12.9**	**13.4**	**18.9**	**23.1**	--	**18.5**	--	**14.6**
Total Organic Carbon	T	mg/L		**3.36**	**2.43**	**3.25**	**0.862**	< 0.500 U	< 0.500 U	< 0.5 U	< 1	< 0.500 U	**0.719**	**0.506**	--	< 0.500 U	--	< 0.500 U
Dissolved Gases																		
Ethane	T	mg/L		< 0.0162 U	< 0.0162	--	--	--	--	--	--	--	--	--	--	--	--	--
Ethene	T	mg/L		< 0.0151 U	< 0.0151	--	--	--	--	--	--	--	--	--	--	--	--	--
Methane	T	mg/L		**0.0278**	**2.3**	--	--	--	--	--	--	--	--	--	--	--	--	--
Metals																		
Iron	T	ug/L	11000	**41400**	**4070**	**3470**	**1670**	**829**	**4240**	**49400**	**51700**	**45300**	**3220**	**6940**	--	**3060**	--	**17200**
Lead	D	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	T	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCBAro																		
Aroclor 1016	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	T	ug/L	0.044	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	T	ug/L	0.044	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Bold - detected
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U - Analyte not detected at or above Reporting Limit (RL) shown
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Table A-3. Advance Outwash Groundwater Quality

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

			Location	MW-30	MW-30	MW-31	MW-31	MW-32	MW-32	MW-33	MW-33	MW-34	MW-34	MW-34	MW-34	MW-35	MW-35	MW-35
			Date	02/25/2019	03/26/2020	02/25/2019	03/26/2020	03/26/2019	03/26/2020	03/26/2019	03/26/2020	07/15/2019	08/27/2019	12/13/2019	03/25/2020	08/28/2019	12/13/2019	03/25/2020
			Sample	MW-30-022519	MW-30-032620	MW-31-022519	MW-31-032620	MW-32-032619	MW-32-032620	MW-33-032619	MW-33-032620	MW-34-071519	MW-34-082719	MW-34-121319	MW-34-032520	MW-35-082719	MW-35-121319	MW-35-032520
Analyte	**Fraction**	**Unit**	**Screening Level**															
Conventionals																		
Chloride	T	mg/L		**10.1**	--	**23.7**	--	--	--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	T	mg/L	26	**1.17**	**1.71**	**1.09**	**0.462**	**--**	**2.95**	**--**	**11.1 J**	**0.484**	**0.284 J**	**0.208 J**	**0.445**	**0.268 J**	**0.388 J**	**0.611**
Nitrite as Nitrogen	T	mg/L	1.6	< 0.2 U	< 0.200 U	**0.166 J**	< 0.100 UJ	--	< 0.200 U	--	< 0.200 U	**0.125**	< 0.4 UJ	< 0.1 UJ	< 0.100 U	**1.17 J**	< 0.1 UJ	< 0.100 U
Sulfate	T	mg/L		**24.2**	**35.3**	**13.3**	**13.3**	--	**17**	--	**27.3**	**15.1**	**7.48**	**4.26**	**8.65**	**7.27**	**13.2**	**13.1**
Total Organic Carbon	T	mg/L		**1.24**	**1.17**	**0.723**	**0.541**	--	< 0.500 U	--	< 0.500 U	**3.9 J**	**20.5**	**6.76**	**1.23**	**132**	**3.66**	**0.699**
Dissolved Gases																		
Ethane	T	mg/L		--	--	--	--	--	--	--	--	< 0.0162 U	< 0.0162 U	< 0.0162	--	--	< 0.0162	--
Ethene	T	mg/L		--	--	--	--	--	--	--	--	< 0.0151 U	< 0.0151 U	< 0.0151	--	--	< 0.0151	--
Methane	T	mg/L		--	--	--	--	--	--	--	--	**0.0309**	< 0.00863 U	**0.0646**	--	--	< 0.00863	--
Metals																		
Iron	T	ug/L	11000	**4530**	**6920**	**8680**	**8820**	--	**2760**	--	**5280**	**3650**	**6090**	**7320**	**2370**	**6170**	**4660**	**2220**
Lead	D	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead	T	ug/L	15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PCBAro																		
Aroclor 1016	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1221	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1232	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1242	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1248	T	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1254	T	ug/L	0.044	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Aroclor 1260	T	ug/L	0.044	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Bold - detected
Blue Shaded - Detected result exceeded screening level
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Table A-4. Deeper Water Bearing Zone Groundwater Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Analyte	Unit	Screening Level	MW-8D 05/11/2009 MW-8D-051109	MW-8D 12/22/2010 MW-8D-122210	MW-8D 02/06/2012 MW-8D-020612	MW-8D 01/10/2014 MW-8D-011014	MW-8D 04/28/2015 MW-8D-042815	MW-8D 09/08/2015 MW-8D-090815	MW-8D 02/02/2016 MW-8D-020216	MW-8D 09/07/2016 MW-8D-090916	MW-8D 01/12/2017 MW-8D-011217	MW-8D 04/09/2019 MW-8D-040919	MW-8D 03/23/2020 MW-8D-032320	MW-12D 12/22/2010 MW-12D-122210	MW-12D 02/06/2012 MW-12D-020612	MW-12D 01/10/2014 MW-12D-011014	MW-12D 04/29/2015 MW-12D-042915	MW-12D 09/10/2015 MW-12D-091015	MW-12D 02/02/2016 MW-12D-020216	MW-12D 09/07/2016 MW-12D-090716	MW-12D 01/12/2017 MW-12D-011217	MW-12D 03/24/2020 MW-12D-032420
BTEX																						
Benzene	ug/L	5	< 1 U	< 0.35 U	< 0.35 U	< 0.2 U	< 0.35 U	--	--	--	--	--	--	< 0.35 U	< 0.35 U	< 0.2 U	< 0.35 U	--	--	--	--	--
Toluene	ug/L	1000	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Ethylbenzene	ug/L	700	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Other SVOCs																						
1,4-Dioxane	ug/L	0.44	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Dibenzofuran	ug/L	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	0.56	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--
Naphthalene	ug/L	160	< 1 U	< 1 U	< 1 U	**0.8**	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--
VOCs																						
1,1,1,2-Tetrachloroethane	ug/L	1.7	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,1,1-Trichloroethane	ug/L	200	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,1,2,2-Tetrachloroethane	ug/L	0.22	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,1,2-Trichloroethane	ug/L	0.77	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,1,2-Trichlorotrifluoroethane	ug/L	240000	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--
1,1-Dichloroethane	ug/L	7.7	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,1-Dichloroethene	ug/L	400	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,1-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,2,3-Trichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--
1,2,3-Trichloropropane	ug/L	0.00038	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/L	1.5	< 1 U	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.5 U	< 1 U	--	--	--	--	--
1,2,4-Trimethylbenzene	ug/L	80	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,2-Dibromo-3-chloropropane	ug/L	0.055	< 1 U	< 10 U	< 10 U	< 0.5 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 0.5 U	< 10 U	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/L	0.01	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,2-Dichlorobenzene	ug/L	720	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,2-Dichloropropane	ug/L	1.2	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,3,5-Trimethylbenzene	ug/L	80	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,3-Dichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,3-Dichloropropane	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
1,4-Dichloro-2-Butene	ug/L		--	--	--	< 1 U	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/L	8.1	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
2,2-Dichloropropane	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
2-Butanone	ug/L	4800	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	--
2-Chloroethyl Vinyl Ether	ug/L		--	--	--	< 1 U	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--
2-Chlorotoluene	ug/L	160	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
2-Hexanone	ug/L	40	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	--
4-Chlorotoluene	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
4-Methyl-2-pentanone	ug/L	640	< 10 U	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 5 U	< 10 U	--	--	--	--	--
Acetone	ug/L	7200	< 10 U	**13**	< 10 U	< 5 U	< 10 U	--	--	--	--	--	--	**12**	< 10 U	< 5 U	< 10 U	--	--	--	--	--
Acrolein	ug/L	4	--	--	--	< 5 U	--	--	--	--	--	--	--	--	--	< 5 U	--	--	--	--	--	--
Acrylonitrile	ug/L	0.081	--	--	--	< 1 U	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--
Bromobenzene	ug/L	64	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Bromochloromethane	ug/L		--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--
Bromodichloromethane	ug/L	7.06	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Bromoethane	ug/L		--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--
Bromoform	ug/L	5.5	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Bromomethane	ug/L	11	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--
Carbon Disulfide	ug/L	800	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--
Carbon Tetrachloride	ug/L	5	**1.9**	**2**	**1.8**	**1.7**	**1.7**	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Chlorobenzene	ug/L	160	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Chloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	ug/L	14.1	< 1 U	< 1 U	< 1 U	**0.68**	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Chloromethane	ug/L		< 1 U	< 10 U	< 10 U	< 0.5 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 0.5 U	< 10 U	--	--	--	--	--
cis-1,2-Dichloroethene (cDCE)	ug/L	16	**11**	**21**	**26**	**42**	**54**	**65**	**62**	**69**	**77**	**97**	**110**	**22**	**17**	**22**	**13**	**9.1**	**9.2**	**3.4**	**3**	**8.9**
cis-1,3-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Dibromochloromethane	ug/L	0.52	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Dibromomethane	ug/L	80	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Dichlorodifluoromethane	ug/L	1600	< 1 U	< 1 U	< 1 U	--	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	--	< 1 U	--	--	--	--	--
Isopropylbenzene	ug/L	800	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
m,p-Xylenes	ug/L	1600	< 2 U	< 2 U	< 2 U	< 0.4 U	< 2 U	--	--	--	--	--	--	< 2 U	< 2 U	< 0.4 U	< 2 U	--	--	--	--	--
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U	< 1 U	< 1 U	--	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	--	< 1 U	--	--	--	--	--
Methylene Chloride	ug/L	5	< 5 U	< 5 U	< 5 U	< 1 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 1 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Methyliodide	ug/L		--	--	--	< 1 U	--	--	--	--	--	--	--	--	--	< 1 U	--	--	--	--	--	--
n-Butylbenzene	ug/L	400	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--
n-Hexane	ug/L	480	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	ug/L	800	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
o-Xylene	ug/L	1600	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
p-Isopropyltoluene	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
sec-Butylbenzene	ug/L	800	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Styrene	ug/L	1600	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
tert-Butylbenzene	ug/L	800	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Tetrachloroethene (PCE)	ug/L	5	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	**6.1**	< 1 U	**0.7**	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	ug/L	160	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
trans-1,3-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Trichloroethene (TCE)	ug/L	5	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	**0.34**	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
Trichlorofluoromethane	ug/L	2400	< 1 U	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 0.2 U	< 1 U	--	--	--	--	--
Vinyl Acetate	ug/L	8000	--	--	--	< 0.2 U	--	--	--	--	--	--	--	--	--	< 0.2 U	--	--	--	--	--	--
Vinyl Chloride	ug/L	0.292	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
"--" - indicates results not available

Table A-4. Deeper Water Bearing Zone Groundwater Quality
Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

Location			MW-13D	MW-13D	MW-13D	MW-13D	MW-13D	MW-13D	MW-13D	MW-13D	MW-13D	MW-13D	MW-14D	MW-14D	MW-14D	MW-14D	MW-14D	MW-14D	MW-14D	MW-14D
Date			12/22/2010	02/07/2012	12/16/2013	04/29/2015	09/09/2015	02/02/2016	09/07/2016	01/12/2017	04/09/2019	03/24/2020	02/06/2012	01/23/2014	04/29/2015	09/09/2015	02/02/2016	09/07/2016	01/12/2017	04/09/2019	03/25/2020
Sample			MW-13D-122210	MW-13D-020712	MW-13D-121613	MW-13D-042915	MW-13D-090915	MW-13D-020216	MW-13D-090716	MW-13D-011217	MW-13D-040919	MW-13D-032420	MW-14D-020612	MW-14D-012314	MW-14D-042915	MW-14D-090915	MW-14D-020216	MW-14D-090716	MW-14D-011217	MW-14D-040919	MW-14D-032520
Analyte	**Unit**	**Screening Level**																			
BTEX																					
Benzene	ug/L	5	< 0.35 U	< 0.35 U	< 0.35 U	< 0.35 U	--	--	--	--	--	--	< 0.35 U	< 0.35 U	< 0.35 U	--	--	--	--	--	--
Toluene	ug/L	1000	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Ethylbenzene	ug/L	700	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Other SVOCs																					
1,4-Dioxane	ug/L	0.44	--	--	--	--	--	--	--	--	--	--	--	< 10 U	--	--	--	--	--	--	--
Dibenzofuran	ug/L	16	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hexachlorobutadiene	ug/L	0.56	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Naphthalene	ug/L	160	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	**2**	< 1 U	--	--	--	--	--	--
VOCs																					
1,1,1,2-Tetrachloroethane	ug/L	1.7	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,1,1-Trichloroethane	ug/L	200	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,1,2,2-Tetrachloroethane	ug/L	0.22	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,1,2-Trichloroethane	ug/L	0.77	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,1,2-Trichlorotrifluoroethane	ug/L	240000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/L	7.7	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,1-Dichloroethene	ug/L	400	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,1-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,2,3-Trichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,2,3-Trichloropropane	ug/L	0.00038	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,2,4-Trichlorobenzene	ug/L	1.5	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,2,4-Trimethylbenzene	ug/L	80	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	ug/L	0.055	< 10 U	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/L	0.01	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/L	720	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,2-Dichloroethane (EDC)	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
1,2-Dichloropropane	ug/L	1.2	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,3,5-Trimethylbenzene	ug/L	80	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,3-Dichlorobenzene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,3-Dichloropropane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
1,4-Dichloro-2-Butene	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/L	8.1	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
2,2-Dichloropropane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
2-Butanone	ug/L	4800	< 10 U	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--
2-Chloroethyl Vinyl Ether	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Chlorotoluene	ug/L	160	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
2-Hexanone	ug/L	40	< 10 U	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--
4-Chlorotoluene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
4-Methyl-2-pentanone	ug/L	640	< 10 U	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--
Acetone	ug/L	7200	**18**	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--
Acrolein	ug/L	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Acrylonitrile	ug/L	0.081	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromobenzene	ug/L	64	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Bromochloromethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/L	7.06	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Bromoethane	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bromoform	ug/L	5.5	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Bromomethane	ug/L	11	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Carbon Disulfide	ug/L	800	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon Tetrachloride	ug/L	5	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Chlorobenzene	ug/L	160	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Chloroethane	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U
Chloroform	ug/L	14.1	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Chloromethane	ug/L		< 10 U	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--	< 10 U	< 10 U	< 10 U	--	--	--	--	--	--
cis-1,2-Dichloroethene (cDCE)	ug/L	16	**30**	**28**	**32**	**14**	**22**	**23**	**13**	**16**	**12**	**13**	**28**	**4.5**	**2.5**	**15**	**2.2**	**3.6**	**4.8**	< 1 U	**1.8**
cis-1,3-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Dibromochloromethane	ug/L	0.52	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Dibromomethane	ug/L	80	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Dichlorodifluoromethane	ug/L	1600	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Isopropylbenzene	ug/L	800	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
m,p-Xylenes	ug/L	1600	< 2 U	< 2 U	< 2 U	< 2 U	--	--	--	--	--	--	< 2 U	< 2 U	< 2 U	--	--	--	--	--	--
Methyl tert-butyl ether (MTBE)	ug/L	20	< 1 U	< 1 U	--	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Methylene Chloride	ug/L	5	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U	< 5 U
Methyliodide	ug/L		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	ug/L	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Hexane	ug/L	480	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	ug/L	800	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
o-Xylene	ug/L	1600	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
p-Isopropyltoluene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
sec-Butylbenzene	ug/L	800	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Styrene	ug/L	1600	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
tert-Butylbenzene	ug/L	800	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Tetrachloroethene (PCE)	ug/L	5	**14**	**4.2**	**5.9**	< 1 U	**4.1**	**2.2**	**2.3**	**11**	**3.1**	**3.7**	**4.2**	**2.4**	**2.2**	**9.2**	**1.8**	**3.2**	**7.4**	< 1 U	**1.8**
trans-1,2-Dichloroethene	ug/L	160	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 UJ
trans-1,3-Dichloropropene	ug/L		< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Trichloroethene (TCE)	ug/L	5	**3.2**	**2.4**	**3.7**	< 1 U	**2.2**	**2.1**	**1.7**	**3.2**	**1.9**	**1.7 J**	**3.3**	**1**	< 1 U	**3.9**	< 1 U	**1.1**	**1.9**	< 1 U	< 1 UJ
Trichlorofluoromethane	ug/L	2400	< 1 U	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--	< 1 U	< 1 U	< 1 U	--	--	--	--	--	--
Vinyl Acetate	ug/L	8000	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/L	0.292	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U	< 0.2 U

Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
"--" - indicates results not available

Table A-4. Deeper Water Bearing Zone Groundwater Quality

Project No. 080190, Morell's Dry Cleaners, Tacoma, Washington

			Location	MW-8D	MW-8D	MW-8D	MW-12D	MW-13D	MW-13D	MW-13D	MW-14D	MW-14D	MW-14D
			Date	01/10/2014	04/09/2019	03/23/2020	03/24/2020	02/07/2012	04/09/2019	03/24/2020	02/06/2012	04/09/2019	03/25/2020
Analyte	**Fraction**	**Unit**	**Screening Level**										
Conventionals													
Chloride	T	mg/L		--	--	--	--	--	--	--	--	--	--
Nitrate as Nitrogen	T	mg/L	26	**1.6**	--	**2.13**	**3.93 J**	--	--	**3.31 J**	--	--	**3.38 J**
Nitrite as Nitrogen	T	mg/L	1.6	< 0.1 U	--	< 0.100 U	< 0.100 U	--	--	< 0.100 U	--	--	< 0.100 U
Sulfate	T	mg/L		**22.8**	--	**21.2**	**19.1**	--	--	**19.8**	--	--	**20.2**
Total Organic Carbon	T	mg/L		< 1.5 U	--	< 0.500 U	< 0.500 U	--	--	**0.538**	--	--	< 0.500 U
Metals													
Iron	T	ug/L	11000	**790**	--	**502**	**6420**	--	--	**26900**	--	--	**8650**
Lead	D	ug/L	15	--	--	--	--	< 1 U	--	--	< 1 U	--	--
Lead	T	ug/L	15	--	--	--	--	--	--	--	--	--	--

Bold - detected
Blue Shaded - Detected result exceeded screening level
U - Analyte not detected at or above Reporting Limit (RL) shown
J - Result value estimated
D - Dissolved Fraction (filtered) sample result
T - Total Fraction (unfiltered) sample result
"--" - indicates results not available

Table A-5. Sub-Slab Soil Gas Quality

Project No. 080190, Morell's Dr Cleaners, Tacoma, Washington

Analyte	Unit	Location / Date / Screening Level [1]	SV-1 01/21/2009	SV-2 01/21/2009	SV-3 01/21/2009	SV-4 01/21/2009	VP-1 02/09/2012	VP-2 02/09/2012	VP-3 02/09/2012	VP-4 10/15/2014	VP-4 04/21/2015	VP-4 09/07/2016	VP-4 12/28/2016	VP-5 04/21/2015	VP-5 09/07/2016	VP-5 12/28/2016	VP-7 10/15/2014
(None)																	
Acetaldehyde	ug/m3	38	--	--	--	--	--	--	--	--	--	< 45 U	**16**	--	< 45 U	< 9 U	--
APH																	
C5 - C8 Aliphatic Hydrocarbons	ug/m3		--	--	--	--	--	--	--	--	--	**1700**	**5600**	--	**1700**	**3500**	--
C9 - C12 Aliphatic Hydrocarbor	ug/m3		--	--	--	--	--	--	--	--	--	**1100**	**3600**	--	**2400**	**460**	--
C9 - C10 Aromatic Hydrocarbor	ug/m3		--	--	--	--	--	--	--	--	--	< 250 U	< 250 U	--	< 250 U	< 250 U	--
BTEX																	
Benzene	ug/m3	11	< 200 U	< 200 U	< 200 U	< 200 U	< 0.58 U	< 140 U	< 0.97 U	**1300**	< 0.60 U	< 1.6 U	**1**	< 5.8 U	< 1.6 U	**0.94**	< 5.6 U
Toluene	ug/m3	76000	< 200 U	< 200 U	< 200 U	< 200 U	**1.9**	< 160 U	**6**	**2600**	**5.4**	**3.1**	**3.7**	**7.5**	**4**	**5.5**	< 6.6 U
Ethylbenzene	ug/m3	15000	< 200 U	< 200 U	< 200 U	< 200 U	< 0.79 U	< 180 U	**1.8**	**1700**	**3.4**	< 2.2 U	**7.7**	< 7.8 U	< 2.2 U	**3.3**	< 7.6 U
Total Xylenes	ug/m3	1500	--	--	--	--	**4.12**	< 180 U	**9.3**	**4600**	**13.9**	**9.2**	**8.7**	**13**	**10.1**	**7.9**	< 7.6 U
Other SVOCs																	
1,4-Dioxane	ug/m3		--	--	--	--	--	--	--	--	< 0.67 U	< 90 UJ	< 0.36 U	< 6.5 U	< 90 UJ	< 0.36 U	--
Hexachlorobutadiene	ug/m3	3.8	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 10 U	< 5.3 U	< 1.1 U	< 96 U	< 5.3 U	< 1.1 U	--
Naphthalene	ug/m3	2.5	< 200 U	< 200 U	< 200 U	< 200 U	< 4.8 U	< 900 U	< 8.0 U	--	--	**2.8**	**1.8**	--	**3**	**2**	--
VOCs																	
1,1,1,2-Tetrachloroethane	ug/m3	11	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
1,1,1-Trichloroethane	ug/m3	76000	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1200 U	< 1.0 U	< 2.7 U	< 0.55 U	< 9.9 U	< 2.7 U	< 0.55 U	< 9.5 U
1,1,2,2-Tetrachloroethane	ug/m3	1.4	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1500 U	< 1.3 U	< 3.4 U	< 0.69 U	< 12 U	< 3.4 U	< 0.69 U	< 12 U
1,1,2-Trichloroethane	ug/m3	3	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1200 U	< 1.0 U	< 2.7 U	< 0.55 U	< 9.9 U	< 2.7 U	< 0.55 U	< 9.5 U
1,1,2-Trichlorotrifluoroethane	ug/m3	76000	--	--	--	--	--	--	--	--	< 1.4 U	< 3.8 U	< 0.77 U	< 14 U	< 3.8 U	< 0.77 U	--
1,1-Dichloroethane	ug/m3	52	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 890 U	< 0.76 U	< 2 U	< 0.4 U	< 7.3 U	< 2 U	< 0.4 U	< 7.1 U
1,1-Dichloroethene	ug/m3	3000	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 880 U	< 0.74 U	< 2 U	< 0.4 U	< 7.2 U	< 2 U	< 0.4 U	< 6.9 U
1,1-Dichloropropene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichlorobenzene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trichloropropane	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
1,2,3-Trimethylbenzene	ug/m3		--	--	--	--	--	--	--	--	--	< 12 U	< 2.5 U	--	< 12 U	< 2.5 U	--
1,2,4-Trichlorobenzene	ug/m3	30	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 6.9 U	< 3.7 U	< 0.74 U	< 67 U	< 3.7 U	**0.75**	--
1,2,4-Trimethylbenzene	ug/m3	910	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	**2.8**	< 12 U	**3.8**	< 8.9 U	< 12 U	**3**	--
1,2-Dibromo-3-chloropropane	ug/m3		< 1000 U	< 1000 U	< 1000 U	< 1000 U	--	--	--	--	--	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	ug/m3	0.14	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1700 U	< 1.4 U	< 3.8 U	< 0.77 U	< 14 U	< 3.8 U	< 0.77 U	< 13 U
1,2-Dichlorobenzene	ug/m3	3000	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 1.1 U	< 6 U	< 1.2 U	< 11 U	< 6 U	< 1.2 U	--
1,2-Dichloroethane (EDC)	ug/m3	3.2	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 890 U	< 0.76 U	< 2 U	< 0.4 U	< 7.3 U	< 2 U	< 0.4 U	< 7.1 U
1,2-Dichloropropane	ug/m3	23	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 0.86 U	< 2.3 U	< 0.46 U	< 8.4 U	< 2.3 U	< 0.46 U	--
1,3,5-Trimethylbenzene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 0.92 U	< 12 U	< 2.5 U	< 8.9 U	< 12 U	< 2.5 U	--
1,3-Dichlorobenzene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 1.1 U	< 6 U	< 1.2 U	< 11 U	< 6 U	< 1.2 U	--
1,3-Dichloropropane	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	ug/m3	7.6	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1300 U	< 1.1 U	< 3 U	< 0.6 U	< 11 U	< 3 U	< 0.6 U	< 10 U
1-Propene	ug/m3		--	--	--	--	--	--	--	--	--	**4.8**	**8.3**	--	< 3.4 U	**10**	--
2,2-Dichloropropane	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	ug/m3	76000	< 1000 U	< 1000 U	< 1000 U	< 1000 U	--	--	--	--	< 2.8 U	< 15 U	< 2.9 U	< 27 U	< 15 U	**5.3**	--
2-Chlorotoluene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
2-Hexanone	ug/m3		< 1000 U	< 1000 U	< 1000 U	< 1000 U	--	--	--	--	< 3.8 U	< 20 U	< 4.1 U	< 37 U	< 20 U	< 4.1 U	--
2-Pentanone	ug/m3		--	--	--	--	--	--	--	--	--	< 18 U	< 3.5 U	--	< 18 U	< 3.5 U	--
3-Hexanone	ug/m3		--	--	--	--	--	--	--	--	--	< 20 U	< 4.1 U	--	< 20 U	< 4.1 U	--
3-Pentanone	ug/m3		--	--	--	--	--	--	--	--	--	< 18 U	< 3.5 U	--	< 18 U	< 3.5 U	--
4-Chlorotoluene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	ug/m3	46000	< 1000 U	< 1000 U	< 1000 U	< 1000 U	--	--	--	--	**1**	< 20 U	< 4.1 U	**17**	< 20 U	< 4.1 U	--
Acetone	ug/m3		**1000**	< 1000 U	< 1000 U	< 1000 U	--	--	--	--	**7.2**	< 24 U	**4.8**	**170**	< 24 U	**8.4**	--
Acetonitrile	ug/m3	910	--	--	--	--	--	--	--	--	--	< 8.4 U	< 1.7 U	--	< 8.4 U	< 1.7 U	--
Acrolein	ug/m3	0.3	--	--	--	--	--	--	--	--	--	**5.9**	< 0.92 U	--	< 4.6 U	< 0.92 U	--
Acrylonitrile	ug/m3	1.2	< 1000 U	< 1000 U	< 1000 U	< 1000 U	--	--	--	--	--	< 1.1 U	< 0.22 U	--	< 1.1 U	< 0.22 U	--
Allyl Chloride	ug/m3		--	--	--	--	--	--	--	--	< 2.9 UJ	--	--	< 28 UJ	--	--	--
Bromobenzene	ug/m3	910	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
Bromochloromethane	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
Bromodichloromethane	ug/m3	2.3	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 1.2 U	< 3.4 U	< 0.67 U	< 12 U	< 3.4 U	< 0.67 U	--
Bromoform	ug/m3	76	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 1.9 U	< 10 U	< 2.1 U	< 19 U	< 10 U	< 2.1 U	--
Bromomethane	ug/m3	76	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 3.6 U	< 1.9 U	< 0.39 U	< 35 U	< 1.9 U	< 0.39 U	--
Butyraldehyde	ug/m3		--	--	--	--	--	--	--	--	--	< 15 U	< 2.9 U	--	< 15 U	< 2.9 U	--
Carbon Disulfide	ug/m3	11000	--	--	--	--	--	--	--	--	< 2.9 U	< 31 U	< 6.2 U	< 28 U	< 31 U	< 6.2 U	--
Carbon Tetrachloride	ug/m3	14	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1400 U	< 1.2 U	< 3.1 U	< 0.63 U	< 11 U	< 3.1 U	< 0.63 U	< 11 U
Chlorobenzene	ug/m3	760	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 0.86 U	< 2.3 U	< 0.46 U	< 8.3 U	< 2.3 U	< 0.46 U	--
Chlorodifluoromethane	ug/m3	760000	--	--	--	--	--	--	--	--	--	< 1.8 U	**1.5**	--	< 1.8 U	**0.89**	--
Chloroethane	ug/m3	150000	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 2300 U	< 2.5 U	< 1.3 U	< 0.26 U	< 24 U	< 1.3 U	< 0.26 U	< 18 U
Chloroform	ug/m3	3.6	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1100 U	< 0.91 U	**18**	**0.83**	< 8.8 U	< 2.4 U	< 0.49 U	< 8.5 U
Chloromethane	ug/m3	1400	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1800 U	< 1.9 U	< 1 U	**0.36**	< 19 U	< 1 U	< 0.21 U	< 36 U
cis-1,2-Dichloroethene (cDCE)	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	< 0.72 U	< 170 U	< 1.2 U	< 880 U	**0.81**	< 2 U	< 0.4 U	**8.2**	**2.5**	**0.74**	**8.6**
cis-1,3-Dichloropropene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 0.85 U	< 2.3 U	< 0.45 U	< 8.2 U	< 2.3 U	< 0.45 U	--
Cyclohexane	ug/m3		--	--	--	--	--	--	--	--	< 0.64 U	< 34 U	**150**	< 6.2 U	< 34 U	**150**	--
Cyclopentane	ug/m3		--	--	--	--	--	--	--	--	--	< 1.4 U	**3.5**	--	< 1.4 U	**5.3**	--
Dibromochloromethane	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 1.6 U	< 4.3 U	< 0.85 U	< 15 U	< 4.3 U	< 0.85 U	--
Dibromomethane	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
Dichlorodifluoromethane	ug/m3	1500	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 1100 U	**1.2**	< 13 U	**2.3**	< 9.0 U	< 13 U	**2.2**	< 8.6 U
Ethanol	ug/m3		--	--	--	--	--	--	--	--	**7.9**	< 38 U	**19**	--	< 38 U	**31**	--
Hexaldehyde	ug/m3		--	--	--	--	--	--	--	--	--	< 20 U	< 4.1 U	--	< 20 U	**7.6**	--
Isobutylene	ug/m3		--	--	--	--	--	--	--	--	--	**6.3**	**1.3**	--	< 4.6 U	< 0.92 U	--
Isoprene	ug/m3		--	--	--	--	--	--	--	--	--	< 1.4 U	< 0.28 U	--	< 1.4 U	< 0.28 U	--
Isopropyl Alcohol	ug/m3		--	--	--	--	--	--	--	--	< 2.3 U	< 43 U	< 8.6 U	**22**	**63**	< 8.6 U	--
Isopropylbenzene	ug/m3	6100	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 0.92 U	--	--	**9.4**	--	--	--
m,p-Xylenes	ug/m3	1500	**500**	< 400 U	< 400 U	< 400 U	**3.2**	< 180 U	**7.2**	**3400**	**10**	**6.5**	**6.6**	**13**	**7.1**	**6**	< 7.6 U
Methacrolein	ug/m3		--	--	--	--	--	--	--	--	--	< 14 U	< 2.9 U	--	< 14 U	< 2.9 U	--
Methyl tert-butyl ether (MTBE)	ug/m3	320	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	< 800 U	< 0.67 U	< 1.8 U	< 0.36 U	< 6.5 U	< 1.8 U	< 0.36 U	< 6.3 U
Methyl vinyl ketone	ug/m3		--	--	--	--	--	--	--	--	--	< 5.7 U	< 1.1 U	--	< 5.7 U	< 1.1 U	--
Methylene Chloride	ug/m3	2200	< 500 U	< 500 U	< 500 U	< 500 U	--	--	--	--	**60**	< 430 U	**150**	**23**	< 430 U	< 87 U	--
Methyliodide	ug/m3		--	--	--	--	--	--	--	--	--	< 2.9 U	< 0.58 U	--	< 2.9 U	< 0.58 U	--
Methysticin	ug/m3		--	--	--	--	--	--	--	--	--	< 18 U	< 3.5 U	--	< 18 U	< 3.5 U	--
n-Butyl alcohol	ug/m3		--	--	--	--	--	--	--	--	--	< 30 U	**12**	--	< 30 U	< 6.1 U	--
n-Butylbenzene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
n-Hexane	ug/m3	11000	--	--	--	--	--	--	--	--	< 0.66 U	< 18 U	**64**	< 6.4 U	< 18 U	**89**	--
n-Propylbenzene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 0.92 U	--	--	< 8.9 U	--	--	--
o-Xylene	ug/m3	1500	**200**	< 200 U	< 200 U	< 200 U	**0.92**	< 180 U	**2.1**	**1200**	**3.9**	**2.7**	**2.1**	< 7.8 U	**3**	**1.9**	< 7.6 U
Pentane	ug/m3		--	--	--	--	--	--	--	--	--	< 15 U	**5.9**	--	< 15 U	**6.7**	--
p-Isopropyltoluene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
Styrene	ug/m3	15000	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	**3.5**	< 4.3 U	**1.3**	< 7.7 U	< 4.3 U	**1.2**	--
tert-Butylbenzene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene (PCE)	ug/m3	320	< 200 U	**6500**	**400**	**200**	**270**	**150000**	**380**	**680000**	**400**	**1000**	**16**	**2800**	**900**	**26**	**3200**
Tetrahydrofuran	ug/m3		--	--	--	--	--	--	--	--	< 2.8 U	--	--	< 27 U	--	--	--
trans-1,2-Dichloroethene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	< 0.72 U	< 170 U	< 1.2 U	< 880 U	**2.7**	< 2 U	**0.45**	< 7.2 U	< 2 U	< 0.4 U	< 6.9 U
trans-1,3-Dichloropropene	ug/m3		< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	< 0.85 U	< 2.3 U	< 0.45 U	< 8.2 U	< 2.3 U	< 0.45 U	--
Trichloroethene (TCE)	ug/m3	11	< 200 U	< 200 U	< 200 U	< 200 U	**1.1**	< 230 U	**1.9**	**5100**	**29**	**27**	**8.8**	**110**	**54**	**7.3**	**140**
Trichlorofluoromethane	ug/m3	11000	< 200 U	< 200 U	< 200 U	< 200 U	--	--	--	--	**1.2**	< 2.8 U	**1.2**	< 10 U	< 2.8 U	**1.2**	--
Vinyl Acetate	ug/m3	3000	--	--	--	--	--	--	--	--	--	< 35 U	< 7 U	--	< 35 U	**52**	--
Vinyl Chloride	ug/m3	9.5	< 200 U	< 200 U	< 200 U	< 200 U	< 0.47 U	< 110 U	< 0.78 U	< 560 U	< 0.48 U	< 1.3 U	< 0.26 U	< 4.6 U	< 1.3 U	< 0.26 U	< 4.5 U
1,3-Butadiene	ug/m3	2.8	--	--	--	--	--	--	--	--	< 0.41 U	< 1.1 U	< 0.22 U	< 4.0 U	< 1.1 U	< 0.22 U	--
2,2,4-Trimethylpentane	ug/m3		--	--	--	--	--	--	--	--	< 4.4 UJ	--	--	< 42 UJ	--	--	--
4-Ethyltoluene	ug/m3		--	--	--	--	--	--	--	--	**2.6**	--	--	< 8.9 U	--	--	--
alpha-Chlorotoluene	ug/m3	1.7	--	--	--	--	--	--	--	--	< 0.97 U	< 2.6 U	< 0.52 U	< 9.4 U	< 2.6 U	< 0.52 U	--
Freon 114	ug/m3		--	--	--	--	--	--	--	< 1500 U	< 1.3 U	< 3.5 U	< 0.7 U	< 13 U	< 3.5 U	< 0.7 U	< 12 U
Heptane	ug/m3		--	--	--	--	--	--	--	--	< 0.77 U	--	--	< 7.4 U	--	--	--

Notes:

Bold - detected

Blue Shaded - Detected result exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

"--" - indicates results not available

1) Values in this column based on the most stringent MTCA Method B indoor air

Table A-6. Indoor Air Analyical Results

Project No. 080190, Morell's Dry Cleaners, Seattle, Washington

		Location	OUTDOOR	MORRELLS[2]	THRIFTWAY OFFICE[2]
		Date	02/09/2012	02/09/2012	02/09/2012
Analyte	**Unit**	**Indoor Air Screening Level[1]**			
BTEX					
Benzene	ug/m3	0.32	**2**	**0.2**	**0.2**
Toluene	ug/m3	2300	**6.3**	**1**	**2.7**
Ethylbenzene	ug/m3	460	**1.7**	**0.3**	**0.5**
Total Xylenes	ug/m3	45.7	**7.9**	**2.1**	**3.3**
PAHs					
Naphthalene	ug/m3	0.073	< 4.1 U	< 4.8 U	< 4.6 U
VOCs					
cis-1,2-Dichloroethene (cDCE)	ug/m3		< 0.12 U	< 0.14 U	< 0.14 U
Tetrachloroethene (PCE)	ug/m3	9.6	**0.42**	**22**	**15**
trans-1,2-Dichloroethene	ug/m3		< 0.63 U	< 0.72 U	< 0.69 U
Trichloroethene (TCE)	ug/m3	0.33	< 0.17 U	**9**	**5.7**
Vinyl Chloride	ug/m3	0.28	< 0.040 U	< 0.047 U	< 0.045 U

Bold - detected

Blue Shaded - Detected result or non-detected RL exceeded screening level

U - Analyte not detected at or above Reporting Limit (RL) shown

PCUL = Proposed Cleanup Level

1) Values in this column based on the most stringent MTCA Method B indoor air cleanup level.

2) Analytical results corrected by subtracting background detected results from indoor air results.

APPENDIX B

Stemen Environmental, Inc., Inspection Letter

STEMEN ENVIRONMENTAL, INC.

P.O. Box 3644
LACEY, WASHINGTON 98509-3644
CONTR. LIC. #STEMEEI081J9

Telephone 360-438-9521 Fax 360-412-1225

May 17, 2009

Mr. Aaron Morrell
608 N. 1st Street
Tacoma, Washington 98403

Dear Mr. Morrell:

RE: SITE INSPECTIONS OF COMMERCIAL PROPERTY LOCATED AT 608 N. 1ST STREET, TACOMA, WASHINGTON.

Our company performed various environmental investigations on the subject property and neighboring properties. The following facts and information was obtained during these investigations:

1. Subsurface soils, at depths greater than 3 feet b.g.s. (below ground surface), beneath substantial portions of the subject properties consist of densely compacted gravelly sands.

2. Groundwater is present at depths of 50+ feet b.g.s. Groundwater elevations were measured via the on-site groundwater monitoring wells.
Soil samples obtained from locations directly surrounding the on-site Dry Cleaners/Office Building produced dry soil samples to an approximate depth of 50 feet b.g.s.

3. On May 7, 2007, I was on-site to obtain soil gas vapors from the shallow subsurface soils at selected locations within the boundaries of the commercial building located at 608 N. 1st Street and currently occupied by Morrell's Dry Cleaners. Our company contracted with Environmental Services Network Northwest, Inc., Olympia, Washington to provide Licensed Well Drillers to perform the required drilling activities.

To provide reasonable access to the subsurface soils, holes were drilled through the concrete floor at two (2) selected locations on the northern portion of the site. Steel probes were then mechanically advanced into the soils using a roto-hammer. The initial probe was easily advanced into the subsurface soils to a depth of 3 ft. PVC tubing was advanced into the probe, and a peristaltic pump was used to pump vapors into a Tedler bag. It was immediately noticed that we were pumping liquids not vapors. A sample was obtained from the liquids and was placed in an appropriate container.

An additional probe was advanced to a depth of 1 ft. It was immediately determined that water was present in this shallow probe also. You (Mr. Aaron Morrell) were on-site for these drilling activities.

The presence of very shallow water was discovered beneath the concrete floor of the Thriftway Office portion of the building also.

I have included a Boring Log for this event.

All interested parties and the Tacoma-Pierce County Health Department were informed of the presence of water at very shallow depths beneath the building. You (Mr. Aaron Morrell) were on-site for these drilling activities.

4. On June 29, 2007, Licensed Drillers and Geologists from Environmental Services Network, Inc. were on-site to install dewatering/monitoring wells at selected location inside the Dry Cleaners portion of the on-site building. Large holes were cored in the concrete floor to provide reasonable access for well installation activities. Water and water laden sand was observed just below the concrete.

Due to the liquidity/instability of the sands beneath the slab, the on-site Drillers and Geologist were unable to install a well.

I have included a Geologists Boring Log for this event.

5. On July 5th, 2007, I attempted to pump down the water level beneath the on-site building. The pumped water contained a significant amount of particulates.

I pumped approximately 200 gallons of water from beneath the building and the measured water level stayed stable. Ms. Sharon Bell of the Tacoma-Pierce County Health Department was on-site during these water pumping activities.

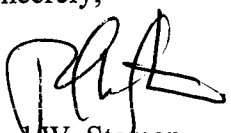
6. I was on-site with Ms Sharon Bell and representatives of the City of Tacoma to observe the excavation activities associated with the installation of new underground utilities on N. 1st Street. The northern extension of the excavation trenches was located approximately 25 feet southwest of the southwest corner of the on-site Dry Cleaners/Thriftway Office Building. The trenches were advanced to approximate depths of 13 feet b.g.s. No water was observed in these trenches.

7. It was discovered that the Tully's Coffee Shop had a water leak that, according to available records, had been leaking a substantial amount of water for an extended period of time. When the water leak was repaired, all of the waters beneath the Dry Cleaners/Thriftway Office Building drained in a few hours.

When the waters had drained, I observed an open space between the surface of the subsurface sands/soils and the bottom of the concrete slab.

If you have any questions or require further information please feel free to contact us at the above phone number.

Sincerely,



Paul W. Stemen
Ecology-Registered Site Assessor
IFCI #0874201-U2
ASTM Certified

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. A127970

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☐ Construction

☒ Decommission 2e7526l

ORIGINAL INSTALLATION Notice of Intent Number:

E006830

Consulting Firm Stemen Environmental

Unique Ecology Well IDTag No. GV-8

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☐ Engineer ☒ Trainee

Name (Print Last, First Name) Haun, Marty

Driller/Engineer /Trainee Signature

Driller or Trainee License No. T2827

If trainee, licensed driller's Signature and License Number: Aaron Harnden 2508

Type of Well *("x in box)*

☒ Resource Protection

☐ Geotech Soil Boring

Property Owner Titus-Will

Site Address 633 Division Street

City Tacoma County Pierce

Location NW1/4-1/4 SE1/4 Sec 32 Twn 21N R 3E

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg ____ Min ____ Sec ____

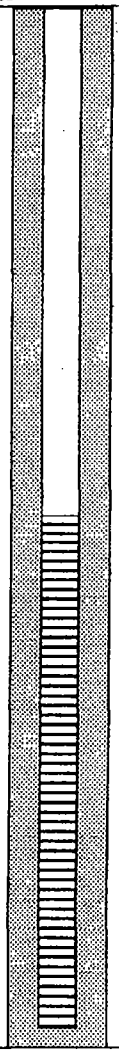
Long Deg ____ Min ____ Sec ____

Tax Parcel No.

Cased or Uncased Diameter 1" Static Level 1.5'

Work/Decommission Start Date 5/7/07

Work/Decommission Completed Date 5/7/07

Construction Design	Well Data	Formation Description
	Drove a retractable ***stainless steel / PVC*** screen down to depth and collected a water sample. Boring Depth: 3' Screen: N/A Slot Size: N/A Type: N/A WHILE ATTEMPTING A SOIL GAS SAMPLE ENCOUNTERED WATER INSTEAD Removed all rods and casing from boring and backfilled with bentonite.	NO SOILS OBSERVED

RECEIVED

JUN 11 2007

DEPARTMENT OF ECOLOGY

SCALE: 1"= ____ PAGE 2 OF 2

ECY 050-12 (Rev. 7/06)

Ecology is an Equal Opportunity Employe

Please print, sign and return to the Department of Ecology

RESOURCE PROTECTION WELL REPORT

CURRENT Notice of Intent No. A129880

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission *("x" in box)*

☐ Construction

☒ Decommission

265968

Type of Well *("x in box)*

☒ Resource Protection

☐ Geotech Soil Boring

ORIGINAL INSTALLATION Notice of Intent Number:

E007233

Consulting Firm Stemen Environmental

Unique Ecology Well IDTag No. B1

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards. Materials used and the information reported above are true to my best knowledge and belief.

☐ Driller ☐ Engineer ☒ Trainee

Name (Print Last, First Name) Mefford, John

Driller/Engineer /Trainee Signature John Mefford

Driller or Trainee License No. T2815

If trainee, licensed driller's Signature and License Number:

Anna Farnden 2508

Property Owner Bruce-Titus

Site Address 633 Division

City Tacoma County Pierce

Location NW1/4-1/4 SE1/4 Sec 32 Twn 21N R 3E

EWM ☒ or WWM ☐

Lat/Long (s, t, r still REQUIRED) Lat Deg _____ Min _____ Sec _____

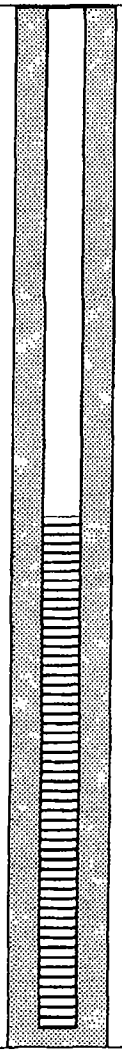
Long Deg _____ Min _____ Sec _____

Tax Parcel No. _____

Cased or Uncased Diameter 1" Static Level 2'

Work/Decommission Start Date 6/29/07

Work/Decommission Completed Date 6/29/07

Construction Design	Well Data	Formation Description
	Drove a retractable ***stainless steel / PVC*** screen down to depth and collected a water sample. Boring Depth: 3' Screen: 2-3' Slot Size: .010 Type: Stainless steel Removed all rods and casing from boring and backfilled with bentonite.	0-3' gravelly sand

'07 JUL 12 A8:36

DEPT OF ECOLOGY BUDGET FAS

RECEIVED

JUL 13 2007

DEPARTMENT OF ECOLOGY
WELL DRILLING UNIT

SCALE: 1"= NA PAGE 1 OF 1

ECY 050-12 (Rev. 7/06)

Ecology is an Equal Opportunity Employe

Cover Letter.

To: Kevin Chang

From: Aaron Morrell

Morrells Dry Cleaners
608 No 1st ST
TACOMA, WA 98403

R.E.

Tullys WATER LEAK

5 pg. To follow.

Tully's Coffee Corportion/ BP 400030657
Service Address 24 North Tacoma Avenue, Tacoma WA
Contract Account 100231059

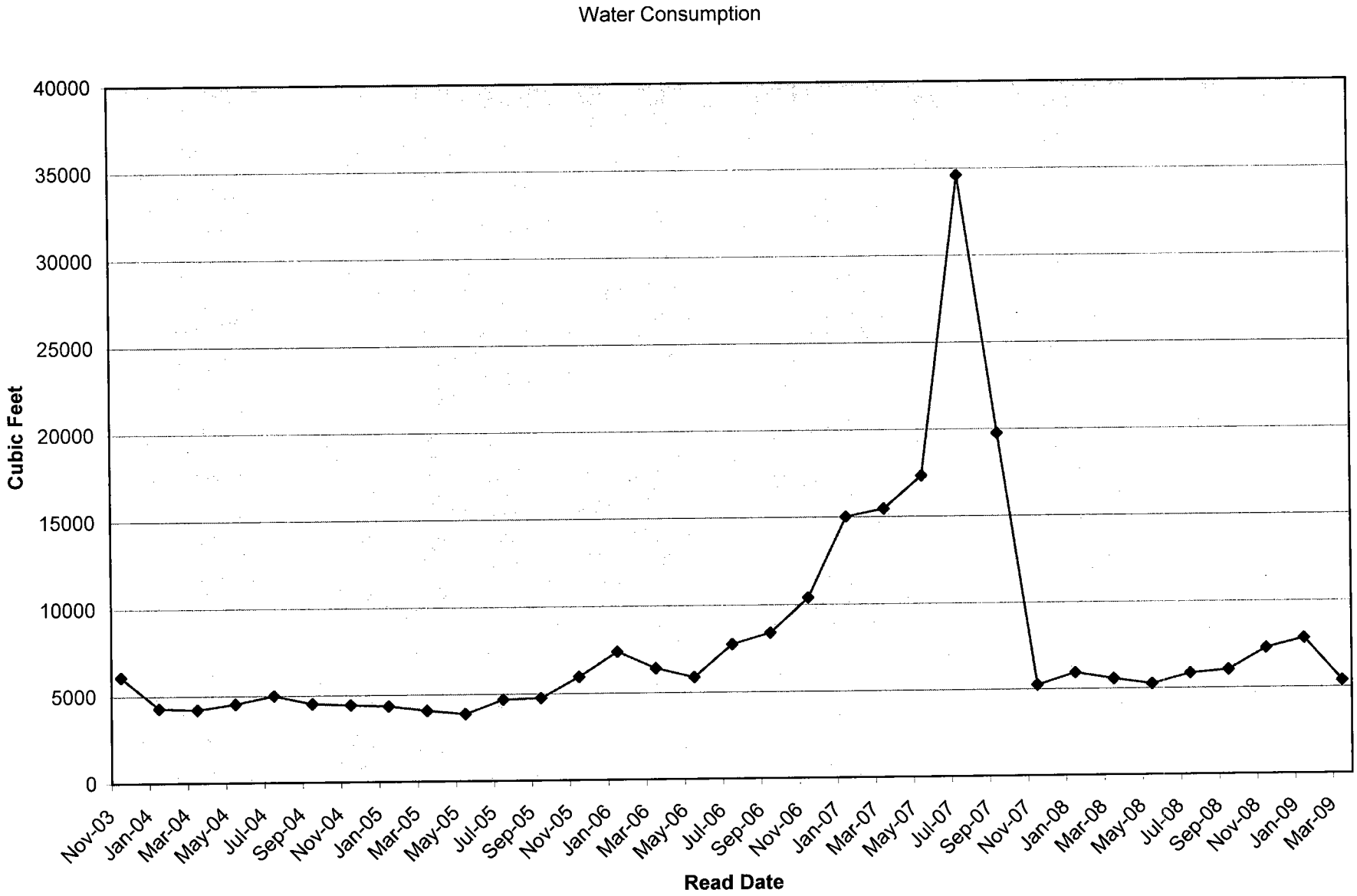
Consumption History Report

Read Dates:		Water		Wastewater	
From	To	Consumption (in CCFs)	Amount billed	Consumption (in CCFs)	Amount billed
9/6/2003	11/5/2003	61.03	$77.78	61.03	$204.22
11/6/2003	1/9/2004	43.09	$64.58	43.09	$149.86
1/10/2004	3/11/2004	42.17	$68.28	42.17	$155.56
3/12/2004	5/10/2004	45.42	$71.01	45.42	$166.45
5/11/2004	7/9/2004	49.94	$74.81	49.94	$181.61
7/10/2004	9/8/2004	45.31	$70.92	45.31	$166.08
9/9/2004	11/5/2004	44.48	$70.22	44.48	$163.30
11/6/2004	1/10/2005	43.61	$70.43	43.61	$160.64
1/11/2005	3/11/2005	40.89	$73.18	40.89	$152.91
3/12/2005	5/10/2005	38.82	$71.27	38.82	$145.92
5/11/2005	7/11/2005	46.82	$78.63	46.82	$172.96
7/12/2005	9/8/2005	47.52	$79.28	47.52	$175.32
9/9/2005	11/5/2005	59.59	$90.38	59.59	$216.11
11/6/2005	1/10/2006	73.84	$104.91	73.84	$265.14
1/11/2006	3/10/2006	64.04	$102.97	64.04	$236.09
3/11/2006	5/9/2006	58.76	$97.65	58.76	$217.86
5/10/2006	7/10/2006	77.46	$116.48	77.46	$282.42
7/11/2006	9/7/2006	83.86	$122.93	83.86	$304.52
9/8/2006	11/4/2006	103.83	$143.04	103.83	$373.47
11/5/2006	1/9/2007	150.22	$191.72	150.22	$540.64
1/10/2007	3/12/2007	154.62	$208.98	154.62	$601.68
3/13/2007	5/9/2007	173.49	$229.46	173.49	$673.40
5/10/2007	7/10/2007	345.94	$415.56	345.94	$1,328.84
7/11/2007	9/7/2007	197.39	$255.39	197.39	$764.24
9/8/2007	11/6/2007	52.42	$98.10	52.42	$213.25
11/7/2007	1/9/2008	59.23	$106.61	59.23	$241.35
1/10/2008	3/11/2008	55.57	$109.20	55.57	$239.95
3/12/2008	5/8/2008	52.53	$105.64	52.53	$227.61
5/9/2008	7/9/2008	58.49	$112.61	58.49	$251.81
7/10/2008	9/8/2008	60.37	$114.81	60.37	$259.44
9/9/2008	11/5/2008	72.87	$129.44	72.87	$310.21
11/6/2008	1/9/2009	78.38	$135.88	78.38	$336.09
1/10/2009	3/11/2009	53.75	$112.77	53.75	$249.90

1 CCF=100 cubic feet

Amounts listed are amounts billed on original invoice-a leak adjustment was performed for the May 10,2007 thru July 10th 2007 water and wastewater charges

COMPLETED LEAK ADJUSTMENT FOR BILLING PERIOD 5/9/07-7/10/07 - LEAK ONGOING FOR OVER A YEAR - DID ADJUSTMENT BASED ON 2005 CONSUMPTION FOR JULY BILLING PERIOD - WROTE OFF 345.94 CCF AT 416.56 WATER AND 1328.84 SEWER - BILLED 46.82 CCF AT 92.02 WATER AND 191.97 SEWER - EDJ*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35000
30000
25000
20000
15000
10000
5000
0
Cubic Feet
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
May-07
Jul-07
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Jan-08
Mar-08
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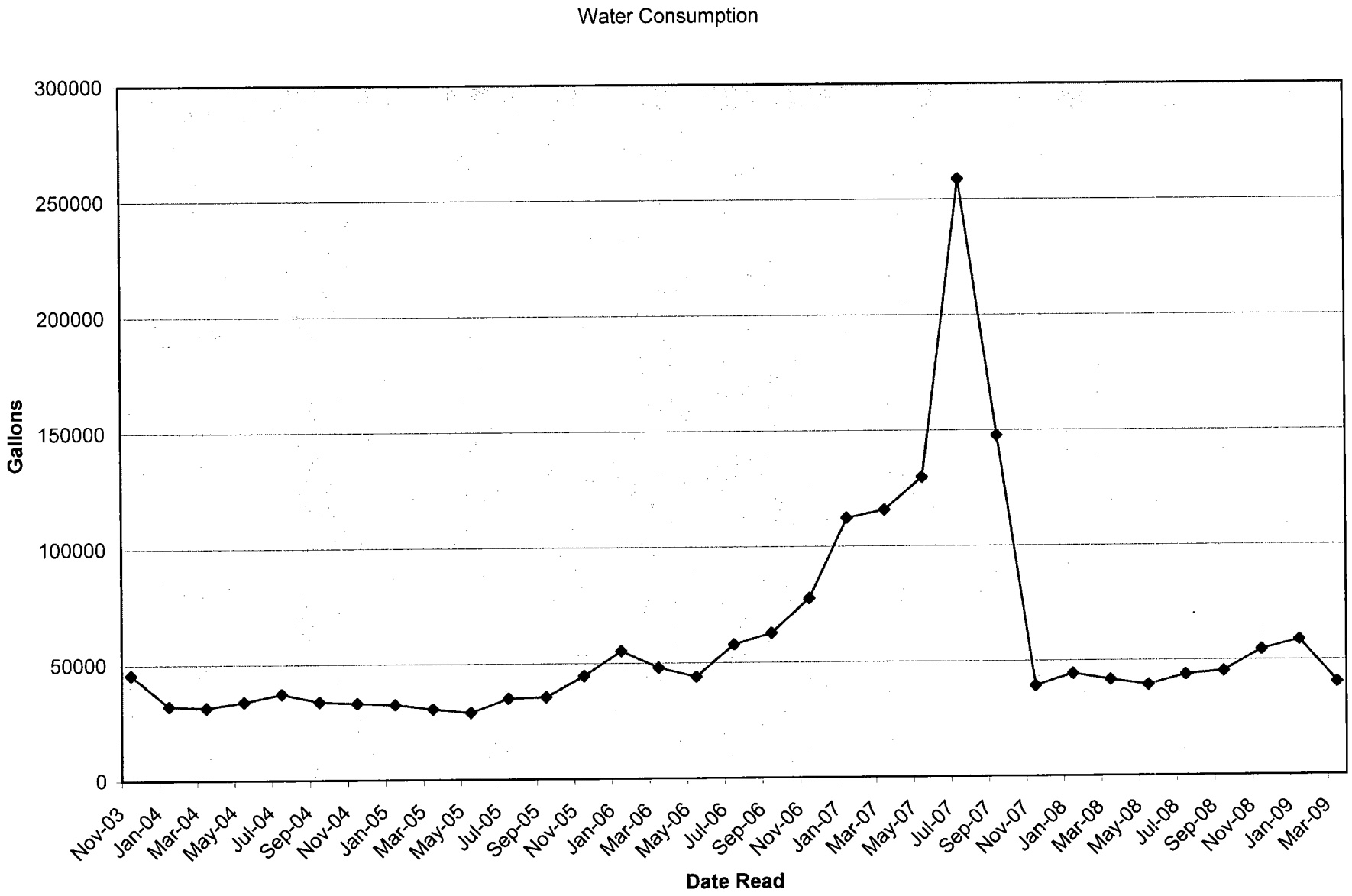
Jul-08
Sep-08
Nov-08
Jan-09
Mar-09
Read Date


Water Consumption
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250000
200000
150000
100000
50000
0
Gallons
Nov-03
Jan-04
Mar-04
May-04
Jul-04
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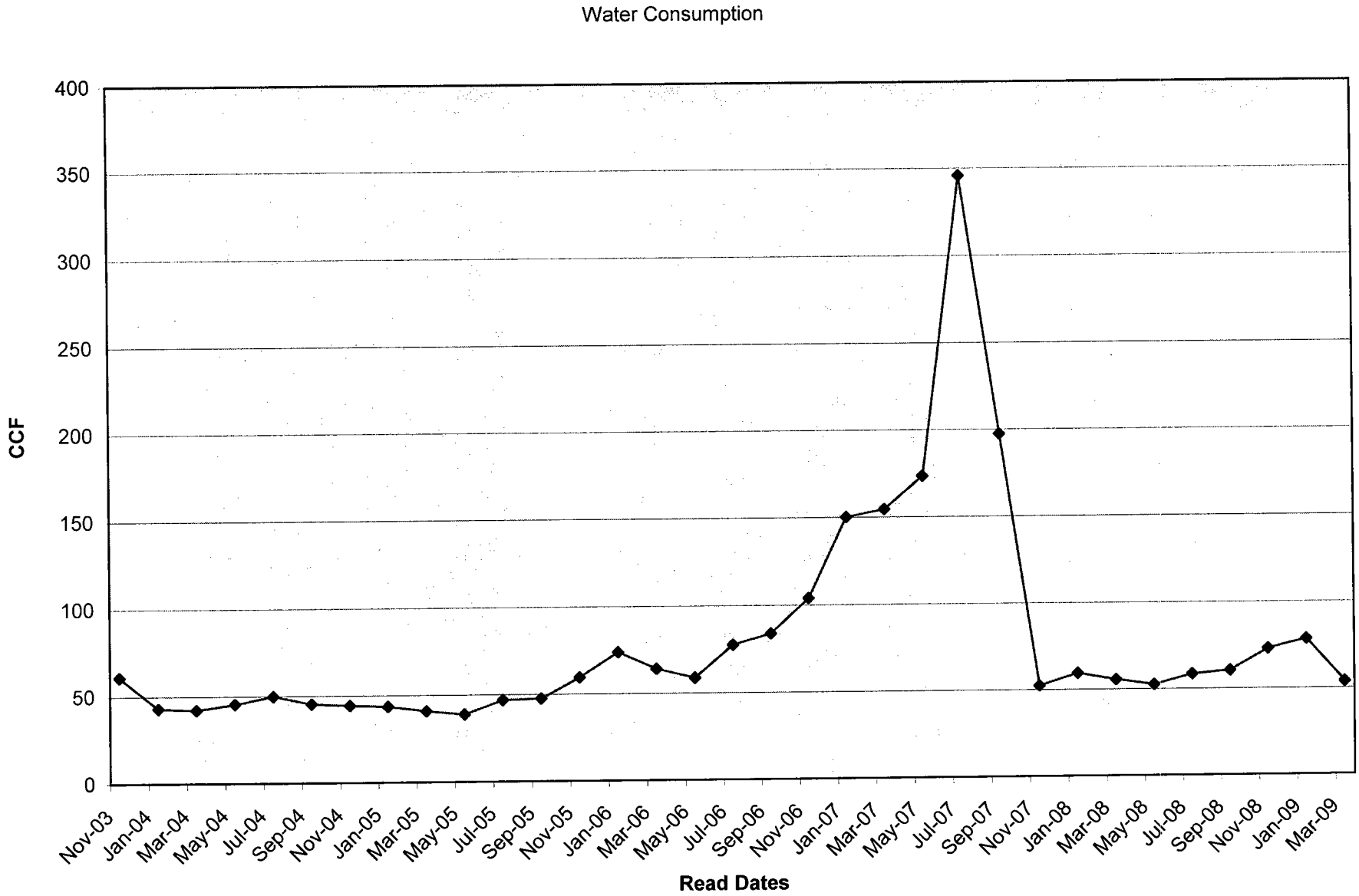
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05
Nov-05
Jan-06
Mar-06
May-06
Jul-06
Sep-06
Nov-06
Jan-07
Mar-07
May-07
Jul-07
Sep-07
Nov-07
Jan-08
Mar-08
May-08
Jul-08
Sep-08
Nov-08
Jan-09
Mar-09
Date Read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Read Dates

APPENDIX C

Summary of 2019 Interim Actions and Proposed SVE Expansion Memo

MEMORANDUM

Project No.: 080190

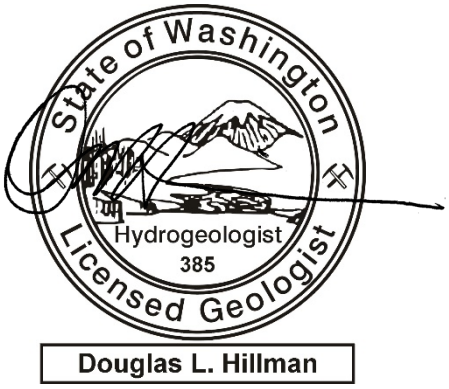
June 17, 2020

To: D.E. Wickham, Successor to Walker Chevrolet

cc: Al Notary, P.E., L.S., Brown and Caldwell

From:

6/17/2020



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Re: **Summary of 2019 Interim Actions and SVE System Expansion**
Morrell's Dry Cleaner Site

Interim Action Overview and 2019/2020 Objectives

This technical memorandum documents ongoing interim cleanup action activities at the Morrell's Dry Cleaner Site. The 2019 work documented herein includes the installation of 17 wells and provides design information for connecting five of the wells to the existing soil vapor extraction (SVE) system. The Site is located at 608 North First Street in Tacoma, Washington (Figure 1). Primary contaminants of concern are chlorinated volatile organic compounds (VOCs) tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cDCE), and vinyl chloride. Petroleum hydrocarbons are also present in soil (generally collocated with the chlorinated VOCs) and represent a significant fraction of the total contaminant mass[1]. Historical dry-cleaning operations, which may have used petroleum hydrocarbons (e.g., Stoddard solvent or mineral spirits) before chlorinated solvents came into use, are a possible source of the petroleum hydrocarbons as well as the chlorinated solvents[2].

[1] Low concentrations of other chlorinated VOCs and several ketones have also been detected in groundwater.
[2] Dry cleaners have continuously operated in the current dry cleaner building since 1929. Morrell's reportedly used PCE dry cleaner machines between 1972, the first year of their tenancy, and 2009, when they switched to a non-PCE solvent. It is not known whether PCE was used by prior tenants.

The Morrell's property consists of two parcels, referred to in this report as the Building Parcel and the Parking Lot Parcel (Figure 2). The Site includes the Morrell's property and any off-property soil or groundwater confirmed or suspected of being impacted by releases at the property. The Site is enrolled in the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP) and assigned VCP No. SW1039.

2013/2014 Actions—Interim Cleanup Initiated

Environmental investigations began at the Site in 2006, and Aspect Consulting, LLC (Aspect) conducted an interim cleanup action in 2013/2014 that included the following (refer to Figure 2):

- Installation and operation of a SVE system that draws soil gas from: 1) beneath the Morrell's building floor slab; 2) a shallow trench along the north side of the building; and 3) four angled wells screened in vadose zone soils beneath the northeast portion of the building. The SVE system has operated since October 2014 and continues to remove significant contaminant mass from the subsurface.
- An injection of biostimulants (in June 2014) to the uppermost water-bearing unit (i.e., the advance outwash) via three angled wells screened beneath the central portion of the Morrell's building and six vertical wells located south and east of the building. PCE concentrations were reduced by up to two orders of magnitude among the nine wells that received the biostimulants, and vinyl chloride concentrations increased.

The interim cleanup action demonstrated that SVE of vadose zone soils and biostimulation of advance outwash groundwater are appropriate technologies to consider for the remediation of contaminated media at the Morrell's Site. These technologies were applied in limited areas of the property where significant contamination was either known to exist or highly suspected.

2019/2020 Actions—Further Delineate Impacts, In Situ Pilot Test, and Expand SVE

The 2019 well installations were a component of cleanup expansion activities that included further investigation of the magnitude and extent of on-property contamination, pilot testing for *in situ* remediation of groundwater, and a proposed expansion of SVE for vadose zone soil remediation. The general work scope and objectives were as follows:

- Investigate the magnitude and extent of soil and advance outwash groundwater contamination in the Parking Lot Parcel by drilling an array of borings, starting adjacent to the Morrell's building and "stepping out" southward and eastward.[3] Complete all borings as groundwater monitoring wells that can also be used for remediation product injection if warranted. In addition, install shallow screens in wells when field monitoring of soil samples indicates significant vadose zone contamination (for potential dual use as SVE wells). Collect and analyze groundwater samples from the completed wells.

[3] Most of the borings/well installations were completed for this purpose. However, it was decided to install the last few wells to accommodate an injection pilot test on the south side of the Morrell's building.

- Perform a remediation product injection pilot test at well MW-20 to assess injection radius of influence (ROI) and effectiveness, in preparation for a possible second round of remediation product injection.[4] .
- Expand the coverage of SVE beneath the Morrell's building by installing four additional angled SVE wells north and south of the existing wells. Connect the new angled wells and, if warranted, new shallow-screened vertical wells to the existing SVE blower via a piping manifold located inside a new vault to be installed in the northwest corner of the parking lot. Operate the expanded SVE system to maximize contaminant mass removal from vadose zone soils.

Investigation, well installation, and injection pilot test activities have been completed. This technical memorandum includes the following:

- Documentation of the new well installations, including boring logs and well construction diagrams
- Documentation of waste management, profiling, and disposal
- A summary of soil sampling results and assessment of the vertical and lateral nature and extent of on-property vadose zone contamination
- The SVE expansion design (collection system vault, conveyance piping, instrumentation, and connections to new angled wells and selected vertical wells with vadose zone screens)

Documentation of groundwater sampling results and assessment of the injection pilot test at MW-20 for possible treatment of the Parking Lot Parcel will be addressed in a separate technical memorandum. This document focuses on vadose zone activities on the Morell's Building Parcel and transmits the proposed SVE expansion design for implementation.

Well Installation Documentation

Seventeen well installations were completed on the Morrell's Site between January 28 and July 11, 2019, including 13 vertical wells and 4 angled wells. Figure 2 shows the locations of both the new and pre-existing wells. Drilling, well installation, well development, top-of-casing (TOC) survey, and waste management, profiling, and disposal are discussed in this section. Boring and well construction logs for the new wells are provided as Appendix A[5].

Vertical Borings and Well Installations

The new vertical well installations, designated MW-23 through MW-35, were drilled and installed by Holt Services, Inc. (Holt) using hollow-stem auger (HSA) drilling technology. During drilling, soil samples were collected at 5-foot depth intervals except for well MW-35 (refer to the Soil Screening and Sampling section for sampling results). All thirteen wells were constructed with 2-inch-diameter polyvinyl chloride (PVC), 10- to 20-mesh sand filter packs, and flush-mount

[4] The original work scope included a full-scale injection in lieu of a pilot test. However, groundwater monitoring results at the first set of new wells indicated that the 2014 injections had small ROIs and additional information was needed before a full-scale injection could be designed.

[5] Borings and soil samples collected during drilling were designated "A-x" for angled borings and "B-xx" for vertical borings. When wells were installed, the letter designations were changed to "VE-x" for angled (soil vapor extraction) wells and "MW-xx" for vertical (advance outwash groundwater) wells.

monuments. Their 0.020-inch slotted screens intersect the saturated interval of the advance outwash at the approximate depth range of 45 to 60 feet below ground surface[6] (bgs). The wells have been used for groundwater monitoring and remediation product injection pilot testing[7]. In addition, shallow screens at the approximate depth range of approximately 10 to 20 feet bgs were installed in wells MW-23, MW-24 and MW-31 for possible use as vadose zone SVE wells.

MW-22 was attempted approximately 11 feet east of the northeast corner of the Morrell's building, between angled wells VE-1 and VE-3. Subsurface utilities were expected at that location, and a vacuum truck with air knife was used to remove soil beneath the asphalt. However, Holt was unable to gain access through the subsurface utilities, and that boring location was abandoned.

The new wells were developed to reduce turbidity and establish hydraulic connection with the surrounding aquifer. Aspect surveyed TOC elevations of both the new and pre-existing on-property monitoring wells. TOC elevations of all Site monitoring wells with respect to the Site datum are listed in Table 1 along with well screen intervals and groundwater elevations.

Angled Borings and Well Installations

The new angled well installations, designated VE-5 through VE-8, were drilled at a 45-degree angle and installed by Holt using SONIC drilling technology. Boring lengths were approximately 45 feet for VE-5 and VE-7, and 65 feet for VE-6 and VE-8. Twenty-foot-long screens were installed at the bottom of each boring. Therefore, VE-5 and VE-7 were screened at the approximate depth range of 18 to 32 feet bgs, and VE-6 and VE-8 were screened at the approximate depth range of 32 to 46 feet bgs. These wells will be used to enhance removal of vapor-phase contaminants from vadose zone soils in the source area. The proposed connection of the new angled wells to the SVE system is discussed below.

As shown on Figure 2, the wells were drilled as close as possible to the east side of the Morrell's building and angled under the building. Due to subsurface congestion in this area (primarily pre-existing angled SVE wells and conveyance piping), a vacuum truck with air knife was used at each drilling location to remove shallow soil beneath the asphalt. During drilling, continuous soil cores were field-screened and sampled. The wells were constructed with 4-inch-diameter PVC, 10- to 20-mesh sand filter packs, and 0.020-inch slotted screens. The top of each well was capped at less than 1-foot bgs, and the asphalt was patched pending connection of the wells to the SVE system.

Waste Management, Profiling, and Disposal

All soil cuttings and water generated from equipment decontamination and well development and purging were placed in 55-gallon drums, which were temporarily stored along the southern wall of the Morell's building. Laboratory analytical results from soil sampling during drilling and groundwater sampling from the completed wells were used to profile the waste streams for disposal in accordance with the Washington Dangerous Waste regulations (Chapter 173-303 WAC). A portion of the cuttings from boring VE-7 were placed in a separate drum because they appeared to contain separate-phase (non-aqueous) liquid. That drum designated as F002 hazardous waste and required incineration due to the high PCE concentration. All other cuttings from borings with detectable PCE in one or more soil samples were disposed of as F002 hazardous waste not

[6] Slightly shallower screens were installed for MW-34 (44 to 59 feet bgs) and MW-35 (43 to 58 feet bgs).
[7] MW-34 and MW-35 were installed specifically for the MW-20 injection pilot test.

requiring incineration. These cuttings were initially stored in drums but were transferred to a roll-off container prior to disposal.

Non-hazardous wastes were transported to Waste Management's Columbia Ridge Subtitle D facility and hazardous wastes to the Chemical Waste Management Subtitle C facility, both located in Arlington, Oregon. Waste disposal documentation is provided as Appendix B.

Soil Screening and Sampling

Soil samples collected during drilling were screened in the field for evidence of contamination using visual and olfactory methods, and by headspace screening using a photoionization detector (PID). Samples with elevated PID readings were preferentially selected for laboratory analysis of VOCs using EPA Method 8260. At least two samples from each boring were analyzed[8], and up to five samples were analyzed from borings with elevated PID readings. For all borings that extended below the water table (i.e., all vertical borings), at least one soil sample collected from below the water table was analyzed for VOCs; the results report the concentration from the combined sample with solid and liquid phase material.

PID readings and laboratory analytical results are summarized in Table 2, and laboratory reports are provided as Appendix C. Table 2 lists only those analytes that were detected in at least one soil sample. Consistent with previous soil sampling results, chlorinated VOC detections included PCE, TCE, and cDCE, and some PCE and TCE concentrations exceeded Site screening levels[9]. Low concentrations of petroleum hydrocarbons were also detected, which is also consistent with previous soil sampling results. Petroleum hydrocarbon detections are typically collocated with chlorinated VOC detections[10], suggesting that they are also associated with former dry-cleaning operations.

PCE concentrations define the extent of soil with screening level exceedances, although TCE was often detected along with PCE in soil samples. Figure 3 shows PCE detections in current investigation soil samples, and the estimated on-property lateral extent of soils with screening level exceedances from all investigations. Soil quality results from previous investigations are documented in the *Supplemental Focused Feasibility Study* report (Aspect, 2018).

Soil cuttings from boring VE-7 at depth ranges of 7 to 10 and 15 to 16 feet bgs had a strong solvent odor and appeared to contain separate-phase liquid. Field-screening of a soil sample collected from 15 to 16 feet bgs yielded a PID reading of 2,498 parts per million (ppm), and the laboratory subsequently detected PCE at 120 mg/kg. This is the first instance of separate-phase liquid being tentatively identified at the Site, and the highest soil PCE detection to date. As shown in Table 2,

[8] No soil samples from MW-34 and MW-35 were submitted for laboratory analysis since VOCs were not detected in nearby wells MW-24, MW-25, and MW-26.
[9] The Site screening levels are Washington State Model Toxics Control Act (MTCA) Method A cleanup levels for PCE, TCE, methylene chloride, and naphthalene, and the Method B direct contact (CLARC table value) cleanup levels for all other compounds listed in Table 2.
[10] However, this is not always the case. The highest petroleum hydrocarbon detections to date in Site soils were in a sample from 3 feet beneath the sidewalk on the east site of the Morrell's building (from direct-push boring DP-8, advanced in October 2010). Chlorinated VOCs were not detected in that sample.

that soil sample also exhibited the highest concentrations of petroleum hydrocarbons detected in the current investigation.

Planned Connection of New Wells to SVE System

This section provides specifications for the connection of the four new angled wells (VE-5 through VE-8) and one new vertical well (MW-23) to the SVE system. MW-24 and MW-31, initially constructed as SVE wells, will not be added to the system due to near-zero PID readings during drilling. Construction sequence, trenching and backfill, piping, vault and instrumentation details, vapor emissions control, waste management, planned construction schedule, and the monitoring plan are also discussed. Information on the existing SVE system can be found in the *Interim Cleanup Action Construction Completion Report* (Aspect, 2014).

Construction Sequence and Oversight

The four new wells will be connected to the existing system in the following construction sequence:

- Site preparation and private utility locate
- Asphalt demolition and trenching
- Conveyance pipe connection and vault installation
- Conveyance pipe vacuum testing and slope confirmation
- Trench backfill, site restoration and system restart

Aspect will provide pre-construction tenant, contractor and utility locate coordination as well as part-time oversight during trenching, conveyance pipe installation, and restoration. Aspect will be present onsite for the vacuum testing and slope confirmation. All work will be completed at night, generally between 8 p.m. and 8 a.m. per the tenants' request.

SVE Trenching and Backfill

An approximately 40-foot-long trench will be excavated from MW-23 north to just south of MW-15 and MW-21. The trench will be approximately 3-feet deep and approximately 3-feet wide. Figure 4 shows the approximate orientation of the conveyance laterals from the wells to the vault. However, some field adjustment will likely be necessary due to the high concentration of wells in the vicinity of the connections.

Excavated soil will be screened with a PID, and granular soil that does not elicit a PID response is suitable for re-use as backfill in the trench. Soil deemed suitable for re-use as backfill will be temporarily stockpiled onsite with plastic polyethylene sheeting both above and below it. Soil not eligible for backfill will be placed in a roll off box for disposal as F002 hazardous waste not requiring incineration. All stockpiles and the roll off box will be covered when not actively in use. Once construction is complete, piping will be bedded in sand, and the remainder of the trench will be backfilled with native soil or fill to approximately 6-inches bgs. The remainder of the trench will be filled with gravel base coarse and restored with asphalt. For angled wells without a monument, a survey nail or marker will be placed above the well for future reference. MW-23 has a monument which will need to be removed and possibly modified to accommodate the SVE piping connection.

Piping, Vault, and Instrumentation Details

Since it is not practicable to install additional subsurface piping in the narrow alley on the north side of the building, the connection will be made by tapping into the existing conveyance piping serving wells VE-1 through VE-4. A shallow utility vault (575-LA) will be installed for this purpose in the northwest corner of the Parking Lot Parcel. The 575-LA vault will be installed just south of MW-15 and MW-21. The vault is 6 feet long by 4 feet wide and is traffic-rated. The vault has hatch style doors which open for easy access to the SVE conveyance piping within; SVE wells will be manifolded together in the vault. Instrumentation inside the vault will include a flow control valve, sample port, anemometer port, and vacuum gage on each individual well line.[11] Figure 4 shows an instrumentation diagram for the SVE conveyance piping within the vault.

Each new SVE well will have a 3-inch diameter, Schedule 80 PVC lateral connecting it to the new vault, where all of the individual laterals will feed into a 4-inch diameter header. A ball valve is placed on each SVE well lateral to connect or disconnect that well from the blower. Between the vault and the SVE equipment manifold in the alley, the flows will be combined and transmitted through two existing 4-inch PVC conveyance pipes[12]. Two ball values are also placed on the 4-inch header to direct flows into either of the 4-inch laterals for increased control in optimizing the system.

The conveyance pipes will be completed to the manifolded wells with a minimum grade of -2.5% and with no sag points so that any condensate will drain back into the wells. The conveyance pipes from VE-5 and VE-6 will likely be installed beneath a natural gas line that extends east along the parcel boundary.

A contractor's bid to complete the work is provided in Appendix D.

Vapor Emissions Control

The VOC emissions will be treated with granular activated carbon (GAC) prior to discharge through two existing 55-gallon, vapor-phase GAC drums connected in series with new coconut carbon substrate. The existing GAC drums have a flow capacity of roughly 150 standard cubic feet per minute (SCFM).

The Puget Sound Clean Air Agency (PSCAA) is the local air authority with primacy for regulation of air emissions at the Site. As described in Section 6.03(94) of Regulation I of the PSCAA, soil and groundwater remediation systems are exempt from submitting a Notice of Construction and needing an Order of Approval from the PSCAA when air emission releases are less than 15 pounds per year (lbs/year) of benzene or vinyl chloride, less than 500 lbs/year of PCE, and less than 1,000 lbs/year of toxic air contaminants. These limits will not be exceeded due to GAC treatment of emissions. Sampling and calculations will be performed and documented to verify that emission limits are not exceeded.

Waste Management

Any granular soil that elicits a PID response will be placed in a roll off box and disposed of as F002 listed hazardous waste not requiring incineration. The volume of soil needing disposal is not

[11] As originally constructed, VE-1/2 and VE-3/4 will remain dual well laterals.
[12] Existing SVE piping downstream of the vault will not be modified.

expected to exceed 15 cubic yards or 25 tons. Aspect will conduct waste disposal characterization sampling.

Construction Schedule and Start-Up

Aspect proposes to complete the SVE expansion in the summer of 2020. This work must be completed at night and will require the cooperation of the property tenants so some flexibility in scheduling may be required. However, July will be the target for construction and startup of the expanded system.

Once the expanded SVE system is constructed, Aspect proposes to close the original SVE wells prior to restart. By closing original wells VE-1 through VE-4 and only running new wells VE-5 through VE-8 and MW-23, the expanded SVE system will initially extract soil vapor only from pore volumes that have previously been at the outskirts or beyond the radius of influence of the original SVE system. That is to say, the system will focus on areas that potentially have the highest VOC concentrations. Based on field screening and soil analytical results from the installation of VE-7, it is anticipated that soil vapor concentrations from that well will be high.

Performance Monitoring

Monitoring will be performed to estimate the mass removal rate, to optimize the performance of the SVE collection system, and to assess the diminishing effectiveness of removal with continued operations. The system will be operated continuously post-restart with the objective of maximizing mass removal.

Once the system is restarted, an Aspect filed technician will allow the system to equilibrate for 1 hour prior to doing a complete round of Operation and Maintenance (O&M) measurements. O&M Measurements include:

- Vacuum and the concentrations of VOCs from each of the active wellheads (ex. VE-5 through VE-8 and MW-23 as proposed for initial system restart)
- Vacuum, temperature, flow rate, and concentration from the manifolded line between the vapor liquid separator and the blower
- Pressure and temperature from the effluent line from the blower
- Influent and effluent concentrations from the two vapor-phase GAC drums

The concentrations of VOCs will be measured with a PID. The PCE mass removal rate will be calculated from the flow rate, PID measurement, vacuum pressure, and temperature; and will assume that all contamination exists as PCE.

An Aspect field technician will return the following day to repeat the O&M measurements, to collect effluent vapor samples, and to make adjustments to balance flows, if needed. Day one effluent vapor samples will be collected from each of the five new SVE wells and will be analyzed by EPA Method TO-15 for chlorinated VOCs, benzene, toluene, ethylbenzene, and xylenes (BTEX). After the ‘day one’ set of measurements, O&M visits will become weekly for the first month of operation to accurately track PCE removal and monitor for PCE breakthrough of the first GAC filter. After the first month of operation, the O&M visits will return to the standard monthly

schedule. For a complete description of standard performance monitoring activities, please see the *Interim Cleanup Action Construction Completion Report* (Aspect, 2014).

The SVE system will continue to operate on just the new wells until concentrations (via PID measurements) drop to levels comparable to the previous well orientation (less than 20 ppm in the individual conveyance pipes) or until the PSCAA air emissions limit is reached, whichever occurs first. Once this initial stage of utilizing primarily the new SVE wells is complete, Aspect will alternate which wells are utilized to maximize mass removal of VOCs. The number of wells in rotation will consistently be between four and nine wells, and system effluent concentrations will be closely monitored against effluent limits. Regardless of active well orientation, quarterly effluent samples from the influent line to the first GAC drum and effluent from the second GAC vessel will be collected in a Summa canister and submitted for analysis of VOCs by Method TO-15. The total mass of PCE, TCE, DCE, and vinyl chloride will be estimated for both SVE removal and to confirm compliance with the PSCAA air emission limits described above. Based on the original SVE System startup operations data, no GAC exchanges are expected; however, this is subject to change based on new SVE operational data. Once the emissions are low enough that the system can run year-round without risk of exceeding the air emission limits effluent samples will be reduced to annually.

The existing SVE system was installed in 2014, has operated for 5 years to date, and is still removing significant contaminant mass (on the pounds per year scale). The SVE expansion is proposed for the summer of 2020, dependent on tenant coordination. It is expected that with the expanded well network, it will continue to remove significant contaminant mass for the foreseeable future. The SVE system is seen as an interim cleanup action and will continue to be used as long as it is removing contaminates and no other cleanup actions have been implemented.

References

Aspect Consulting LLC (Aspect), 2014, Interim Cleanup Action Construction Completion Report, December 23, 2014.

Aspect Consulting, LLC (Aspect), 2018, Supplemental Focused Feasibility Study, August 10, 2018.

Limitations

Work for this project was performed for D.E. Wickham (Client), and this memorandum was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This memorandum does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

Please refer to Appendix E titled "Report Limitations and Guidelines for Use" for additional information governing the use of this report.

Attachments

Table 1 – Monitoring Well Information and Groundwater Elevation Data
Table 2 – Summary of PID Screening and Analytical Data for 2019 Soil Borings

Figure 1 – Site Location Map
Figure 2 – Site Plan
Figure 3 – PCE Detections in Soil Samples, 2019 Soil Borings
Figure 4 – SVE Layout & Vault Detail

Appendix A – Boring and Well Construction Logs
Appendix B – Waste Disposal Documentation
Appendix C – All Analytical Data
Appendix D – Clear Creek Contractors Estimate for Connection
Appendix E – Report Limitations and Guidelines for Use

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TABLES

Table 1. Monitoring Well Information and Groundwater Elevation Data

Project No. 080190, Morrell's Dry Cleaners Site (VCP SW1039), 608 North First Street, Tacoma, WA

Monitoring Well ID and Installation Date	Date	Vertical Angle	Screened Intervals (feet bgs)	Top of Casing Elevation (feet, site datum)	Depth to Water (feet)	Groundwater Elevation (feet, site datum)
Wells Screened in Advance Outwash						
MW-2	2/27/2008	0	50 to 65	278.14	51.50	226.64
Installed 1/22/2007	10/2/2008				51.84	226.30
	5/12/2009				52.42	225.72
	12/22/2010				52.44	225.70
	2/7/2012				51.77	226.37
	12/12/2013				52.74	225.40
	6/24/2014		Injection of Regenesis products 3DMe and HRC Primer			
	1/21/2015				51.83	226.31
	9/8/2015				51.77	226.37
	2/2/2016				52.14	226.00
	11/28/2018				50.74	227.40
	2/27/2019				50.42	227.72
	4/12/2020				50.73	227.41
	3/26/2020				51.12	227.02
	4/28/220				51.01	227.13
MW-4	2/27/2008	0	49 to 64	278.01	dry	dry
Installed 1/9/2008	10/2/2008				dry	dry
	5/11/2009				dry	dry
	10/25/2010			Decommissioned		
MW-5	2/27/2008	0	50 to 65	278.13	50.87	227.26
Installed 1/11/2008	10/2/2008				51.65	226.48
	5/11/2009				52.28	225.85
	12/22/2010				52.21	225.92
	2/7/2012				51.60	226.53
	1/9/2014				52.68	225.45
	4/28/2015				51.38	226.75
	9/9/2015				51.61	226.52
	2/2/2016				51.52	226.61
	11/28/2018				50.39	227.74
	3/25/2020				51.09	227.04
	4/28/220				50.94	227.19
MW-6	2/27/2008	0	49 to 64	277.55	dry	dry
Installed 1/16/2008	10/2/2008				dry	dry
	5/11/2009				dry	dry
	10/25/2010			Decommissioned		
MW-7	2/27/2008	0	50 to 65	279.44	52.90	226.54
Installed 1/18/2008	10/2/2008				53.08	226.36
	5/11/2009				53.69	225.75
	12/22/2010				53.73	225.71
	2/6/2012				52.98	226.46
	1/7/2014				54.10	225.34
	3/26/2020				52.95	226.49
	4/28/220				52.91	226.53
MW-8	10/2/2008	0	51 to 61	278.14	52.68	225.46
Installed 4/17/2008	5/12/2009				53.28	224.86
	12/22/2010				53.32	224.82
	2/7/2012				52.58	225.56
	12/7/2013				53.64	224.50
	6/23/2014		Injection of Regenesis products 3DMe and HRC Primer			
	1/20/2015				52.70	225.44
	9/10/2015				49.76	228.38
	2/1/2016				52.31	225.83
	11/28/2018				51.64	226.50
		(Re-surveyed in 2019 with new MW installations)		278.80		
	4/12/2019				51.65	227.15
	3/25/2020				51.73	227.07
	4/28/2020				51.79	227.01
MW-9	5/11/2009	0	60 to 70	278.78	dry	dry
Installed 5/5/2009	12/22/2010				dry	dry
	2/6/2012				dry	dry
	12/16/2013				dry	dry
	4/29/2015			Decommissioned		
MW-10	5/11/2009	0	60 to 70	279.45	dry	dry
Installed 5/7/2009	12/22/2010				dry	dry
	2/6/2012				dry	dry
	12/16/2013				dry	dry
	4/29/2015			Decommissioned		
MW-15	12/17/2013	37	44 to 60	278.84	53	226
Installed 10/14/2013	6/23/2014		Injection of Regenesis products 3DMe and HRC Primer			
	9/8/2015				49	230
	2/1/2016				49	230
	11/28/2018				49	230
	3/23/2020				49	230
MW-16	12/13/2013	23	41 to 60	277.88	53	225
Installed 10/15/2013	6/23/2014		Injection of Regenesis products 3DMe and HRC Primer			
	1/21/2015				56	222
	11/28/2018				50	228
	3/25/2020				51	227
MW-17	12/13/2013	32	43 to 60	277.97	53	225
Installed 10/15/2013	6/24/2014		Injection of Regenesis products 3DMe and HRC Primer			
	3/24/2020				51	227
MW-18	12/12/2013	45	46 to 60	277.80	60	217
Installed 10/16/2013	6/24/2014		Injection of Regenesis products 3DMe and HRC Primer			
	3/25/2020				dry	dry
MW-19	1/8/2014	0	45 to 60	278.15	52.72	225.43
Installed 10/17/2013	6/24/2014		Injection of Regenesis products 3DMe and HRC Primer			
	1/21/2015				NM	-
	9/9/2015				51.71	226.44
	2/2/2016				51.64	226.51
	11/28/2018				50.55	227.60
	4/12/2019				50.63	227.52
	3/24/2020				51.12	227.03
	4/28/2020				51.08	227.07
MW-20	1/8/2014	0	45 to 60	278.03	52.64	225.39
Installed 10/11/2013	6/24/2014		Injection of Regenesis products 3DMe and HRC Primer			
	1/20/2015				52.24	225.79
	9/9/2015				51.83	226.20
	2/2/2016				51.95	226.08
	11/28/2018				50.43	227.60
	2/28/2019				50.30	227.73
	4/12/2019				50.44	227.59
	7/15/2019				50.95	227.08
			Injection of Regenesis products 3DMe and microorganisms			
	8/27/2019				51.01	227.02
	12/12/2019				51.35	226.68
	3/24/2020				51.04	226.99
	4/28/2020				50.75	227.28

Table 1. Monitoring Well Information and Groundwater Elevation Data

Project No. 080190, Morrell's Dry Cleaners Site (VCP SW1039), 608 North First Street, Tacoma, WA

Monitoring Well ID and Installation Date	Date	Vertical Angle	Screened Intervals (feet bgs)	Top of Casing Elevation (feet, site datum)	Depth to Water (feet)	Groundwater Elevation (feet, site datum)
MW-21	12/17/2013	0	45 to 60	279.03	53.66	225.37
Installed 10/17/2013	6/23/2014		Injection of Regenesis products 3DMe and HRC Primer			
	1/20/2015				52.78	226.25
	9/8/2015				52.83	226.20
	2/1/2016				53.21	225.82
	11/28/2018				51.6	227.43
	4/12/2019				51.57	227.46
	3/25/2020				52.15	226.88
	4/28/2020				52.12	226.91
MW-23	3/14/2019	0	10 to 20 and 45 to 60	277.94	50.61	227.33
Installed 2/6/2019	4/12/2019				50.71	227.23
	3/26/2020				51.22	226.72
	4/28/2020				51.01	226.93
MW-24	2/13/2019	0	10 to 20 and 45 to 60	278.08	50.92	227.16
Installed 1/31/2019	4/12/2019				50.88	227.20
	8/27/2019				51.17	226.91
	12/12/2019				51.57	226.51
	3/26/2020				51.54	226.54
	4/28/2020				51.3	226.78
MW-25	2/13/2019	0	45 to 60	278.16	50.81	227.35
Installed 1/29/2019	4/12/2019				50.86	227.30
	3/26/2020				51.42	226.74
	4/28/2020				51.15	227.01
MW-26	2/13/2019	0	45 to 60	278.10	50.74	227.36
Installed 1/20/2019	4/12/2019				50.89	227.21
	8/28/2019				51.14	226.96
	12/13/2019				51.54	226.56
	3/25/2020				51.62	226.48
	4/28/2020				51.24	226.86
MW-27	2/13/2019	0	45 to 60	277.75	50.47	227.28
Installed 2/1/2019	4/12/2019				50.68	227.07
	3/24/2020				51.39	226.36
	4/28/2020				51.06	226.69
MW-28	3/26/2019	0	45 to 60	277.68	50.4	227.28
Installed 3/14/2019	4/12/2019				50.6	227.08
	3/25/2020				50.13	227.55
	4/28/2020				50.99	226.69
MW-29	3/26/2019	0	45 to 60	277.87	50.64	227.23
Installed 3/11/2019	4/12/2019				50.76	227.11
	3/25/2020				51.34	226.53
	4/28/2020				51.16	226.71
MW-30	2/25/2019	0	45 to 60	278.27	51.24	227.03
Installed 2/7/2019	4/12/2019				51.29	226.98
	3/26/2020				51.9	226.37
	4/28/2020				51.6	226.67
MW-31	2/25/2019	0	10 to 20 and 45 to 60	278.87	51.84	227.03
Installed 2/5/2019	4/12/2019				51.93	226.94
	3/26/2020				51.3	227.57
	4/28/2020				52.25	226.62
MW-32	3/26/2019	0	45 to 60	278.40	51.23	227.17
Installed 3/13/2019	4/12/2019				51.3	227.10
	3/26/2020				51.85	226.55
	4/28/2020				51.64	226.76
MW-33	3/26/2019	0	45 to 60	279.21	51.95	227.26
Installed 3/13/2019	4/12/2019				52.15	227.06
	3/26/2020				52.55	226.66
	4/28/2020				52.52	226.69
MW-34	7/15/2019	0	44 to 59	278.10	51.03	227.07
	8/27/2019				51.27	226.83
Installed 7/9/2019	12/13/2019				51.5	226.60
	3/25/2020				51.9	226.20
	4/28/2020				51.32	226.78
MW-35	8/27/2019	0	43 to 58	278.15	51.25	226.90
Installed 7/11/2019	12/13/2019				51.64	226.51
	3/25/2020				51.74	226.41
	4/28/2020				51.25	226.90
Wells Screened in Deeper Water-Bearing Zone						
MW-8D	5/11/2009	0	96 to 116	278.11	112.56	165.55
Installed 5/6/2009	12/22/2010				112.58	165.53
	2/6/2012				112.52	165.59
	1/10/2014				112.56	165.55
	4/28/2015				112.45	165.66
	9/8/2015				118.92	159.19
	2/2/2016				112.53	165.58
	4/9/2019				112.48	165.63
	3/24/2020				112.67	165.44
MW-12D	12/22/2010	0	113 to 123	277.72	129.96	147.76
Installed 10/27/2010	2/6/2012				129.80	147.92
	1/10/2014				129.94	147.78
	4/29/2015				129.89	147.83
	9/10/2015				130.90	146.82
	2/2/2016				131.03	146.69
	3/24/2020				130.47	147.25
MW-13D	12/22/2010	0	125 to 145	276.96	137.88	139.08
Installed 10/29/2010	2/7/2012				137.43	139.53
	12/16/2013				137.70	139.26
	4/29/2015				137.13	139.83
	9/9/2015				137.22	139.74
	2/2/2016				137.14	139.82
	4/9/2019				137.62	139.34
	3/24/2020				138.26	138.70
MW-14D	2/6/2012	0	123 to 143	277.46	134.02	143.44
Installed 2/2/2012	1/23/2014				134.26	143.20
	4/29/2015				133.82	143.64
	9/9/2015				134.16	143.30
	2/2/2016				134.11	143.35
	4/9/2019				134.3	143.16
	3/24/2020				134.41	143.05

Notes:
bgs = below ground surface
nm = not measured

Table 2. Summary of PID Screening and Analytical Data for 2019 Soil Borings

Project No. 080190, Morrell's Dry Cleaners (VCP No. SW1039), 608 North First Street, Tacoma, Washington

				Chlorinated VOCs				Petroleum Hydrocarbons							
Well ID[2]	Sample Date	Sample Depth (feet bgs)	[PID][3]	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cDCE)	Methylene Chloride[4]	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Propylbenzene	Isopropylbenzene	sec-Butylbenzene	tert-Butylbenzene	p-Isopropyltoluene	Naphthalene
MW-22	Attempted on 2/4/19. Vac truck used to remove soil; unable to find sufficient drill clearance between subsurface utilities.														
MW-23	02/06/19	5.5	360	0.025 U	0.02 U	0.05 U	0.5 U	**0.14**	0.05 U	0.05 U	0.05 U	**0.059**	0.05 U	**0.058**	0.05 U
		10.5	31	**0.40**	**0.18**	**0.19**	**1.4**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		15.5	1.2												
		20.5	4.1	**0.045**	0.02 U	0.05 U	**0.51**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		25.5	704	**2.3**	0.02 U	0.05 U	0.5 U	0.05 U	**0.11**	0.05 U	0.05 U	**0.064**	0.05 U	**0.094**	0.05 U
		30.5	2.1												
		35.5	1.8												
		40.5	0.2												
		45.5	0.2												
		50.5	0.3												
		55.5[9]	2.2	**0.095**	0.02 U	0.05 U	**0.83**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		60.5	0.4												
MW-24	1/30/19 & 1/31/19	5.5	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		10.5	0												
		15.5	0												
		20.5	--												
		25.5	0												
		30.5	0.5	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		35.5	0												
		40.5	0												
		45.5	0												
		50.5[9]	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		55.5	0												
		60.5	0												
MW-25	1/28/19 & 1/29/19	5.5	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		10.5	0												
		15.5	0												
		20.5	0												
		25.5	0												
		30.5	0.2	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		35.5	0												
		40.5	0												
		45.5	0												
		50.5[9]	0.5	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		55.5	0												
		60.5	0												
MW-26	1/29/19 & 1/30/19	5.5	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		10.5	0												
		15.5	0												
		20.5	0												
		25.5	0												
		30.5	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		35.5	0												
		40.5	0												
		45.5	0												
		50.5[9]	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		55.5	0												
		60.5	0												
MW-27	1/31/19 & 2/1/19	5.5	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		10.5	0												
		15.5	0												
		20.5	0												
		25.5	0												
		30.5	1.5	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		35.5	0												
		40.5	0												
		45.5	0.5												
		50.5[9]	0.5	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		55.5	0												
		60.5	0												
MW-28	03/14/19	5.5	0												
		10.5	0.3												
		15.5	0												
		20.5	0												
		25.5	0												
		30.5	3.5	**0.038**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		35.5	0												
		40.5	0												
		45.5	0												
		50.5	0												
		55.5[9]	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		60.5	0												
MW-29	03/11/19	5.5	0												
		10.5	0												
		15	0	**0.043**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		20.5	0												
		25.5	0												
		30.5	0												
		35.5	0												
		40.5	0.5												
		45.5	0												
		50[9]	0.9	**0.043**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		55.5	0												
		60.5	0												

Table 2. Summary of PID Screening and Analytical Data for 2019 Soil Borings

Project No. 080190, Morrell's Dry Cleaners (VCP No. SW1039), 608 North First Street, Tacoma, Washington

				Chlorinated VOCs				Petroleum Hydrocarbons							
Well ID[2]	Sample Date	Sample Depth (feet bgs)	[PID][3]	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cDCE)	Methylene Chloride[4]	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Propylbenzene	Isopropylbenzene	sec-Butylbenzene	tert-Butylbenzene	p-Isopropyltoluene	Naphthalene
MW-30	02/07/19	5.5	0												
		10.5	4	**0.084**	**0.021**	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		15.5	--												
		20.5	0.2												
		25.5	0.5												
		30.5	0.6												
		35.5	2.6	**0.10**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		40.5	0												
		45.5	0												
		50.5	0												
		55.5	0												
		60.5[9]	0.4	**0.026**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
MW-31	02/05/19	5.5	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		10.5	0.1												
		15.5	0.1												
		20.5	0.1												
		25.5	0												
		30.5	0.1												
		35.5	0.3												
		40.5	1	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		45.5	0												
		50.5	0.3												
		55.5[9]	1.5	**0.058**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		60.5[9]	1.3	**0.058**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
MW-32	03/13/19	5.5													
		10.5													
		15.5	1	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		20.5	1												
		25.5	5												
		30.5	1.5												
		35.5	1.5												
		40.5	0												
		45.5													
		50.5	0												
		55.5[9]	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		60.5	0												
MW-33	3/12/19 & 3/13/19	5.5	2												
		10	2	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		15.5	0												
		20.5	1												
		25.5	0												
		30.5	0												
		35.5	0.5												
		40.5	0												
		45.5	0												
		50.5	0												
		55.5[9]	0	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		60.5	0												
MW-34	7/8/19 & 7/9/19	5.5	2												
		10.5													
		15.5	0.8												
		20.5													
		25.5	1.5												
		30.5	0.5												
		35.5	0.5												
		40.5	0.5												
		45.5	0												
		50.5	0.2												
		55.5	0.1												
		60.5	0.1												
B-35A[5]	7/9/19 & 7/10/19	5.5	0												
		10.5	0												
		15.5	0												
		20.5	0												
		25.5	0.3												
		30.5	1.1												
		35.5	0.3												
		40.5	0												
		45.5	0												
VE-5[6] (45 deg angle)	02/26/19	2.8	7												
		4.9	21												
		6.7	7												
		11.0	41												
		13.8	14												
		15.9	666	0.025 U	0.02 U	0.05 U	0.5 U	**0.069**	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		19.4	109												
		22.6	126	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		25.5	7												
		27.9	21												
		30.4	16												
VE-6[6] (45 deg angle)	02/28/19	4.9	13												
		9.2	126	**0.47**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		14.8	99												
		20.9	22												
		26.9	71	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		29.0	33												
		35.7	8												
		40.3	42	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		44.2	27												
		46.0	55												

Table 2. Summary of PID Screening and Analytical Data for 2019 Soil Borings

Project No. 080190, Morrell's Dry Cleaners (VCP No. SW1039), 608 North First Street, Tacoma, Washington

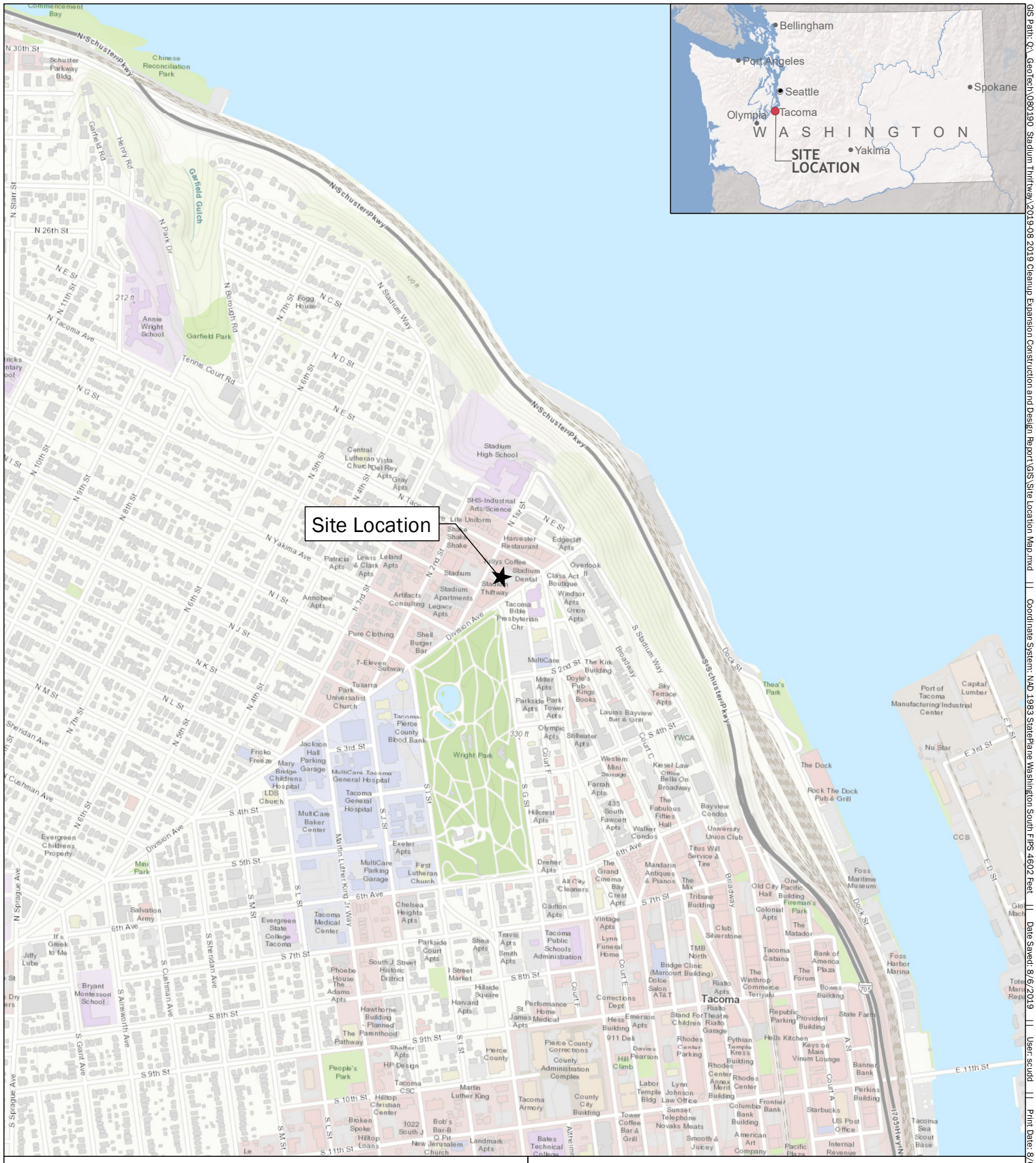
				Chlorinated VOCs				Petroleum Hydrocarbons							
Well ID[2]	Sample Date	Sample Depth (feet bgs)	[PID][3]	Tetrachloroethene (PCE)	Trichloroethene (TCE)	cis-1,2-Dichloroethene (cDCE)	Methylene Chloride[4]	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Propylbenzene	Isopropylbenzene	sec-Butylbenzene	tert-Butylbenzene	p-Isopropyltoluene	Naphthalene
VE-7[6,7] (45 deg angle)	03/01/19	4.6	20												
		6.7	1,921	**1.4**	**0.16**	**0.16**	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		9.5	210												
		11.3	1641												
		13.1	30												
		15.6	2,489	**120**	**1.5**	0.05 U	0.5 U	**5.4**	**3.0**	**1.6**	**0.43**	**1.6**	**0.094**	**0.12**	**0.44**
		16.6	30												
		21.6	40												
		26.2	148	0.025 U	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		29.0	30												
		31.5	2												
VE-8[6] (45 deg angle)	02/27/19	2.1	109												
		5.7	965												
		9.9	1,508	**0.089**	0.02 U	**0.34**	0.5 U	**0.91**	**1.0**	**0.27**	**0.084**	**0.35**	0.05 U	**0.57**	**0.1**
		13.4	343												
		18.0	14												
		22.3	16												
		24.0	1,404	**7.3**	**0.15**	0.05 U	0.5 U	**0.88**	**0.76**	**0.40**	**0.12**	**1.2**	0.05 U	**0.55**	0.05 U
		27.2	69												
		30.1	26												
		33.2	68	**0.047**	0.02 U	0.05 U	0.5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
		35.7	7												
		39.6	19												
		45.3	2												
Screening Level[8]				0.05	0.03	160	0.02		800	8,000		8,000	8,000		5

bgs below ground surface
U not detected at the indicated detection limit
PID photo-ionization detector
VOC volatile organic compound

Notes:

1) All laboratory concentrations are in milligrams per kilogram (mg/kg). Only analytes detected in at least one sample are included in this table. Detections are bolded. Screening level exceedances are shaded.
2) Borings and soil samples collected during drilling were designated "A-x" for angled borings and "B-xx" for vertical borings. When wells were installed, the letter designations were changed to "VE-x" for angled (soil vapor extraction) wells and "MW-xx" for vertical (advance outwash groundwater) wells.
3) PID readings were obtained by placing the soil sample in a zip-lock bag and, after waiting several minutes, inserting the tip of the PID into the bag to measure the total VOC concentration in the headspace. PID concentrations are in parts per million (ppm).
4) In all cases where methylene chloride was detected, the laboratory noted that it was likely due to laboratory contamination.
5) In drilling B-35A, the auger got stuck at 46.5 ft bgs and the hole was abandoned. MW-35 was drilled (no soil sampling) and installed the following night.
6) For the angled borings, only a subset of the PID readings are included in this table. Refer to the boring logs for the full sets of PID readings.
7) Based on field screening of the A-7 cuttings, the presence of separate-phase liquid was suspected in the approximate depth ranges of 7 to 10 and 21 to 22.5 feet bgs.
8) The screening levels are Model Toxics Control Act (MTCA) Method A cleanup levels for PCE, TCE, methylene chloride, and naphthalene, and the Method B direct contact (CLARC table value) cleanup levels for all other compounds.
9) Sample was collected from at or below the water table and results indicate concentration from the combined solid and liquid phase sample material.

FIGURES



0 1,000 2,000

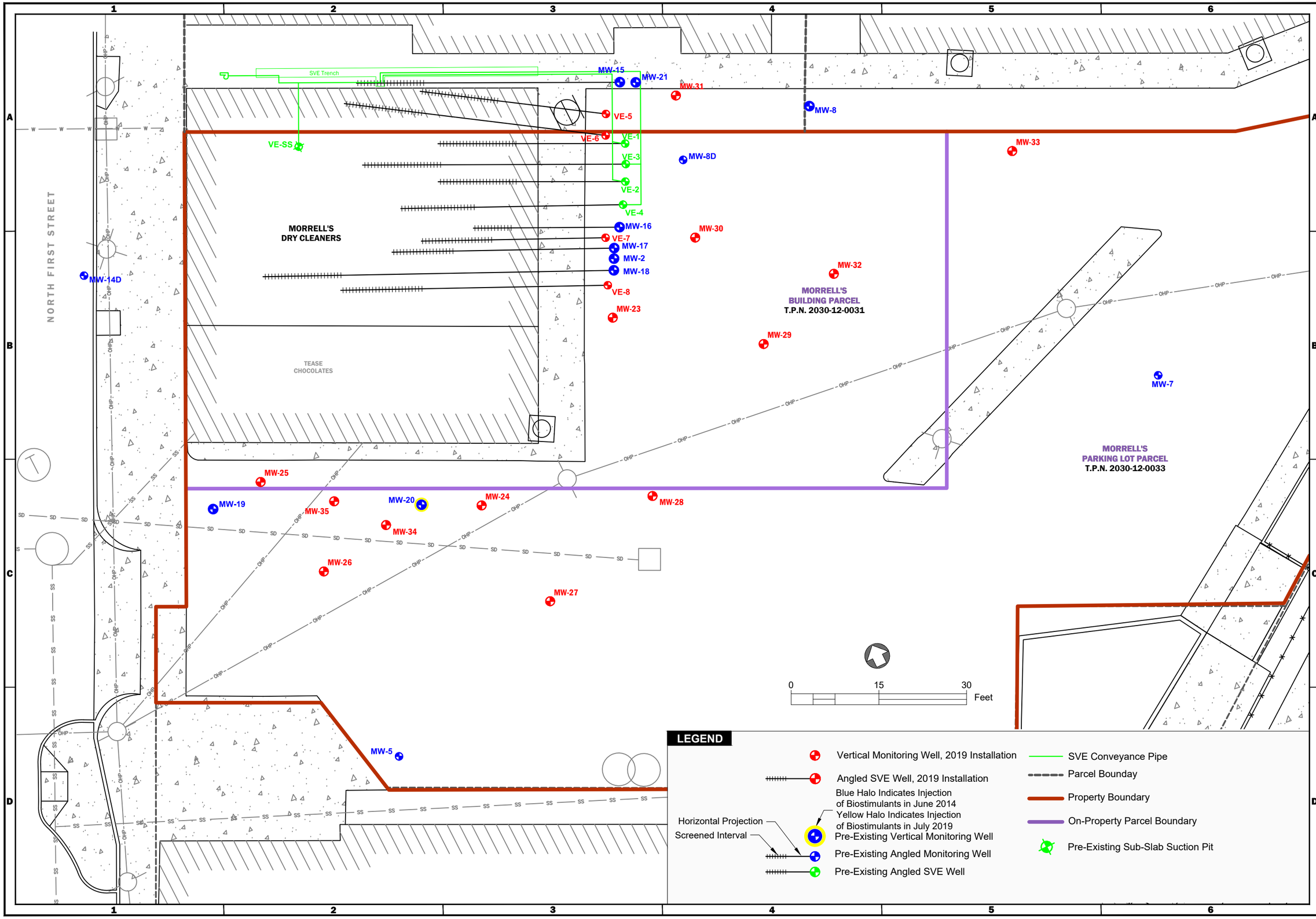
Feet

Site Location Map

Well Construction and SVE Expansion
Technical Memorandum
Morrell's Dry Cleaners (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

Aspect Consulting	AUG-2019	BY: DAH/SCC	FIGURE NO. 1
	PROJECT NO. 080190	REV BY: SCC	

GIS Path: Q:_GeoTech\080190 Stadium Thriftway\2019-08 2019 Cleanup Expansion Construction and Design Report\GIS\Site Location Map.mxd || Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet || Date Saved: 8/6/2019 || User: scudd || Print Date: 8/6/2019



Site Plan

Well Installation and SVE Expansion
Technical Memorandum
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

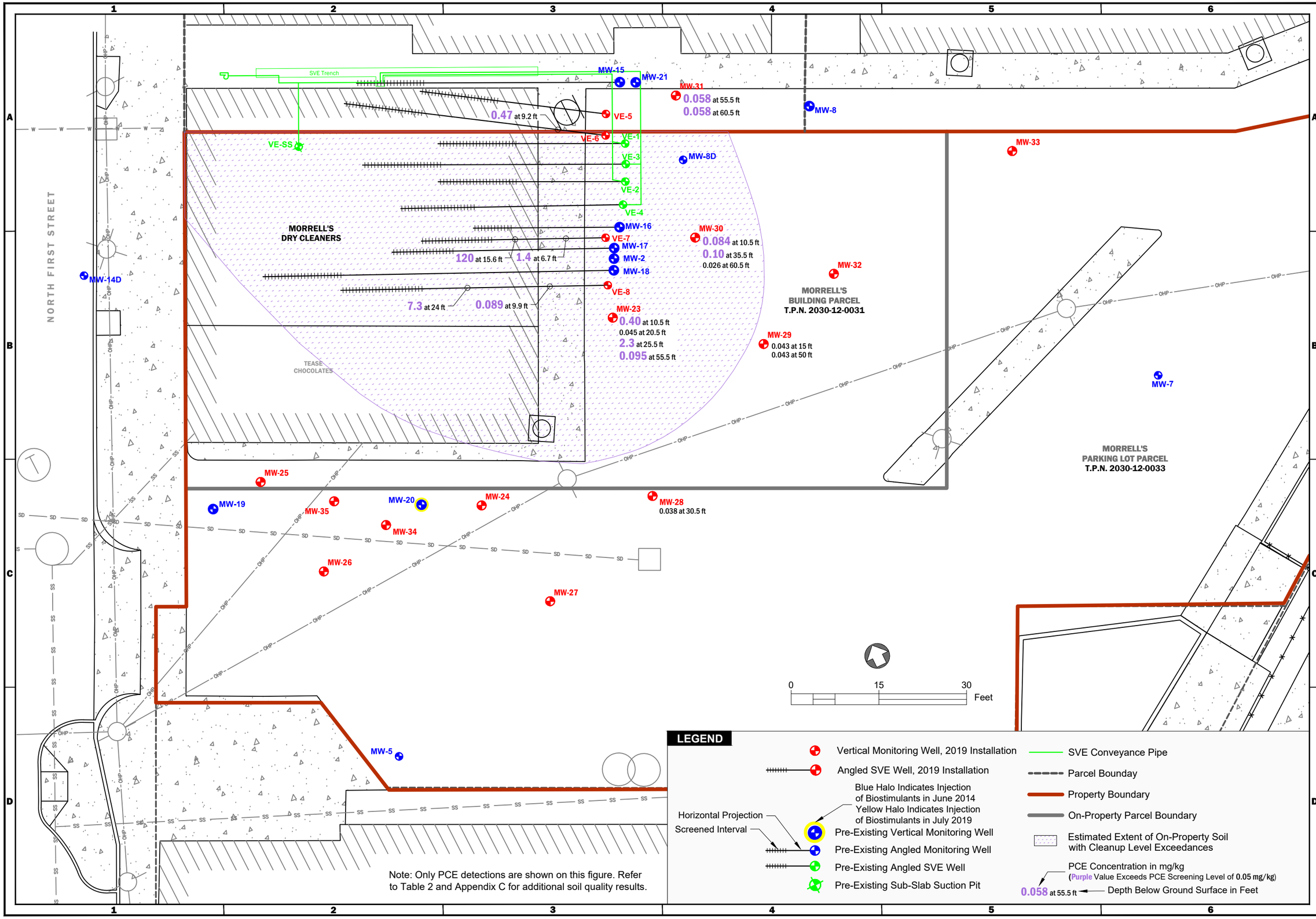
FIGURE NO.

2

Aspect CONSULTING

DATE: May-2020
REVISION: -
PROJECT NUMBER: 080190
DESIGNED BY: DAH
DRAWN BY: SCC
REVISED BY: BMG

CAD Path: Q:_GeoTech\080190 Stadium Thriftway\2020-05 Ft. Closure and SVE Expansion\080190-Tech Memo.dwg 2-Site Plan | | Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet | | Date Saved: May 15, 2020 11:23am | | User: bgreer



NORTH FIRST STREET

MORRELL'S DRY CLEANERS

TEASE CHOCOLATES

MORRELL'S BUILDING PARCEL T.P.N. 2030-12-0031

MORRELL'S PARKING LOT PARCEL T.P.N. 2030-12-0033

Note: Only PCE detections are shown on this figure. Refer to Table 2 and Appendix C for additional soil quality results.

LEGEND

- Vertical Monitoring Well, 2019 Installation
- Angled SVE Well, 2019 Installation
- Blue Halo Indicates Injection of Biostimulants in June 2014
- Yellow Halo Indicates Injection of Biostimulants in July 2019
- Horizontal Projection
- Screened Interval
- Pre-Existing Vertical Monitoring Well
- Pre-Existing Angled Monitoring Well
- Pre-Existing Angled SVE Well
- Pre-Existing Sub-Slab Suction Pit
- SVE Conveyance Pipe
- Parcel Bounday
- Property Boundary
- On-Property Parcel Boundary
- Estimated Extent of On-Property Soil with Cleanup Level Exceedances
- PCE Concentration in mg/kg (Purple Value Exceeds PCE Screening Level of 0.05 mg/kg)
- 0.058 at 55.5 ft ← Depth Below Ground Surface in Feet

Aspect CONSULTING

PCE Detections in Soil Samples, 2019 Soil Borings

Well Installation and SVE Expansion
Technical Memorandum
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

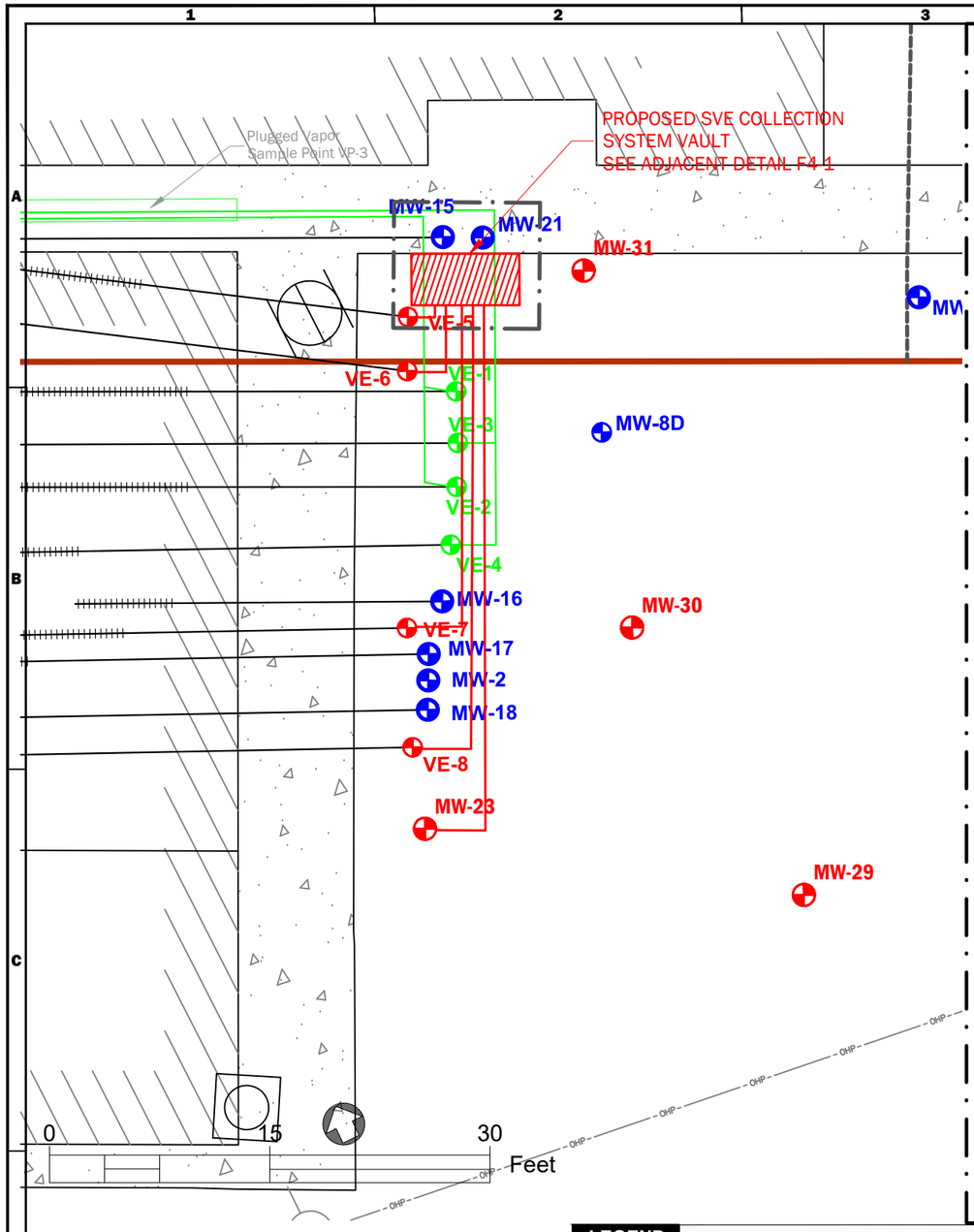
FIGURE NO.

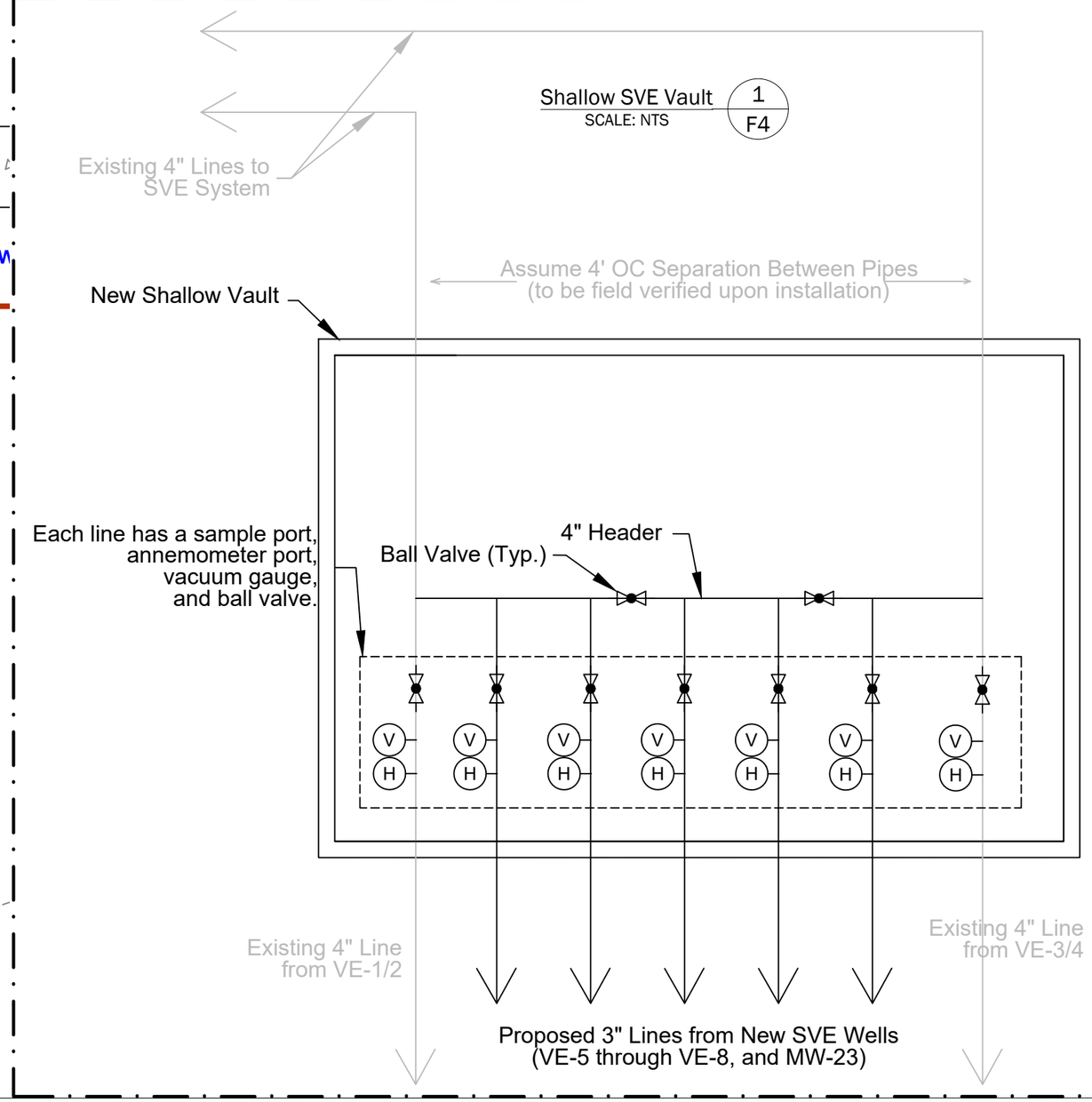
3

DATE: May-2020 | REVISION: - | PROJECT NUMBER: 080190 | DESIGNED BY: DAH | DRAWN BY: SCC | REVISED BY: SCC

DESCRIPTION | DATE | APPR.

CAD Path: O:_GeoTech\080190 Stadium Thriftway\2020-05 FL Closure and SVE Expansion\080390-Tech Memo.dwg 3-PCE Soil || Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet || Date Saved: May 15, 2020 11:24am || User: hgmer





LEGEND

- Vertical Monitoring Well, 2019 Installation
- Angled SVE Well, 2019 Installation
- Blue Halo Indicates Injection of Biostimulants in June 2014
- Yellow Halo Indicates Injection of Biostimulants in July 2019
- Horizontal Projection
- Screened Interval
- Pre-Existing Vertical Monitoring Well
- Pre-Existing Angled Monitoring Well
- Pre-Existing Angled SVE Well
- SVE Conveyance Pipe
- Parcel Bounday
- Property Boundary
- On-Property Parcel Boundary
- Pre-Existing Sub-Slab Suction Pit
- Proposed Component
- Existing Component
- Ball Valve
- Vacuum Gauge (0-30" water)
- $\frac{1}{4}$" Hole with Threaded Plug

SVE Layout & Vault Detail

Well Installation and SVE Expansion
Technical Memorandum
Morrell's Dry Cleaner (VCP No. SW1039)
608 North 1st Street, Tacoma, Washington

FIGURE NO.

4

Aspect CONSULTING

DATE: May-2020
REVISION: -
PROJECT NUMBER: 080190
DESIGNED BY: DAH
DRAWN BY: SCC
REVISED BY: BMG

APPR. | DATE | DESCRIPTION | REV.

May 21, 2020 3:23pm | User: tfgreer

O:\080190_SiteTech\080190_Stadium Thriftway 2020-05 PL Closure and SVE Expansion\080190-Tech Memo.dwg 4 SVE Layout | Dorothea Systems NAD 1983 State Plane Washington North FIPS 4601 Feet

APPENDIX A

Boring and Well Construction Logs

Coarse-Grained Soils - More than 50%[1] Retained on No. 200 Sieve	Gravels - More than 50%[1] of Coarse Fraction Retained on No. 4 Sieve	≤5% Fines	GW	Well-graded GRAVEL Well-graded GRAVEL WITH SAND
			GP	Poorly-graded GRAVEL Poorly-graded GRAVEL WITH SAND
		≥15% Fines	GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
			GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
	Sands - 50%[1] or More of Coarse Fraction Passes No. 4 Sieve	≤5% Fines	SW	Well-graded SAND Well-graded SAND WITH GRAVEL
			SP	Poorly-graded SAND Poorly-graded SAND WITH GRAVEL
		≥15% Fines	SM	SILTY SAND SILTY SAND WITH GRAVEL
			SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
Fine-Grained Soils - 50%[1] or More Passes No. 200 Sieve	Silts and Clays Liquid Limit Less than 50%		ML	SILT SANDY or GRAVELLY SILT SILT WITH SAND SILT WITH GRAVEL
			CL	LEAN CLAY SANDY or GRAVELLY LEAN CLAY LEAN CLAY WITH SAND LEAN CLAY WITH GRAVEL
			OL	ORGANIC SILT SANDY or GRAVELLY ORGANIC SILT ORGANIC SILT WITH SAND ORGANIC SILT WITH GRAVEL
	Silts and Clays Liquid Limit 50% or More		MH	ELASTIC SILT SANDY or GRAVELLY ELASTIC SILT ELASTIC SILT WITH SAND ELASTIC SILT WITH GRAVEL
			CH	FAT CLAY SANDY or GRAVELLY FAT CLAY FAT CLAY WITH SAND FAT CLAY WITH GRAVEL
			OH	ORGANIC CLAY SANDY or GRAVELLY ORGANIC CLAY ORGANIC CLAY WITH SAND ORGANIC CLAY WITH GRAVEL
Highly Organic Soils			PT	PEAT and other mostly organic soils

"WITH SILT" or "WITH CLAY" means 5 to 15% silt and clay, denoted by a "-" in the group name; e.g., SP-SM • "SILTY" or "CLAYEY" means >15% silt and clay • "WITH SAND" or "WITH GRAVEL" means 15 to 30% sand and gravel. • "SANDY" or "GRAVELLY" means >30% sand and gravel. • "Well-graded" means approximately equal amounts of fine to coarse grain sizes • "Poorly graded" means unequal amounts of grain sizes • Group names separated by "/" means soil contains layers of the two soil types; e.g., SM/ML.

Soils were described and identified in the field in general accordance with the methods described in ASTM D2488. Where indicated in the log, soils were classified using ASTM D2487 or other laboratory tests as appropriate. Refer to the report accompanying these exploration logs for details.

1. Estimated or measured percentage by dry weight
2. (SPT) Standard Penetration Test (ASTM D1586)
3. Determined by SPT, DCPT (ASTM STP399) or other field methods. See report text for details.

GEOTECHNICAL LAB TESTS

MC	=	Natural Moisture Content
GS	=	Grain Size Distribution
FC	=	Fines Content (% < 0.075 mm)
GH	=	Hydrometer Test
AL	=	Atterberg Limits
C	=	Consolidation Test
Str	=	Strength Test
OC	=	Organic Content (% Loss by Ignition)
Comp	=	Proctor Test
K	=	Hydraulic Conductivity Test
SG	=	Specific Gravity Test

CHEMICAL LAB TESTS

Organic Chemicals

BTEX	=	Benzene, Toluene, Ethylbenzene, Xylenes
TPH-Dx	=	Diesel and Oil-Range Petroleum Hydrocarbons
TPH-G	=	Gasoline-Range Petroleum Hydrocarbons
VOCs	=	Volatile Organic Compounds
SVOCs	=	Semi-Volatile Organic Compounds
PAHs	=	Polycyclic Aromatic Hydrocarbon Compounds
PCBs	=	Polychlorinated Biphenyls

Metals

RCRA8	=	As, Ba, Cd, Cr, Pb, Hg, Se, Ag, (d = dissolved, t = total)
MTCA5	=	As, Cd, Cr, Hg, Pb (d = dissolved, t = total)
PP-13	=	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn (d=dissolved, t=total)

FIELD TESTS

PID	=	Photoionization Detector
Sheen	=	Oil Sheen Test
SPT[2]	=	Standard Penetration Test
NSPT	=	Non-Standard Penetration Test
DCPT	=	Dynamic Cone Penetration Test

COMPONENT DEFINITIONS

Descriptive Term		*Size Range and Sieve Number*
Boulders	=	Larger than 12 inches
Cobbles	=	3 inches to 12 inches
Coarse Gravel	=	3 inches to 3/4 inches
Fine Gravel	=	3/4 inches to No. 4 (4.75 mm)
Coarse Sand	=	No. 4 (4.75 mm) to No. 10 (2.00 mm)
Medium Sand	=	No. 10 (2.00 mm) to No. 40 (0.425 mm)
Fine Sand	=	No. 40 (0.425 mm) to No. 200 (0.075 mm)
Silt and Clay	=	Smaller than No. 200 (0.075 mm)

ESTIMATED[1] PERCENTAGE

% by Weight		*Modifier*	*% by Weight*		*Modifier*
<1	=	Subtrace	15 to 25	=	Little
1 to <5	=	Trace	30 to 45	=	Some
5 to 10	=	Few	>50	=	Mostly

MOISTURE CONTENT

Dry	=	Absence of moisture, dusty, dry to the touch
Slightly Moist	=	Perceptible moisture
Moist	=	Damp but no visible water
Very Moist	=	Water visible but not free draining
Wet	=	Visible free water, usually from below water table

RELATIVE DENSITY

Non-Cohesive or Coarse-Grained Soils

Density[3]		*SPT*[2] *Blows/Foot*	*Penetration with 1/2" Diameter Rod*
Very Loose	=	0 to 4	≥ 2'
Loose	=	5 to 10	1' to 2'
Medium Dense	=	11 to 30	3" to 1'
Dense	=	31 to 50	1" to 3"
Very Dense	=	> 50	< 1"

CONSISTENCY

Cohesive or Fine-Grained Soils

Consistency[3]		*SPT*[2] *Blows/Foot*	*Manual Test*
Very Soft	=	0 to 1	Penetrated >1" easily by thumb. Extrudes between thumb & fingers.
Soft	=	2 to 4	Penetrated 1/4" to 1" easily by thumb. Easily molded.
Medium Stiff	=	5 to 8	Penetrated >1/4" with effort by thumb. Molded with strong pressure.
Stiff	=	9 to 15	Indented ~1/4" with effort by thumb.
Very Stiff	=	16 to 30	Indented easily by thumbnail.
Hard	=	> 30	Indented with difficulty by thumbnail.

GEOLOGIC CONTACTS

Observed and Distinct — Observed and Gradual — Inferred

Aspect CONSULTING

Exploration Log Key

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's entrance, south of MW-17		*Coordinates* NA	*Exploration Number* **MW-23**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 160
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/6/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 52.7' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; with base course.	0
						TILL	
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					SILTY SAND (SM); very dense, moist, gray brown; fine to medium sand; trace fine subround gravel; chemical odor.	1
2							2
3							3
4	2" diameter, schedule 40 PVC, threaded connections, 0'-45' bgs						4
5			B-23-5.5 VOCs by 8260C	PID=360 SPT=50/5			5
6							6
7							7
8							8
9							9
10			B-23-10.5 VOCs by 8260C	PID=31 SPT=29, 50/5			10
11							11
12							12
13							13
14							14
15				PID=1.2 SPT=50/6		GRAVEL (GP); very dense; gray; moist; fine subround gravel.	15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-8' bgs		B-23-20.5 VOCs by 8260C	PID=4.1 SPT=29, 50/4		SAND WITH SILT AND GRAVEL (SW-SM); very dense, moist, gray brown; fine to coarse sand; fine to coarse subround gravel.	20
21							21
22							22
23							23
24							24

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MVA
Approved by: DAH

Exploration Log MW-23

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's entrance, south of MW-17		*Coordinates* NA	*Exploration Number* **MW-23**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 160
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/6/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 52.7' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26			B-23-25.5 VOCs by 8260C	SPT=22, 50/6 PID=704		SILTY SAND WITH GRAVEL (SM); very dense, moist, gray to gray brown; fine to medium sand (trace coarse); fine gravel.	26
27						SAND WITH SILT (SP-SM); very dense, moist, gray brown; fine to medium sand; trace fine subround gravel.	27
28							28
29							29
30				PID=2.1 SPT=16, 50/5		SILTY SAND (SM); very dense, slightly moist, brown; fine to medium sand; trace fine subround gravel; slight chemical odor.	30
31							31
32							32
33							33
34							34
35				PID=1.8 SPT=24, 30, 50/6		SAND WITH SILT (SP-SM); very dense, moist, brown; fine to medium sand (trace coarse sand); trace fine subround gravel.	35
36							36
37							37
38							38
39							39
40				PID=0.2 SPT=33, 50/5		**OUTWASH** SAND (SP); dense to very dense, moist, red brown; fine to medium sand (with trace coarse sand); trace silt.	40
41							41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0.2			45
46				SPT=30, 32, 42			46
47							47
48							48
49							49

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MVA
Approved by: DAH

Exploration Log MW-23

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's entrance, south of MW-17		*Coordinates* NA	*Exploration Number* **MW-23**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 160
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/6/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 52.7' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51				SPT=18, 22, 32 PID=0.3		**OUTWASH** SAND (SP); dense to very dense, moist, red brown; fine to medium sand (with trace coarse sand); trace silt. (continued)	51
52	2" diameter 0.020", schedule 40 PVC screen, 45'-60' bgs ▽ 2/6/2019						52
53							53
54							54
55			B-23-55.5 VOCs by 8260C	PID=2.2			55
56				SPT=17, 21, 33			56
57							57
58							58
59						SILTY SAND (SM); very dense, very moist, brown; fine sand.	59
60	Threaded PVC endcap			PID=0.4			60
61				SPT=27, 35, 50/5			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type: ◧ Continuous core 1.125" ID

Water Level: ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: MVA
Approved by: DAH

Exploration Log MW-23

Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's southeast corner		*Coordinates* NA	*Exploration Number* **MW-24**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 186
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/30/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.6' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; with base course.	0
						TILL	
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					SAND WITH GRAVEL (SP); dense, moist, dark brown; fine to medium sand; fine subround gravel.	1
2							2
3							3
4	2" diameter, schedule 40 PVC, threaded connections, 0'-10' bgs						4
5			B-24-5.5 VOCs by 8260C	PID=0			5
6	Bentonite chips, 2'-8' bgs			SPT=13, 22, 50/5		SANDY SILT WITH GRAVEL (ML); hard, slightly moist, brown; low plasticity silt; fine to coarse sand; fine to coarse subround gravel.	6
7							7
8							8
9	12/20 sand filter pack, 8'-22' bgs						9
10				PID=0		SILTY SAND WITH GRAVEL (SM); very dense, slightly moist, gray brown; fine to coarse sand; fine to coarse subround gravel.	10
11				SPT=15, 47, 50/5			11
12							12
13							13
14							14
15	2" diameter 0.020", schedule 40 PVC screen, 10'-20' bgs			PID=0		SAND WITH SILT AND GRAVEL (SP-SM); very dense, slightly moist, brown; fine to medium sand; fine to course subround gravel.	15
16				SPT=14, 37, 50/5			16
17							17
18							18
19							19
20				SPT=50/5		SAND WITH SILT AND GRAVEL (SW-SM); very dense, moist, gray brown; fine to coarse sand; coarse subround gravel; on rock, blow counts overstated	20
21							21
22							22
23							23
24							24

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-24

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's southeast corner		*Coordinates* NA	*Exploration Number* **MW-24**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 186
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/30/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.6' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26	2" diameter, schedule 40 PVC, threaded connections, 20'-45' bgs			SPT=24, 40, 50/5 PID=0		SILTY SAND (SM); very dense, moist, gray brown; fine to coarse sand; trace fine to coarse subround gravel.	26
27							27
28							28
29							29
30	Bentonite chips, 22'-42' bgs			PID=0.5 SPT=32, 50/5			30
31			B-24-30.5 VOCs by 8260C				31
32							32
33							33
34							34
35				PID=0 SPT=36, 50/5			35
36							36
37							37
38							38
39							39
40				PID=0		**OUTWASH**	40
41				SPT=38, 41, 24		SAND (SP); very dense, moist, brown; fine to medium sand; trace silt.	41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0 SPT=18, 50/6			45
46							46
47							47
48							48
49							49

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-24
Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's southeast corner		*Coordinates* NA	*Exploration Number* **MW-24**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 186
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/30/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.6' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51	▽ 1/31/2019		B-24-50.5 VOCs by 8260C	SPT=24, 32, 34 PID=0		SAND WITH SILT (SP-SM); very dense, wet, red brown; fine sand.	51
52	2" diameter 0.020", schedule 40 PVC screen, 45'-60' bgs						52
53							53
54							54
55				PID=0			55
56				SPT=27, 40, 34		SAND (SP); very dense, wet, red brown; fine to medium sand (trace coarse); few fine to coarse subround gravel; trace silt.	56
57							57
58							58
59							59
60	Threaded PVC endcap			PID=0			60
61				SPT=23, 50/6			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-24
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of southwest Morell's building corner		*Coordinates* NA	*Exploration Number* **MW-25**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 184
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/28/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.9' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; Asphalt	0
						Till	
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					SILTY SAND WITH GRAVEL (SM); very dense, very moist, gray brown; fine to coarse sand, fine subround gravel	1
2							2
3							3
4							4
5			B-25-5.5 VOCs by 8260	PID=0 SPT=24, 50/5			5
6							6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-45' bgs			PID=0		SAND (SP); dense. slightly moist gray brown; fine sand, 5% silt	10
11				SPT=14, 38, 50/4			11
12							12
13							13
14							14
15				PID=0 SPT=70/5		SAND WITH SILT (SW-SM); very dense, slightly moist, gray brown; fine to coarse sand, fine subround gravel	15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs			PID=0 SPT=50/5		SILTY SAND (SM); very dense, moist, gray brown; fine to coarse sand, fine to coarse subround gravel	20
21							21
22							22
23							23
24							24

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-25

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of southwest Morell's building corner		*Coordinates* NA	*Exploration Number* **MW-25**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 184
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/28/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.9' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=70/6 PID=0		SAND (SP); very dense, moist, gray brown; fine to coarse sand, coarse subround gravel	26
27							27
28							28
29							29
30			B-25-30.5 VOCs by 8260	PID=0.2		SAND WITH SILT (SP-SM); very dense, moist, gray brown; 85% fine sand, 5% medium to coarse sand	30
31				SPT=22, 37, 50/6			31
32							32
33							33
34						SILT (ML); very stiff, moist, light brown; 10% fine sand	34
35				PID=0			35
36				SPT=14, 29, 38		SAND WITH SILT (SP-SM); very dense, moist, red brown; fine to medium sand	36
37							37
38							38
39							39
40				PID=0		**Outwash**	40
41				SPT=23, 38, 46		SAND (SP); very dense, moist, red brown; 5% silt, 5% coarse subround gravel	41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0			45
46				SPT=24, 32, 36			46
47							47
48							48
49							49

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-25

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of southwest Morell's building corner		*Coordinates* NA	*Exploration Number* **MW-25**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 184
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/28/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.9' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51			B-25-50.5 VOCs by 8260	SPT=33, 32, 50/5 PID=0.5		SILTY SAND (SM); very dense, moist, brown; fine sand	51
52	▽ 1/29/2019 2" diameter 0.020", schedule 40 PVC screen, 45'-60' bgs						52
53							53
54							54
55				PID=0			55
56				SPT=26, 32, 50/6		SAND (SP); very dense, wet, red brown; fine to medium sand (<5% coarse), 5% silt, up to 10% fine subround gravel	56
57							57
58							58
59							59
60	Threaded PVC endcap			PID=0			60
61				SPT=25, 50/6			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type: ◧ Continuous core 1.125" ID

Water Level: ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-25

Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's, south of MW-25		*Coordinates* NA	*Exploration Number* **MW-26**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 185
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/29/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 52' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; Asphalt	0
						CONCRETE; Concrete	
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					**TILL**	1
2						SILTY SAND (SM); dense to very dense, slightly moist, gray brown; fine to coarse sand, few fine to coarse subround gravel.	2
3							3
4							4
5			B-26-5.5 VOCs by 8260	PID=0 SPT=29, 50/5			5
6							6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-44' bgs			PID=0 SPT=27, 50/6			10
11							11
12							12
13							13
14							14
15				PID=0 SPT=19, 42, 50/5		SANDY SILT (ML); hard, slightly moist, light brown; low plasticity silt; fine to coarse sand; few fine to coarse subround gravel.	15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs			PID=0 SPT=19, 50/6		SILTY SAND WITH GRAVEL (SM); very dense, moist, gray brown; fine to coarse sand (mostly fine); fine subround gravel.	20
21							21
22							22
23							23
24							24

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-26

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's, south of MW-25		*Coordinates* NA	*Exploration Number* **MW-26**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 185
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/29/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 52' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=18, 50/6 PID=0		SILTY SAND WITH GRAVEL (SM); very dense, moist, gray brown; fine to coarse sand (mostly fine); fine subround gravel. (continued)	26
27							27
28							28
29							29
30			B-26-30.5 VOCs by 8260	PID=0 SPT=19, 34, 38		SAND WITH SILT (SP-SM); very dense, moist, red brown; fine to medium sand; up to trace course gravel; broken rock found in sampler.	30
31							31
32							32
33							33
34							34
35				PID=0 SPT=20, 25, 49		Becomes wet	35
36							36
37							37
38							38
39							39
40				PID=0 SPT=39, 50/5		**OUTWASH** SAND (SP); very dense, moist, red brown; fine to medium sand; trace silt; trace fine subround gravel.	40
41							41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0 SPT=46, 39, 36			45
46							46
47							47
48							48
49							49

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-26

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's, south of MW-25		*Coordinates* NA	*Exploration Number* **MW-26**
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 185
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/29/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 52' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51			B-26-50.5 VOCs by 8260	SPT=14, 40, 50/5 PID=0		**OUTWASH** SAND (SP); very dense, moist, red brown; fine to medium sand; trace silt; trace fine subround gravel. (continued) Becomes wet	51
52	▽ 1/30/2019 2" diameter 0.020", schedule 40 PVC screen, 44'-59' bgs						52
53							53
54							54
55				PID=0 SPT=21, 50/6			55
56							56
57							57
58							58
59	Threaded PVC endcap						59
60				PID=0			60
61				SPT=14, 23, 50/6			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type: ◧ Continuous core 1.125" ID

Water Level: ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-26
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's, southeast of B-24		*Coordinates* NA	*Exploration Number* **MW-27** Ecology Well Tag No. BLI 158
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/31/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 46.3' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; with base course.	0
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					**TILL** SAND (SP); dense, moist, gray; with bentonite; 2" long piece of concrete in sampler.	1
2							2
3							3
4							4
5			B-27-5.5 VOCs by 8260	PID=0 SPT=24, 50/4			5
6						SILTY SAND (SM); very dense, slightly moist, gray brown; fine to medium sand (trace coarse); few fine subround gravel.	6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-44' bgs			PID=0			10
11				SPT=10, 42, 50/3			11
12							12
13							13
14							14
15				PID=0 SPT=37, 50/5		SAND WITH SILT (SP-SM); very dense, slightly moist, gray brown; fine to medium sand; few fine subround gravel.	15
16							16
17							17
18							18
19						SAND (SP); very dense, slightly moist, gray brown; fine to medium sand; few fine to coarse subround gravel.	19
20	Bentonite chips, 2'-42' bgs			PID=0 SPT=30, 50/5.5			20
21						SILTY SAND (SM); very dense, slightly moist, gray brown; fine to medium sand (trace coarse sand); few fine to coarse subround gravel.	21
22							22
23							23
24							24

Legend

Sample Type: Continuous core 1.125" ID

Water Level: ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-27
Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's, southeast of B-24		*Coordinates* NA	*Exploration Number* **MW-27** Ecology Well Tag No. BLI 158
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/31/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 46.3' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=23, 13, 23 PID=0		SILT (ML); very stiff, moist, light brown; non plastic, rapid dilatency.	26
27						SAND WITH SILT (SP-SM); dense, moist, brown; fine sand.	27
28							28
29							29
30				PID=1.5			30
31			B-27-30.5 VOCs by 8260	SPT=19, 29, 39		SILTY SAND (SM); very dense, moist, gray brown; fine to medium sand; trace fine round gravel.	31
32							32
33							33
34							34
35				PID=0 SPT=33, 50/6		SAND WITH SILT (SP-SM); very dense, wet, brown; fine to medium sand; trace coarse subround gravel.	35
36							36
37							37
38							38
39							39
40				PID=0 SPT=26, 50/6		**OUTWASH** SAND (SP); very dense, moist, red brown; fine to medium sand (trace coarse), few fine to coarse subround gravel; trace silt.	40
41							41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0.5			45
46	▽ 2/1/2019			SPT=20, 29, 32			46
47							47
48							48
49							49

Legend

Sample Type: Continuous core 1.125" ID

Water Level: ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-27

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's, southeast of B-24		*Coordinates* NA	*Exploration Number* **MW-27** Ecology Well Tag No. BLI 158
Contractor Holt	*Equipment* CME - 75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 1/31/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 46.3' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51			B-27-50.5 VOCs by 8260	SPT=18, 24, 36 PID=0.5		SAND WITH SILT (SP-SM); very dense, wet, red brown; fine sand.	51
52	2" diameter 0.020", schedule 40 PVC screen, 44'-59' bgs					SAND (SP); very dense, wet, red brown; fine to medium sand; trace silt.	52
53							53
54							54
55				PID=0			55
56				SPT=24, 35, 50/5			56
57							57
58							58
59	Threaded PVC endcap						59
60				PID=0			60
61				SPT=23, 48, 50/5			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-27
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Southeast of Morell's southeast corner		*Coordinates* NA	*Exploration Number* **MW-28**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 935
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/14/2019 to 3/15/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 49' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; Asphalt	0
0.5						CONCRETE; Concrete	0.5
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					**TILL** SANDY SILT (ML); Very dense, slightly moist, light brown; fine to medium sand; few fine subround gravel.	1
2							2
3							3
4							4
5				PID=0 SPT=17, 50/5			5
6							6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-44' bgs			PID=0.3 SPT=22, 50/4		SAND WITH SILT AND GRAVEL (SP-SM); Very dense, moist, light brown; fine to medium sand; fine subround gravel.	10
11							11
12							12
13							13
14							14
15				PID=0 SPT=22, 50/5		SILTY SAND WITH GRAVEL (SM); Very dense, slightly moist, light brown; fine to coarse sand; fine to coarse subround gravel.	15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs			PID=0 SPT=17, 39, 50/5		Gravel content decreases to trace.	20
21							21
22							22
23							23
24							24

Legend

Sample Type
- No Soil Sample Recovery
- Continuous core 1.125" ID

Water Level
- Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-28

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Southeast of Morell's southeast corner		*Coordinates* NA	*Exploration Number* **MW-28**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 935
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/14/2019 to 3/15/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 49' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=12, 34, 36 PID=0		SILTY SAND WITH GRAVEL (SM); Very dense, slightly moist, light brown; fine to coarse sand; fine to coarse subround gravel. (continued)	26
27							27
28							28
29							29
30				PID=3.5			30
31			B-28-30.5 VOCs by 8260	SPT=17, 39, 50/5		SANDY SILT (ML); Hard, moist, light brown; low plasticity silt; fine to medium sand; trace fine to coarse subround gravel.	31
32							32
33							33
34							34
35				PID=0			35
36				SPT=21, 34, 42		SAND (SP); Very dense, wet, red brown; find to medium sand; trace silt; trace fine to course subround gravel.	36
37							37
38							38
39							39
40				PID=0			40
41				SPT=24, 29, 32		SANDY SILT (ML); Hard, moist, tan; low plasticity silt; fine sand. SAND (SP); Very dense, moist, light brown; fine sand; trace silt.	41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0		**OUTWASH**	45
46				SPT=19, 29, 34		SAND (SP); Very dense, wet, red brown; find to medium sand; trace silt; trace fine to course subround gravel.	46
47							47
48							48
49	▼ 3/15/2019						49

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-28

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Southeast of Morell's southeast corner		*Coordinates* NA	*Exploration Number* **MW-28**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 935
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/14/2019 to 3/15/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 49' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51				SPT=17, 22, 34 PID=0		**OUTWASH** SAND (SP); Very dense, wet, red brown; find to medium sand; trace silt; trace fine to course subround gravel. (continued)	51
52	2" diameter 0.020", schedule 40 PVC screen, 44'-59' bgs						52
53							53
54							54
55				PID=0			55
56			B-28-55.5 VOCs by 8260	SPT=40, 33, 29			56
57							57
58							58
59	Threaded PVC endcap						59
60				PID=0			60
61				SPT=43, 50/5			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-28
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Parking lot east of Morell's and MW-23		*Coordinates* NA	*Exploration Number* **MW-29**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 932
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/11/2019 to 3/12/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.18' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; Asphalt	0
0.5						CONCRETE; Concrete	0.5
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					**TLL** SILTY SAND (SM); Very dense, moist, grayfine to medium sand; trace fine to coarse subround gravel; trace cobble (broken cobble found in sampler). Blow counts possibly overstated.	1
2							2
3							3
4							4
5				PID=0 SPT=50, 50/5			5
6							6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-45' bgs			PID=0 SPT=50/6			10
11							11
12							12
13							13
14							14
15			B-29-15.0 VOCs by 8260	PID=0 SPT=26, 50/5		No cobbles found in sample.	15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs			PID=0 SPT=12, 26, 42		SAND WITH SILT (SP-SM); Very dense, slightly moist; light brown; fine to medium sand.	20
21							21
22							22
23							23
24							24

Legend

Sample Type
- No Soil Sample Recovery
- Continuous core 1.125" ID

Water Level
- Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-29

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Parking lot east of Morell's and MW-23		*Coordinates* NA	*Exploration Number* **MW-29**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 932
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/11/2019 to 3/12/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.18' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=26, 50/5 PID=0		SAND WITH SILT (SP-SM); Very dense, slightly moist; light brown; fine to medium sand. (continued)	26
27							27
28							28
29							29
30				PID=0 SPT=50/6		SILTY SAND (SM); Very dense, slightly moist, light brown; fine to coarse sand; few cobbles (broken cobble found in sampler. Blow counts may be overstated.	30
31							31
32							32
33							33
34							34
35				PID=0		SAND (SP); Very dense, slightly moist, gray; fine to medium sand, trace silt. Heave?	35
36				SPT=11, 22, 33			36
37							37
38							38
39							39
40				PID=0.5		**OUTWASH**	40
41				SPT=18, 30, 37		SAND (SP); Very dense, slightly moist, red brown; fine to medium sand, trace silt.	41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0			45
46				SPT=17, 30, 40			46
47							47
48							48
49							49

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-29
Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Parking lot east of Morell's and MW-23		*Coordinates* NA	*Exploration Number* **MW-29**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 932
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/11/2019 to 3/12/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.18' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51	3/12/2019		B-29-50.0 VOCs by 8260	SPT=30, 33, 35 PID=0.9		**OUTWASH** SAND (SP); Very dense, slightly moist, red brown; fine to medium sand, trace silt. (continued) Trace fine subangular gravel.	51
52	2" diameter 0.020", schedule 40 PVC screen, 45'-60' bgs						52
53							53
54							54
55				PID=0			55
56				SPT=8, 22, 33			56
57							57
58							58
59							59
60	Threaded PVC endcap			PID=0			60
61				SPT=18, 27, 38			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-29
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's entrance, east of MW-2		*Coordinates* NA	*Exploration Number* **MW-30**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 161
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/7/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.15' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; Asphalt.	0
						CONCRETE; Concrete.	
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					**TILL**	1
2						SANDY SILT (ML); hard, slightly moist, gray brown; low plasticity, medium high dilatency silt; fine to medium sand; trace fine subround gravel.	2
3							3
4							4
5				PID=0 SPT=8, 50/3			5
6							6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-45' bgs		B-30-10.5 VOCs by 8260	PID=4 SPT=23, 37, 50/3		SILTY SAND (SM); very dense, slightly moist, gray brown; fine to coarse sand; fine subround gravel.	10
11							11
12							12
13							13
14							14
15				SPT=50/1 PID=N/A			15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs			PID=0.2		SAND WITH SILT AND GRAVEL (SW-SM); very dense, slightly moist, gray brown; fine to coarse sand; fine to coarse subround gravel.	20
21				SPT=23, 43, 50/3			21
22							22
23							23
24							24

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-30
Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's entrance, east of MW-2		*Coordinates* NA	*Exploration Number* **MW-30**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 161
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/7/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.15' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=35, 50/3 PID=0.5		SANDY SILT (ML); hard, slightly moist, light brown; fine to coarse sand; trace fine to coarse subround gravel.	26
27							27
28							28
29							29
30				PID=0.6 SPT=12, 50/6			30
31							31
32							32
33							33
34							34
35				PID=2.6			35
36			B-30-35.5 VOCs by 8260	SPT=33, 50/5		**OUTWASH** SAND (SP); very dense, slightly moist, red brown; fine to medium sand; trace silt; trace fine to coarse subround gravel.	36
37							37
38							38
39							39
40				PID=0			40
41				SPT=25, 34, 35			41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0			45
46				SPT=11, 30, 36			46
47							47
48							48
49							49

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-30
Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's entrance, east of MW-2		*Coordinates* NA	*Exploration Number* **MW-30**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 161
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/7/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.15' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51	▼ 2/7/2019			SPT=16, 25, 31 PID=0		**OUTWASH** SAND (SP); very dense, slightly moist, red brown; fine to medium sand; trace silt; trace fine to coarse subround gravel. (continued)	51
52	2" diameter 0.020", schedule 40 PVC screen, 45'-60' bgs						52
53							53
54							54
55				PID=0		Becomes wet.	55
56				SPT=15, 24, 31			56
57							57
58							58
59							59
60	Threaded PVC endcap			PID=0.4			60
61			B-30-60.5 VOCs by 8260	SPT=16, 36, 42			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-30
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, MW corner of Morell's parking area		*Coordinates* NA	*Exploration Number* **MW-31**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 159
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/5/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.36' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; Asphalt.	0
						CONCRETE; Concrete.	
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					**Till** GRAVELLY SILT WITH SAND (ML); very dense, wet, brown; low plasticity silt; fine to coarse sand; fine to coarse subround gravel.	1
2							2
3							3
4	2" diameter, schedule 40 PVC, threaded connections, 0'-9.5' bgs						4
5				PID=0 SPT=50/5			5
6	Bentonite chips, 2'-7.5' bgs						6
7							7
8							8
9	12/20 sand filter pack, 7.5'-21.5' bgs						9
10				PID=0.1		SAND WITH SILT (SP-SM); very dense, slightly moist, gray brown; fine to medium sand (trace coarse); trace coarse subround gravel.	10
11				SPT=15, 38, 50/5			11
12							12
13							13
14							14
15	2" diameter 0.020", schedule 40 PVC screen, 9.5'-19.5' bgs		B-31-15.5 VOCs by 8260	PID=0.1 SPT=20, 50/5		Gravel content increases to SAND WITH SILT AND GRAVEL.	15
16							16
17							17
18							18
19							19
20				PID=0.1 SPT=24, 50/6		SANDY SILT WITH GRAVEL (ML); hard, slightly moist, gray brown; low plasticity silt; fine to coarse sand, fine to coarse subround gravel.	20
21							21
22							22
23							23
24							24

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-31
Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, MW corner of Morell's parking area		*Coordinates* NA	*Exploration Number* **MW-31**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 159
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/5/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.36' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26	2" diameter, schedule 40 PVC, threaded connections, 19.5'-44.5' bgs			SPT=18, 50/4 PID=0		SANDY SILT WITH GRAVEL (ML); hard, slightly moist, gray brown; low plasticity silt; fine to coarse sand, fine to coarse subround gravel. (continued)	26
27							27
28							28
29							29
30	Bentonite chips, 21.5'-41.5' bgs			PID=0.1 SPT=31, 50/3		SILTY SAND (SM); very dense, slightly moist, brown; fine to medium sand (trace coarse); trace coarse subround gravel.	30
31							31
32							32
33							33
34							34
35				PID=0.3 SPT=37, 50/6			35
36							36
37							37
38							38
39							39
40				PID=1.0		**OUTWASH**	40
41			B-31-40.5 VOCs by 8260	SPT=28, 42, 37		SAND (SP); very dense, moist, brown; fine to medium sand; trace silt; trace fine gravel.	41
42							42
43							43
44							44
45	12/20 sand filter pack, 41.5'-60' bgs			PID=0			45
46				SPT=17, 39, 46			46
47							47
48							48
49							49

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-31
Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, MW corner of Morell's parking area		*Coordinates* NA	*Exploration Number* **MW-31**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 159
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 2/5/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.36' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51	▼ 2/5/2019 2" diameter 0.020", schedule 40 PVC screen, 44.5'-59.5' bgs			SPT=11, 39, 49 PID=0.3		**OUTWASH** SAND (SP); very dense, moist, brown; fine to medium sand; trace silt; trace fine gravel. (continued)	51
52							52
53							53
54							54
55				PID=1.5			55
56			B-31-55.5 VOCs by 8260	SPT=22, 31, 50/6			56
57							57
58							58
59	Threaded PVC endcap						59
60				PID=1.3			60
61			B-31-60.5 VOCs by 8260	SPT=20, 33, 50/5			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-31
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Parking Lot east of Morell's and B-30		*Coordinates* NA	*Exploration Number* **MW-32**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 934
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/13/2019 to 3/14/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.09' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; Asphalt.	0
						CONCRETE; Concrete.	
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs						1
2							2
3							3
4							4
5				SPT=50/3			5
6							6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-45' bgs			SPT=50/4			10
11							11
12							12
13							13
14							14
15			B-32-15.5 VOCs by 8260	PID=1 SPT=24, 50/5		SILTY SAND (SM); Very dense, slightly moist, light brown; fine to medium sand, trace fine subround gravel.	15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs			PID=1 SPT=30, 50/5		SAND WITH SILT (SP-SM); Very dense, slightly moist, light brown; fine to medium sand; trace fine subround gravel.	20
21							21
22							22
23							23
24							24

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-32

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Parking Lot east of Morell's and B-30		*Coordinates* NA	*Exploration Number* **MW-32**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 934
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/13/2019 to 3/14/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.09' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=24, 50/4 PID=5		SANDY SILT (ML); Hard, slightly moist, light gray; low plasticity silt; trace fine sand.	26
27							27
28							28
29							29
30				PID=1.5 SPT=23, 50/6		SILTY SAND (SM); Very dense, moist, light brown; fine to medium sand; trace fine subround gravel.	30
31							31
32							32
33							33
34							34
35				PID=1.5 SPT=15, 50/6		No gravel.	35
36							36
37							37
38							38
39							39
40				PID=0 SPT=17, 28, 30		SAND (SP); Very dense, moist, red brown; fine to medium sand; trace silt.	40
41							41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs						45
46				SPT=44, 30/4			46
47							47
48							48
49							49

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-32

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, Parking Lot east of Morell's and B-30		*Coordinates* NA	*Exploration Number* **MW-32**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 934
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/13/2019 to 3/14/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.09' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51	3/14/2019			SPT=17, 24, 28 PID=0		SAND (SP); Very dense, moist, red brown; fine to medium sand; trace silt. (continued) Becomes wet.	51
52	2" diameter 0.020", schedule 40 PVC screen, 45'-60' bgs						52
53							53
54							54
55				PID=0			55
56			B-32-55.5 VOCs by 8260	SPT=21, 33, 40			56
57							57
58							58
59							59
60	Threaded PVC endcap			PID=0			60
61				SPT=34, 50/5			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type: Continuous core 1.125" ID

Water Level: Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-32

Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Copper Door in parking lot		*Coordinates* NA	*Exploration Number* **MW-33**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 933
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/12/2019 to 3/13/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.8' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
0						ASPHALT; Asphalt.	0
						CONCRETE; Concrete	
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					**TILL**	1
2						SANDY SILT (ML); Hard, very moist, gray; low plasticity silt; fine to coarse sand; few fine, subround to subangular gravel.	2
3							3
4							4
5							5
6				PID=2 SPT=18, 27, 50/3			6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-45' bgs		B-33-10.0 VOCs by 8260	SPT=8, 50/6 PID=2		SANDY SILT WITH GRAVEL (ML); Hard, moist, gray; low plasticity silt; fine to coarse sand; fine, subround to subangular gravel.	10
11							11
12							12
13							13
14							14
15				PID=0 SPT=27, 50/6		SILTY SAND WITH GRAVEL (SM); Very dense, slightly moist, light brown; fine to coarse sand; fine to coarse subround gravel.	15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs			PID=1 SPT=40, 50/6			20
21							21
22							22
23							23
24							24

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-33

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Copper Door in parking lot		*Coordinates* NA	*Exploration Number* **MW-33**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 933
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/12/2019 to 3/13/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.8' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=26, 50/6 PID=0		SAND WITH SILT (SP-SM); Very dense, moist, light brown; fine to medium sand; few fine to coarse subround gravel.	26
27							27
28							28
29							29
30				PID=0 SPT=50/6		SAND WITH SILT (SW-SM); Very dense, slightly moist, light brown; fine to coarse sand; trace fine subround gravel.	30
31							31
32							32
33							33
34							34
35				PID=0.5		SAND (SP); Very dense, slightly moist, light brown; fine to medium sand; trace silt.	35
36				SPT=28, 30, 36			36
37							37
38							38
39							39
40				PID=0		**OUTWASH**	40
41				SPT=15, 24, 37		Becomes red brown.	41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs						45
46				PID=0 SPT=22, 31, 35			46
47							47
48							48
49							49

Legend

Sample Type
- No Soil Sample Recovery
- Continuous core 1.125" ID

Water Level
- Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-33
Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Copper Door in parking lot		*Coordinates* NA	*Exploration Number* **MW-33**
Contractor Holt	*Equipment* CME - 85	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLR 933
Operator John B	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 3/12/2019 to 3/13/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 51.8' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51				SPT=24, 35, 35 PID=0		SAND (SP); Very dense, slightly moist, light brown; fine to medium sand; trace silt. (continued) Becomes wet.	51
52	▼ 3/13/2019 2" diameter 0.020", schedule 40 PVC screen, 45'-60' bgs						52
53							53
54							54
55				PID=0		Trace fine subround gravel.	55
56			B-33-55.5 VOCs by 8260	SPT=24, 30, 37			56
57							57
58							58
59							59
60	Threaded PVC endcap			PID=0		SAND WITH SILT (SP-SM); Very dense, wet, light brown,; fine sand.	60
61				SPT=9, 24, 38			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-33
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's 5' SW of MW-20		*Coordinates* NA	*Exploration Number* **MW-34**
Contractor Holt	*Equipment* CME-75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BMF673
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 7/8/2019 to 7/9/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 47.7' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					ASPHALT; Asphalt SAND WITH SILT AND GRAVEL (SP-SM); Very dense, slightly moist, brown; fine to medium sand; low plasticity silt; fine to coarse subround gravel.	1
2							2
3							3
4							4
5							5
6				PID=2 SPT=42, 42, 50/3			6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-44' bgs			SPT=50/4 PID=N/A			10
11							11
12							12
13							13
14							14
15				PID=0.8 SPT=37, 50/4		SAND (SP); Very dense, slightly moist, brown; fine to medium sand; trace silt; trace fine subround gravel.	15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs			PID=N/A SPT=50/5			20
21							21
22							22
23							23
24							24

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-34

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's 5' SW of MW-20		*Coordinates* NA	*Exploration Number* **MW-34**
Contractor Holt	*Equipment* CME-75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BMF673
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 7/8/2019 to 7/9/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 47.7' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26				SPT=29, 50/5 PID=1.5		SILTY SAND (SM); Very dense, moist, gray brown; fine to medium sand; low plasticity silt; trace fine to coarse subangular gravel; broken rock in sampler, blow counts may be biased high.	26
27							27
28							28
29							29
30				PID=0.5			30
31				SPT=28, 45, 50/4			31
32							32
33							33
34							34
35				PID=0.5		SAND (SP); Very dense, moist, red brown; fine to medium sand; trace silt.	35
36				SPT=11, 40, 40			36
37							37
38							38
39							39
40				PID=0.5			40
41				SPT=42, 50/5			41
42							42
43							43
44							44
45	12/20 sand filter pack, 42'-61.5' bgs			PID=0			45
46				SPT=33, 35, 43			46
47	▽ 7/9/2019						47
48							48
49							49

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-34

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's 5' SW of MW-20		*Coordinates* NA	*Exploration Number* **MW-34**
Contractor Holt	*Equipment* CME-75	*Sampling Method* Autohammer; lb hammer; " drop	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BMF673
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 7/8/2019 to 7/9/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 47.7' (ATD)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51				SPT=24, 35, 42 PID=0.2		SAND (SP); Very dense, moist, red brown; fine to medium sand; trace silt. (continued) Becomes wet	51
52	2" diameter 0.020", schedule 40 PVC screen, 44'-59' bgs						52
53							53
54							54
55				PID=0.1 SPT=50/5			55
56							56
57							57
58							58
59	Threaded PVC endcap						59
60				PID=0.1		Becomes dense	60
61				SPT=12, 17, 30			61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type
- ◯ No Soil Sample Recovery
- ◧ Continuous core 1.125" ID

Water Level
- ▽ Water Level ATD

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-34
Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's 15' W of MW-20		*Coordinates* NA	*Exploration Number* **MW-35** Ecology Well Tag No. BMF672
Contractor Holt	*Equipment* CME-75	*Sampling Method* No Sampling	*Ground Surface (GS) Elev.* 0' (est)	
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 7/10/2019 to 7/11/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.8' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
1	Flushmount monument, lockable thermos cap, concrete seal, 0'-2' bgs					ASPHALT; Asphalt.	1
2						No logging or sampling	2
3							3
4							4
5							5
6							6
7							7
8							8
9							9
10	2" diameter, schedule 40 PVC, threaded connections, 0'-43' bgs						10
11							11
12							12
13							13
14							14
15							15
16							16
17							17
18							18
19							19
20	Bentonite chips, 2'-42' bgs						20
21							21
22							22
23							23
24							24

Legend

Sample Type

Water Level — Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-35

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's 15' W of MW-20		*Coordinates* NA	*Exploration Number* **MW-35**
Contractor Holt	*Equipment* CME-75	*Sampling Method* No Sampling	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BMF672
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 7/10/2019 to 7/11/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.8' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
26–49	12/20 sand filter pack, 42'-61.5' bgs						26–49

Legend

Sample Type

Water Level — Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-35

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, South of Morell's 15' W of MW-20		*Coordinates* NA	*Exploration Number* **MW-35** Ecology Well Tag No. BMF672
Contractor Holt	*Equipment* CME-75	*Sampling Method* No Sampling	*Ground Surface (GS) Elev.* 0' (est)	
Operator Kyle	*Exploration Method(s)* 8.5" OD X 4.25" ID Hollow-Stem Auger	*Work Start/Completion Dates* 7/10/2019 to 7/11/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* 50.8' (Static)

Depth (feet)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Depth (ft)
51	▼ 7/11/2019						51
52	2" diameter 0.020", schedule 40 PVC screen, 43'-58' bgs						52
53							53
54							54
55							55
56							56
57							57
58							58
59	Threaded PVC endcap						59
60							60
61							61
62						Bottom of exploration at 61.5 ft. bgs.	62
63							63
64							64
65							65
66							66
67							67
68							68
69							69
70							70
71							71
72							72
73							73
74							74

Legend

Sample Type

Water Level ▼ Static Water Level

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log MW-35

Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Morell's Dry Cleaners - 080190

Environmental Exploration Log

Aspect CONSULTING	*Project Address & Site Specific Location*: 608 N 1st Street, Tacoma WA 98403. Off of Morell's northeast corner, south of MW-21		*Coordinates*: NA	*Exploration Number*: **VE-5**
Contractor: Holt	*Equipment*: TerraSonic 150 cc	*Sampling Method*: Rotary core	*Ground Surface (GS) Elev.*: 0' (est)	Ecology Well Tag No. BLI 188
Operator: Ben	*Exploration Method(s)*: Sonic	*Work Start/Completion Dates*: 2/26/2019	*Top of Casing Elev.*: NA	*Depth to Water (Below GS)*: No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
							ASPHALT; Asphalt	
							TILL	
1	1						SILTY SAND WITH GRAVEL (SM); Slightly moist, gray brown; fine to medium and trace course sand; fine subround gravel.	1
2		No Monument, well completed sub surface for future SVE connection, lockable thermos cap						2
3	2							3
4					PID=7			4
5	3	Well installed at 45 degree angle			PID=12			5
6	4				PID=3			6
							SANDY SILT WITH GRAVEL (ML); Slightly moist, light brown; low plasticity silt ; fine to medium sand; fine subround gravel.	
7	5				PID=21			7
8		2" diameter, schedule 40 PVC, threaded connections, 1'-25' bgs			PID=15			8
9	6				PID=7			9
10	7						SILTY SAND WITH GRAVEL (SM); Very moist, gray; fine to medium sand; fine to course subround gravel; singular cobble.	10
11	8							11
12					PID=39			12
13	9				PID=30			13
14	10	Bentonite chips, 1'-22' bgs						14
15					PID=41			15
16	11							16
17	12						SAND WITH SILT AND GRAVEL (SP-SM); Very moist, gray brown; fine to medium sand; fine to course, subround gravel.	17
18					PID=24			18
19	13							19
					PID=14			
20	14						SILTY SAND WITH GRAVEL (SM); Moist, gray; fine to course sand; fine to course subround gravel.	20
21	15							21
22					PID=508			22
23	16			A-5-22.5 VOCs by 8260C	PID=666			23
24		12/20 sand filter pack, 22'-45' bgs						24

Legend

Sample Type: Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-5

Sheet 1 of 2

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403. Off of Morell's northeast corner, south of MW-21		*Coordinates* NA	*Exploration Number* **VE-5** Ecology Well Tag No. BLI 188
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/26/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
26	18				PID=100		SILTY SAND WITH GRAVEL (SM); Moist, gray; fine to course sand; fine to course subround gravel. (continued)	26
27	19							27
28	20				PID=109			28
29					PID=18			29
30	21	2" diameter 0.020", schedule 40 PVC screen, 25'-45' bgs					SAND WITH SILT AND GRAVEL (SP-SM); Very moist, light brown; fine to medium SAND; fine to course subround gravel.	30
31	22							31
32	23			A-5-32.0 VOCs by 8260C	PID=126			32
33					PID=24			33
34	24							34
35					PID=13		SILTY SAND (SM); Moist, light brown; fien to course sand; few fine subround gravel.	35
36	25				PID=7			36
37	26							37
38					PID=9			38
39	27							39
40	28				PID=21			40
41	29				PID=10			41
42								42
43	30				PID=16			43
44	31							44
45		Threaded PVC endcap			PID=14		Bottom of exploration at 45 ft. bgs. Note: A-5 was advanced at a 45 degree angle	45
46	32							46
47	33							47
48	34							48
49								49

Legend

Sample Type: ◧ Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-5
Sheet 2 of 2

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's, south of A-5		*Coordinates* NA	*Exploration Number* **VE-6**
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 190
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/27/2019 to 2/28/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
1	1						ASPHALT; Asphalt	1
2	2	No Monument, well completed sub surface for future SVE connection, lockable thermos cap					SILTY SAND (SM); Slightly moist, light brown; fine to course sand; trace fine subround gravel.	2
3								3
4	3				PID=10			4
5		Well installed at 45 degree angle						5
6	4				PID=3			6
7	5				PID=13			7
8		2" diameter, schedule 40 PVC, threaded connections, 1'-45' bgs					SAND WITH SILT (SP-SM); Very moist, light brown; fine to medium sand; fine subround gravel.	8
9	6				PID=19			9
10	7							10
11	8				PID=57			11
12								12
13	9			A-6-13.0 VOCs by 8260C	PID=126			13
14	10							14
15					PID=87		SAND WITH SILT AND GRAVEL (SP-SM); Moist, gray brown; fine to medium sand; fine to course, subround gravel.	15
16	11				PID=15			16
17	12				PID=12			17
18								18
19	13				PID=17			19
20	14							20
21	15				PID=99			21
22								22
23	16				PID=82			23
24							SAND (SP); Very moist, gray; fine to medium sand; trace silt.	24

Legend

Sample Type: Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-6

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's, south of A-5		*Coordinates* NA	*Exploration Number* **VE-6**
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 190
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/27/2019 to 2/28/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
26	18				PID=86		SILTY SAND WITH GRAVEL (SM); Moist, light brown; fine to medium sand; fine subround gravel.	26
27	19				PID=38			27
28	20				PID=25			28
29	21				PID=22			29
30		Bentonite chips, 1'-42' bgs						30
31	22				PID=25			31
32	23						Silt content dereases; gravel content decreases and is only fine.	32
33								33
34	24				PID=50			34
35	25						Becomes very moist, gravel content increases and is fine to course.	35
36								36
37	26							37
38	27			A-6-36.0 VOCs by 8260C	PID=57 PID=71			38
39					PID=43			39
40	28						SAND WITH SILT (SP-SM); Moist, brown; fine to medium sand; trace fine subround gravel.	40
41	29				PID=33			41
42	30				PID=28			42
43					PID=41			43
44	31							44
45	32	12/20 sand filter pack, 42'-65' bgs					SAND (SP); Moist, brown; fine to medium sand; trace silt.	45
46					PID=10			46
47	33							47
48	34				PID=35			48
49					PID=12		GRAVEL WITH SILT AND SAND (GW-GM); Moist, light brown; fine to course sand; fine to course subround gravel.	49

Legend

Sample Type: ◧ Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-6

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's, south of A-5		*Coordinates* NA	*Exploration Number* **VE-6**
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 190
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/27/2019 to 2/28/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
51	36	2" diameter 0.020", schedule 40 PVC screen, 45'-65' bgs			PID=8		SAND (SP); Very moist, light brown; fine to medium sand; trace silt.	51
52	37				PID=13		SILT WITH SAND (ML); Moist, light brown;low-plasticity silt, ; fine to medium sand.	52
53								53
54	38				PID=23		SAND (SP); Moist, red brown; fine to medium sand; few fine subround gravel.	54
55	39							55
56	40							56
57				A-6-57.5 VOCs by 8260C	PID=42			57
58	41							58
59	42							59
60					PID=33			60
61	43				PID=37		Gravel deminishes, trace silt.	61
62	44							62
63					PID=27			63
64	45							64
65	46	Threaded PVC endcap			PID=55		Bottom of exploration at 65 ft. bgs. Note: A-6 was advanced at a 45 degree angle	65
66	47							66
67								67
68	48							68
69	49							69
70								70
71	50							71
72	51							72
73								73
74	52							74

Legend

Sample Type: Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-6

Sheet 3 of 3

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's, between MW-16 and MW-17		*Coordinates* NA	*Exploration Number* **VE-7**
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 191
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/28/2019 to 3/1/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
1	1						ASPHALT; Asphalt	1
							CONCRETE; Concrete	
2		No Monument, well completed sub surface for future SVE connection, lockable thermos cap					**TILL** SILTY GRAVEL WITH SAND (GM); Slightly moist, gray; fine to medium sand; fine to course subround gravel.	2
3	2				PID=4			3
4							SILTY SAND WITH GRAVEL (SM); Slightly moist, light brown; fine to medium sand; fine subround gravel.	4
	3				PID=9			
5		Well installed at 45 degree angle						5
6	4						SANDY SILT WITH GRAVEL (MH); Slightly moist, light brown; low plasticity silt; fine to medium sand; fine subround gravel.	6
					PID=20			
7	5							7
8		2" diameter, schedule 40 PVC, threaded connections, 1'-25' bgs					SILTY SAND WITH GRAVEL (SM); Wet, dark gray; fine to medium sand; fine subround gravel. Strong solvent odor.	8
	6				PID=48			
9					PID=1921			9
10	7						Suspect separate-phase liquid 7'-10' bgs.	10
11								11
	8				PID=762			
12								12
	9				PID=210			
13								13
14	10	Bentonite chips, 1'-22' bgs			PID=256		SILTY SAND (SM); Moist, light brown; fine to course sand; few fine subround gravel. Strong solvent odor.	14
15								15
	11							
16					PID=1641			16
17	12				PID=700		SAND WITH SILT AND GRAVEL (SW-SM); Slightly moist, gray; fine to medium sand; fine to course subround gravel; few cobbles.	17
18					PID=30			18
	13							
19								19
20	14						GRAVEL WITH SILT AND SAND (GP-GM); Wet, gray; fine to course subround gravel, fine to course sand. Strong solvent odor.	20
21	15							21
22				A-7-22.0 VOCs by 8260C	PID=2489		SAND (SP); Slightly moist, gray; fine to medium sand; trace silt. Strong solvent odor. Separate-phase liquid suspected.	22
23	16				PID=30		SILTY SAND (SM); Slightly moist, gray; fine to medium sand; few fine subround gravel.	23
24		12/20 sand filter pack, 22'-45' bgs			PID=30			24

Legend

Sample Type: ◧ Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-7

Sheet 1 of 2

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's, between MW-16 and MW-17		*Coordinates* NA	*Exploration Number* **VE-7**
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 191
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/28/2019 to 3/1/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
26	18				PID=20		SILTY SAND (SM); Slightly moist, gray; fine to medium sand; few fine subround gravel. (continued)	26
27	19							27
28	20				PID=26		SILTY SAND WITH GRAVEL (SM); Slightly moist, gray; fine to medium sand; fine to course subround gravel.	28
29	21				PID=40			29
30	22	2" diameter 0.020", schedule 40 PVC screen, 25'-45' bgs			PID=75		Gravel content decreases, silt content increases.	30
31	23				PID=59			31
32	24							32
33	25							33
34	26			A-7- 37.0 VOCs by 8260C	PID=148		SANDY SILT WITH GRAVEL (ML); Moist, light brown; low palsticity silt, fine to medium sand; fine to course subround gravel.	34
35	27				PID=14			35
36	28							36
37	29				PID=30		SAND WITH SILT AND GRAVEL (SP-SM); Very moist, brown; fine to medium sand; fine to course subround gravel.	37
38	30				PID=8			38
39	31				PID=2			39
40	32	Threaded PVC endcap					Bottom of exploration at 45 ft. bgs. Note: A-7 was advanced at a 45 degree angle	40
41	33							41
42	34							42
43								43
44								44
45								45
46								46
47								47
48								48
49								49

Legend

Sample Type: ◧ Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-7

Sheet 2 of 2

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's, South of MW-18		*Coordinates* NA	*Exploration Number* **VE-8** Ecology Well Tag No. BLI 189
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/26/2019 to 2/27/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
0	0						ASPHALT; Asphalt	0
0.5	0.5						CONCRETE; Concrete	0.5
1	1	No Monument, well completed sub surface for future SVE connection, lockable thermos cap			PID=18		SILTY SAND (SM); Moist, light brown; fine to course sand; few fine to course subround gravel.	1
2	2				PID=109			2
3	3				PID=683			3
4	4	Well installed at 45 degree angle						4
6	5				PID=192			6
7	6	2" diameter, schedule 40 PVC, threaded connections, 1'-45' bgs			PID=402		SILTY SAND WITH GRAVEL (SM); Slightly moist, light brown; fine to medium sand; fine to course subround gravel.	7
8	7				PID=965			8
9	8				PID=651			9
10	9				PID=440			10
11	10			A-8-14.0 VOCs by 8260C	PID=893		SAND WITH SILT (SP-SM); Moist, light brown; fine to course sand; few fine to course subround gravel.	11
12	11				PID=1508			12
13	12				PID=414			13
14	13				PID=228		SAND WITH SILT AND GRAVEL (SW-SM); Moist, gray; fine to course sand; fine to course subround gravel, few cobbles.	14
15	14				PID=1277			15
16	15				PID=343		Gravel content increases, no cobbles	16
17	16				PID=25		SAND (SP); Slightly moist, light gray; fine to medium sand; with silt; few fine subround gravel, and few cobbles.	17
18	17				PID=7		SAND WITH SILT AND GRAVEL (SP-SM); Slightly moist, gray; fine to medium sand, fine to course subround gravel.	18

Legend

Sample Type: Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-8

Sheet 1 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's, South of MW-18		*Coordinates* NA	*Exploration Number* **VE-8**
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 189
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/26/2019 to 2/27/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
26	18				PID=14			26
27	19						Few cobbles.	27
28	20				PID=6		SAND (SP); Moist, gray; fine to medium sand; trace silt; few fine subround gravel.	28
29	21							29
30	22	Bentonite chips, 1'-42' bgs					SILTY SAND (SM); Moist, light brown; fine to medium sand; few fine subround gravel.	30
31	23				PID=16			31
32	24				PID=341			32
33	25							33
34	26			A-8-34.0 VOCs by 8260C	PID=1404			34
35	27						SAND WITH SILT (SP-SM); Moist, light brown; fine to medium sand; trace fine subround gravel.	35
36	28							36
37	29				PID=820			37
38	30						SILTY SAND (SM); Moist, light brown; fine to course sand, fine to course subround gravel.	38
39	31				PID=69			39
40	32							40
41	33							41
42	34				PID=26			42
43	35				PID=36			43
44	36				PID=39			44
45	37	12/20 sand filter pack, 42'-65' bgs					SAND WITH SILT (SP-SM); Slightly moist, light brown; fine to medium sand; few fine subround gravel.	45
46	38						SILTY SAND (SM); Moist, light brown; fine to medium sand.	46
47	39			A-8-47.0 VOCs by 8260C	PID=68			47
48	40				PID=47		SAND WITH SILT (SP-SM); Slightly moist, gray; fine to medium sand; few fine subround gravel.	48
49	41							49

Legend

Sample Type: Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-8

Sheet 2 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

Aspect CONSULTING	Morell's Dry Cleaners - 080190		Environmental Exploration Log	
	Project Address & Site Specific Location 608 N 1st Street, Tacoma WA 98403, East of Morell's, South of MW-18		*Coordinates* NA	*Exploration Number* **VE-8**
Contractor Holt	*Equipment* TerraSonic 150 cc	*Sampling Method* Rotary core	*Ground Surface (GS) Elev.* 0' (est)	Ecology Well Tag No. BLI 189
Operator Ben	*Exploration Method(s)* Sonic	*Work Start/Completion Dates* 2/26/2019 to 2/27/2019	*Top of Casing Elev.* NA	*Depth to Water (Below GS)* No Water Encountered

Dist. Along (feet)	Depth (feet bgs)	Exploration Completion and Notes	Sample Type/ID	Analytical Sample Number & Lab Test(s)	Field Tests	Material Type	Description	Dist. Along (ft)
51	36	2" diameter 0.020", schedule 40 PVC screen, 45'-65' bgs			PID=7		SAND (SP); Very moist, red brown; fine to medium sand, trace silt.	51
52	37				PID=12.5			52
53								53
54	38				PID=14			54
55	39							55
56				A-8-56.0 VOCs by 8260C	PID=19			56
57	40							57
58	41				PID=7			58
59								59
60	42							60
61	43							61
62	44				PID=4.5			62
63					PID=3.5			63
64	45				PID=2			64
65	46	Threaded PVC endcap					Bottom of exploration at 65 ft. bgs. Note: A-8 was advanced at a 45 degree angle	65
66	47							66
67								67
68	48							68
69	49							69
70								70
71	50							71
72	51							72
73	52							73
74								74

Legend

Sample Type: Continuous core 7" ID

Water Level: No Water Encountered

See Exploration Log Key for explanation of symbols

Logged by: BMG
Approved by: DAH

Exploration Log VE-8

Sheet 3 of 3

NEW STANDARD EXPLORATION LOG TEMPLATE \\BISERVER1.ASPECT.LOCAL\PROJECTS\GINTW\PROJECTS\MORELL'S 080190 2019.GPJ July 31, 2019

APPENDIX B

Waste Disposal Documentation

467863

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	WAD988477873	1	(800) 337-7455	TP-020819-GE 01

GENERATOR

5. Generator's Name and Mailing Address: Thriftway Properties LLC, 710 2nd Ave., Ste: 550, Seattle, WA 98104
Generator's Site Address (if different than mailing address): Thriftway Properties LLC, 608 North 1st Street, Tacoma, WA 98403
Generator's Phone: (206) 838-5831 Attn: Dave Heffner

6. Transporter 1 Company Name: DH Environmental, Inc. — U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management of the Northwest — U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address: Chemical Waste Management of the Northwest, 17629 Cedar Springs Lane, Arlington, OR 97812 — U.S. EPA ID Number: ORD089452353
Facility's Phone: (541) 454-2643

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Material Not Regulated by DOT (non-Regulated IDW ~~water~~ soil)	17	DM	11,500	P	X004
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
OR328266 – LF01/STA801, non-reg
1. IDW soil

WMM970272

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.
Generator's/Offeror's Printed/Typed Name: On behalf of Thriftway Properties LLC Leonard J. Warnock — Signature: Leonard J. Warnock — Month 05 Day 15 Year 19

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Leonard J. Warnock — Signature: Leonard J. Warnock — Month 05 Day 23 Year 19
Transporter 2 Printed/Typed Name: G. Pinard/9 — Signature: [illegible] — Month 2 Day 5 Year 19

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Dawn Dingo — Signature: [signature] — Month 2 Day 14 Year 19

169-BLC-O 6 10498 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

467863

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
WAD 988427873	2 OF 2		TP-020419-01

5. Generator's Name and Mailing Address: THRIFTWAY PROPERTIES LLC

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name: Union Pacific Rail Road — U.S. EPA ID Number: NED001792910

7. Transporter 2 Company Name: Columbia Ridge land fill — U.S. EPA ID Number: ORD987173457

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1.					
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information

WMXH 970272

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
James Ruppert		2	8	19
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year
Jan L Gabbey	Jan L Gabbey	2	12	19

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name | Signature | Month | Day | Year

4684484

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAD027555184
2. Page 1 of: 2
3. Emergency Response Phone: (800)-337-7455
4. Manifest Tracking Number: 020121083 JJK

GENERATOR

5. Generator's Name and Mailing Address
Thriftway Properties LLC
401 2nd Ave S #201
Seattle WA 98104
Att: Alan Noell
Generator's Phone: 208 - 838 - 6592

Generator's Site Address (if different than mailing address)
Thriftway Properties LLC
633 Division Ave
Tacoma WA 98403

6. Transporter 1 Company Name: DH Environmental Inc.
U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management
U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3082, Hazardous waste, liquid, n.o.s. (Trichloroethene, Tetrachloroethane) 9, PGIII	015	DM	4,500	P	F002		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1)(T) OR328943 ERG#171
55
WMXU980684

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Travis Forslund on behalf of Thriftway
Signature:
Month: 3 Day: 4 Year: 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Travis Forslund
Signature:
Month: 3 Day: 4 Year: 19

Transporter 2 Printed/Typed Name: Michael Castaneda
Signature:
Month: 3 Day: 4 Year: 19

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Dawn Dunlap
Signature:
Month: 3 Day: 20 Year: 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

RM

468484

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: WAD027555184

22. Page 2 of 2

23. Manifest Tracking Number: 020121083JJK

24. Generator's Name: THRIFTWAY PROPERTIES LLC.

25. Transporter 3 Company Name: UPRR — U.S. EPA ID Number: NED007792910

26. Transporter 4 Company Name: COLUMBIA RIDGE LANDFILL — U.S. EPA ID Number: ORD987173457

EMS 3-29-19

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

WMXU980684

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: James Ryppa — Signature — Month 3 Day 7 Year 19

34. Transporter 4 Acknowledgment of Receipt of Materials

Printed/Typed Name: Jan L Gabbey — Signature — Month 3 Day 11 Year 19

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

GENERATOR

TRANSPORTER

DESIGNATED FACILITY

468770

3/31

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number WA D 988477873	2. Page 1 of 1	3. Emergency Response Phone (800)-337-7455	4. Manifest Tracking Number 020121088 JJK

5. Generator's Name and Mailing Address
Thriftway Properties LLC
401 2nd Ave S #201
Seattle WA 98104
Att: Alan Noell
Generator's Phone: 206 838-8592

Generator's Site Address (if different than mailing address)
Thriftway Properties LLC
~~822 Division Ave~~ 608 N 1ST ST
Tacoma WA 98403
608 4-3-19 per Scott St John/CHMW

6. Transporter 1 Company Name
R Transport Inc
U.S. EPA ID Number
WAH000028338

7. Transporter 2 Company Name
Chemical Waste Management
U.S. EPA ID Number
ORD089452353

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number
ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3077, Hazardous waste, solid, n.o.s. (Tetrachloroethene, Soil) 9, PGIII	001	CM	10	T	F002		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1) OR341087-Bulk ERG#171

WMXY 8753

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: On Behalf of Thriftway Properties Travis Forslund
Signature:
Month 3 Day 7 Year 19

INT'L
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER
17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Jason Edmonds
Signature:
Month 3 Day 11 Year 19
Transporter 2 Printed/Typed Name: James Ruppert
Signature:
Month 3 Day 11 Year 19

DESIGNATED FACILITY
18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dawn Dingo
Signature:
Month 4 Day 11 Year 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: WAD 027555184

22. Page: 2

23. Manifest Tracking Number: 020721088 JJK

24. Generator's Name: Thriftway Properties LLC

25. Transporter _____ Company Name: CRL — U.S. EPA ID Number: ORD987173457

26. Transporter _____ Company Name — U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		

32. Special Handling Instructions and Additional Information

WM XU 8753

TRANSPORTER

33. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name: Jan L Gabbey — Signature: Jan L Gabbey — Month: 4 — Day: 1 — Year: 19

34. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Travis

Chemical Waste Management Of The Northwest

17629 Cedar Springs Lane
Arlington, Oregon 97812
541-454-2643
EPA I.D.# ORD089452353

LOAD NO. _____

MANIFEST DOC. NO. _____

INBOUND
T/D: 15:02:30 2019-04-11
ID: 468770 TRK ID: 8753 L14
70700 lb G

OUTBOUND
T/D: 15:17:47 2019-04-11
ID: 468770 TRK ID: 8753 L14
70700 lb G
48800 lb PT
21900 lb N

NET 10.95 TONS

GENERATOR _____

468677

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number WAD988477873	2. Page 1 of 2	3. Emergency Response Phone (800) 337-7455	4. Manifest Tracking Number 020121003 JJK

5. Generator's Name and Mailing Address: Thriftway Properties LLC, 401 2nd Ave. S #201, Seattle, WA 98104, (206) 780-7729 Attn: Bob Hanford
Generator's Site Address (if different than mailing address): 808 North 1st Street, Tacoma, WA 98403
Generator's Phone:

6. Transporter 1 Company Name: DH Environmental Inc. — U.S. EPA ID Number: MAH000047917
7. Transporter 2 Company Name: Chemical Waste Management of the Northwest — U.S. EPA ID Number: ORD089452353
8. Designated Facility Name and Site Address: Chemical Waste Management of the Northwest, 17629 Cedar Springs Lane, Arlington, OR 97812 — Facility's Phone: — U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous Waste Solid, n.o.s., 9, PG III (tetrachloroethylene) none Shipped	0	0	0	0	
X	2. NA3082, Hazardous Waste Liquid, n.o.s., 9 PG III (tetrachloroethene, trichloroethene)	11	DM	5000	P	
	3. Material Not Regulated by DOT, (non-regulated IDW soil) none Shipped	0	0	0	0	
	4.					

14. Special Handling Instructions and Additional Information
1. OR32803 --INCL, FOOD IDW WATER: (171)
2. OR32803 --STA115, F002 IDW water, waste LDR's ERG: (171)
3. OR32803 --LF01 non-regulated IDW soil

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Thriftway LLC Leonard J. Warnock — Signature: Leonard J Warnock — Month 03 Day 20 Year 19

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Leonard J. Warnock — Signature: Leonard J Warnock — Month 03 Day 20 Year 19
Transporter 2 Printed/Typed Name: [illegible] — Signature: [illegible] — Month 3 Day 20 Year 19

18. Discrepancy
18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Bobby Wilson — Signature: [signature] — Month 3 Day 28 Year 19

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

468678

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAD988477873
2. Page 1 of: 1
3. Emergency Response Phone: (800) 337-7455
4. Manifest Tracking Number: 017543359 JJK

5. Generator's Name and Mailing Address: Thirty Properties LLC, 401 2nd Ave S #307, Seattle, WA 98104 (206) 750-7709 Bob Hanford
Generator's Site Address (if different than mailing address): 608 North 1st Street, Tacoma, WA 98403

6. Transporter 1 Company Name: PH Environmental Inc.
U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management of the NW
U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address: Chemical Waste Management of the NW, 17629 Cedar Springs Lane, Arlington, OR 97812
U.S. EPA ID Number: ORD089452353
Facility's Phone: (541) 454-2643

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN3077, Hazardous Waste Solid, N.O.S., 9, PG III (tetrachloroethylene)	001	DM	700	P	F002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information: 1. 02341 347297 - Inc 01, F002 IDW Soil ERG: (171)

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Jacob Briere (on behalf of Thirty properties LLC)
Signature:
Month: 3 Day: 20 Year: 19

INTL

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jacob Briere
Signature:
Month: 3 Day: 20 Year: 19

Transporter 2 Printed/Typed Name: Michael Castaneda
Signature:
Month: 3 Day: 21 Year: 19

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H040			

20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Bobby Wilson
Signature:
Month: 3 Day: 28 Year: 19

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

468792

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	WAD988477873	1	(800) 337-7455	TPLLC-032019-01

GENERATOR

5. Generator's Name and Mailing Address: Thriftway Properties LLC, 401 2nd Ave. S #201, Seattle, WA 98104, (206) 788-7728 Attn: Bob Hanford

Generator's Site Address (if different than mailing address): 608 North 1st Street, Tacoma, WA 98403

Generator's Phone:

6. Transporter 1 Company Name: DH Environmental Inc. — U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management of the Northwest — U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address: Chemical Waste Management of the Northwest, 17629 Cedar Springs Lane, Arlington, OR 97812 — U.S. EPA ID Number: ORD089452353

Facility's Phone: (541) 454-2043

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Material Not Regulated by DOT, (non-regulated IDW soil)	019	DM	11,400	P	X004
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information: [illegible] non-regulated IDW soil

WMX4980614

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Jacob Brine (on behalf of Thriftway properties LLC) — Signature — Month: 3 Day: 20 Year: 19

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:

Transporter Signature (for exports only):

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jacob Brine — Signature — Month: 3 Day: 20 Year: 19

Transporter 2 Printed/Typed Name: TELE EXPRESS — Signature — Month: 3 Day: 20 19

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Dawn Dunlap — Signature — Month: 4 Day: 8 Year: 19

468792

NON-HAZARDOUS WASTE MANIFEST (Continuation Sheet)

19. Generator ID Number: WAD988477873

20. Page 2 of 2

21. Waste Tracking Number: TPLLC-032019-01

22. Generator's Name: THRIFTWAY PROPERTIES LLC.

23. Transporter 3 Company Name: UPRR — U.S. EPA ID Number: NED 001792921

24. Transporter 4 Company Name: COLUMBIA RIDGE LANDFILL — U.S. EPA ID Number: ORD 987173457

	25. Waste Shipping Name and Description	26. Containers No.	26. Containers Type	27. Total Quantity	28. Unit Wt./Vol.	

29. Special Handling Instructions and Additional Information

WMX4 980614

TRANSPORTER

30. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name: JR — Signature: [signature] — Month: 3 Day: 26 Year: 19

31. Transporter ____ Acknowledgment of Receipt of Materials
Printed/Typed Name: Jan L Gabbey — Signature: Jan L Gabbey — Month: 3 Day: 28 Year: 19

DESIGNATED FACILITY

32. Discrepancy

170-BLC-O 6 10502 (Rev. 8/08)

DESIGNATED FACILITY TO GENERATOR

APPENDIX C
All Analytical Data

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

February 1, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
401 2nd Ave S, Suite 201
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on January 29, 2019 from the Morell's Walker Chevy 080190, F&BI 901382 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0201R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 29, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's Walker Chevy 080190, F&BI 901382 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
901382 -01	B-25-5.5
901382 -02	B-25-10.5
901382 -03	B-25-15.5
901382 -04	B-25-20.5
901382 -05	B-25-25.5
901382 -06	B-25-30.5
901382 -07	B-25-35.5
901382 -08	B-25-40.5
901382 -09	B-25-45.5
901382 -10	B-25-50.5
901382 -11	B-25-55.5
901382 -12	B-25-60.6

The 8260C dichlorodifluoromethane failed below the acceptance criteria in the matrix spike samples. In addition, hexane failed the relative percent difference. The laboratory control sample met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-25-5.5	Client:	Aspect Consulting, LLC
Date Received:	01/29/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	01/29/19	Lab ID:	901382-01
Date Analyzed:	01/29/19	Data File:	012932.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	106	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-25-30.5	Client:	Aspect Consulting, LLC
Date Received:	01/29/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	01/29/19	Lab ID:	901382-06
Date Analyzed:	01/29/19	Data File:	012933.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	95	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-25-50.5	Client:	Aspect Consulting, LLC
Date Received:	01/29/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	01/29/19	Lab ID:	901382-10
Date Analyzed:	01/29/19	Data File:	012934.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's Walker Chevy 080190
Date Extracted:	01/29/19	Lab ID:	09-0192 mb
Date Analyzed:	01/29/19	Data File:	012909.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	90	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 02/01/19
Date Received: 01/29/19
Project: Morell's Walker Chevy 080190, F&BI 901382

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 901386-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	6 vo	7 vo	10-142	15
Chloromethane	mg/kg (ppm)	2.5	<0.5	28	30	10-126	7
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	26	28	10-138	7
Bromomethane	mg/kg (ppm)	2.5	<0.5	43	48	10-163	11
Chloroethane	mg/kg (ppm)	2.5	<0.5	36	40	10-176	11
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	24	29	10-176	19
Acetone	mg/kg (ppm)	12.5	0.46	69	70	10-163	1
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	35	40	10-160	13
Hexane	mg/kg (ppm)	2.5	<0.25	10	13	10-137	26 vo
Methylene chloride	mg/kg (ppm)	2.5	<0.5	52	55	10-156	6
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	60	64	21-145	6
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	43	47	14-137	9
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	50	55	19-140	10
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	45	51	10-158	12
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	52	57	25-135	9
Chloroform	mg/kg (ppm)	2.5	<0.05	54	58	21-145	7
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	66	70	19-147	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	55	59	12-160	7
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	46	52	10-156	12
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	42	49	17-140	15
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	43	49	9-164	13
Benzene	mg/kg (ppm)	2.5	<0.03	50	55	29-129	10
Trichloroethene	mg/kg (ppm)	2.5	<0.02	48	54	21-139	12
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	56	63	30-135	12
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	56	62	23-155	10
Dibromomethane	mg/kg (ppm)	2.5	<0.05	57	62	23-145	8
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	67	72	24-155	7
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	59	65	28-144	10
Toluene	mg/kg (ppm)	2.5	<0.05	48	55	35-130	14
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	54	60	26-149	11
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	57	63	10-205	10
2-Hexanone	mg/kg (ppm)	12.5	<0.5	61	67	15-166	9
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	57	61	31-137	7
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	43	50	20-133	15
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	57	65	28-150	13
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	55	62	28-142	12
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	51	57	32-129	11
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	48	55	32-137	14
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	56	62	31-143	10
m,p-Xylene	mg/kg (ppm)	5	<0.1	49	57	34-136	15
o-Xylene	mg/kg (ppm)	2.5	<0.05	51	56	33-134	9
Styrene	mg/kg (ppm)	2.5	<0.05	56	62	35-137	10
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	49	59	31-142	19
Bromoform	mg/kg (ppm)	2.5	<0.05	61	69	21-156	12
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	45	52	23-146	14
Bromobenzene	mg/kg (ppm)	2.5	<0.05	50	56	34-130	11
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	44	51	18-149	15
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	58	63	28-140	8
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	55	59	25-144	7
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	47	53	31-134	12
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	48	54	31-136	12
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	46	52	30-137	12
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	45	52	10-182	14
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	44	51	23-145	15
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	43	51	21-149	17
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	45	53	30-131	16
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	46	53	29-129	14
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	46	54	31-132	16
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	48	57	11-161	17
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	36	41	22-142	13
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	35	42	10-142	18
Naphthalene	mg/kg (ppm)	2.5	<0.05	44	47	14-157	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	38	43	20-144	12

Date of Report: 02/01/19
Date Received: 01/29/19
Project: Morell's Walker Chevy 080190, F&BI 901382

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	45	10-146
Chloromethane	mg/kg (ppm)	2.5	71	27-133
Vinyl chloride	mg/kg (ppm)	2.5	84	22-139
Bromomethane	mg/kg (ppm)	2.5	91	38-114
Chloroethane	mg/kg (ppm)	2.5	93	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	102	10-196
Acetone	mg/kg (ppm)	12.5	107	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	101	47-128
Hexane	mg/kg (ppm)	2.5	83	43-142
Methylene chloride	mg/kg (ppm)	2.5	110	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	93	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	100	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	102	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	105	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	104	72-113
Chloroform	mg/kg (ppm)	2.5	102	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	96	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	95	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	102	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	100	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	102	60-139
Benzene	mg/kg (ppm)	2.5	97	68-114
Trichloroethene	mg/kg (ppm)	2.5	99	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	99	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	101	72-130
Dibromomethane	mg/kg (ppm)	2.5	99	70-120
4-Methyl-2-pentanone	mg/kg(ppm)	12.5	96	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	102	75-136
Toluene	mg/kg (ppm)	2.5	97	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	97	75-113
2-Hexanone	mg/kg (ppm)	12.5	85	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	95	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	105	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	106	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	97	74-132
Chlorobenzene	mg/kg (ppm)	2.5	99	76-111
Ethylbenzene	mg/kg (ppm)	2.5	99	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	109	69-135
m,p-Xylene	mg/kg (ppm)	5	102	78-122
o-Xylene	mg/kg (ppm)	2.5	98	77-124
Styrene	mg/kg (ppm)	2.5	104	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	111	76-127
Bromoform	mg/kg (ppm)	2.5	113	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	106	74-124
Bromobenzene	mg/kg (ppm)	2.5	103	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	108	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	106	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	97	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	107	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	105	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	103	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	100	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	102	71-130
p-Isopropyl toluene	mg/kg (ppm)	2.5	104	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	102	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	100	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	103	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	103	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	104	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	110	50-153
Naphthalene	mg/kg (ppm)	2.5	104	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	109	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

901382

SAMPLE CHAIN OF CUSTODY ME 01/29/19 VS2

Page # 1 of 2

Report To ~~Dave~~ Heffner

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone 2068385831 Email dheffner@aspectconsulting.com
bgreer@aspectconsulting.com

SAMPLERS (*signature*) Brennan Greer

PROJECT NAME: Morell's / Walker Quarry

PO # 080190

REMARKS

INVOICE TO AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4-Day
- Rush charges authorized by: D. Heffner

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-25-5.5	01A-D	1/28	2110	S	4					X							
B-25-10.5	02	1/28	2130														Please HOLD
B-25-15.5	03	1/28	2155														
B-25-20.5	04	1/28	2210														
B-25-25.5	05	1/28	2230														
B-25-30.5	06	1/28	2250							X							
B-25-35.5	07	1/28	2310														Please HOLD
B-25-40.5	08	1/28	2350														
B-25-45.5	09	1/29	0100														
B-25-50.5	10	1/29	0150							X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: David Heffner	David Heffner	Aspect	1/29/19	9:50
Received by:	DAVID NIVAGED	FCD EK	1/29/19	10:52
Relinquished by:		Samples received at 2 °C		
Received by: Hoa	HOA NGUYEN	FMI	1/29/19	1200

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

901382

SAMPLE CHAIN OF CUSTODY

ME 01/29/19

NS2

Page # 2 of 2

Report To Dave Heffner

Company Aspect

Address 710 2nd Ave Ste. 550

City, State, ZIP Seattle WA 98104

Phone 2066385831 Email dheffner & bgreer

SAMPLERS (*signature*) Breeyn Green

PROJECT NAME: Morell's / Walker Quarry

PO # 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4-Day

Rush charges authorized by: D. Heffner

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-25-55.5	11 A-D	1/29	0220	S	4												Please HOLD
B-25-60.6	12 A-D	1/29	0250	S	4												↓

ANALYSES REQUESTED

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: David Heffner	David Heffner	Aspect	1/29/19	9:50
Received by:	DAVID NIOTCO	FED EX	1/29/19	10:52
Relinquished by:				
Received by:	HONG NGUYEN	FBI	1/29/19	1200

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
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FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
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fbi@isomedia.com
www.friedmanandbruya.com

February 1, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on January 30, 2019 from the Walker Chevy Morell's 080190, F&BI 901399 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect, Breeyn Greer
ASP0201R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 30, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Walker Chevy Morell's 080190, F&BI 901399 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
901399 -01	B-26-5.5
901399 -02	B-26-10.5
901399 -03	B-26-15.5
901399 -04	B-26-20.5
901399 -05	B-26-25.5
901399 -06	B-26-30.5
901399 -07	B-26-35.5
901399 -08	B-26-40.5
901399 -09	B-26-45.5
901399 -10	B-26-50.5
901399 -11	B-26-55.5
901399 -12	B-26-60.0

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-26-5.5	Client:	Aspect Consulting, LLC
Date Received:	01/30/19	Project:	Walker Chevy Morell's 080190
Date Extracted:	01/30/19	Lab ID:	901399-01
Date Analyzed:	01/30/19	Data File:	013037.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-26-30.5	Client:	Aspect Consulting, LLC
Date Received:	01/30/19	Project:	Walker Chevy Morell's 080190
Date Extracted:	01/30/19	Lab ID:	901399-06
Date Analyzed:	01/30/19	Data File:	013038.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	104	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-26-50.5	Client:	Aspect Consulting, LLC
Date Received:	01/30/19	Project:	Walker Chevy Morell's 080190
Date Extracted:	01/30/19	Lab ID:	901399-10
Date Analyzed:	01/30/19	Data File:	013039.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	62	142
Toluene-d8	102	55	145
4-Bromofluorobenzene	102	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Walker Chevy Morell's 080190
Date Extracted:	01/30/19	Lab ID:	09-0197 mb
Date Analyzed:	01/30/19	Data File:	013021.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	98	55	145
4-Bromofluorobenzene	93	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 02/01/19
Date Received: 01/30/19
Project: Walker Chevy Morell's 080190, F&BI 901399

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 901327-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	17	17	10-142	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	49	48	10-126	2
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	53	53	10-138	0
Bromomethane	mg/kg (ppm)	2.5	<0.5	72	70	10-163	3
Chloroethane	mg/kg (ppm)	2.5	<0.5	64	65	10-176	2
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	59	59	10-176	0
Acetone	mg/kg (ppm)	12.5	<0.5	82	88	10-163	7
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	71	70	10-160	1
Hexane	mg/kg (ppm)	2.5	<0.25	29	33	10-137	13
Methylene chloride	mg/kg (ppm)	2.5	<0.5	80	83	10-156	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	83	86	21-145	4
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	73	79	14-137	8
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	82	86	19-140	5
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	74	79	10-158	7
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	84	88	25-135	5
Chloroform	mg/kg (ppm)	2.5	<0.05	84	90	21-145	7
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	87	95	19-147	9
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	79	87	12-160	10
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	76	84	10-156	10
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	69	75	17-140	8
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	71	79	9-164	11
Benzene	mg/kg (ppm)	2.5	<0.03	75	79	29-129	5
Trichloroethene	mg/kg (ppm)	2.5	<0.02	72	79	21-139	9
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	81	83	30-135	2
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	83	88	23-155	6
Dibromomethane	mg/kg (ppm)	2.5	<0.05	82	87	23-145	6
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	90	94	24-155	4
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	82	87	28-144	6
Toluene	mg/kg (ppm)	2.5	0.15	68	75	35-130	10
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	80	84	26-149	5
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	88	93	10-205	6
2-Hexanone	mg/kg (ppm)	12.5	<0.5	83	88	15-166	6
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	79	85	31-137	7
Tetrachloroethene	mg/kg (ppm)	2.5	0.044	58	67	20-133	14
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	83	88	28-150	6
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	78	83	28-142	6
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	74	80	32-129	8
Ethylbenzene	mg/kg (ppm)	2.5	0.23	65	70	32-137	7
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	81	87	31-143	7
m,p-Xylene	mg/kg (ppm)	5	0.79	63	70	34-136	11
o-Xylene	mg/kg (ppm)	2.5	0.42	62	67	33-134	8
Styrene	mg/kg (ppm)	2.5	<0.05	76	83	35-137	9
Isopropylbenzene	mg/kg (ppm)	2.5	0.14	62	68	31-142	9
Bromoform	mg/kg (ppm)	2.5	<0.05	87	93	21-156	7
n-Propylbenzene	mg/kg (ppm)	2.5	0.54	57 b	62 b	23-146	8 b
Bromobenzene	mg/kg (ppm)	2.5	<0.05	73	78	34-130	7
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	0.72	53 b	59 b	18-149	11 b
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	100	101	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	80	80	25-144	0
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	75	79	31-134	5
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	68	72	31-136	6
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	55	60	30-137	9
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	2.1	51 b	59 b	10-182	15 b
sec-Butylbenzene	mg/kg (ppm)	2.5	0.28	52	58	23-145	11
p-Isopropyltoluene	mg/kg (ppm)	2.5	0.25	51	58	21-149	13
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	66	71	30-131	7
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	67	71	29-129	6
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	71	75	31-132	5
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	83	83	11-161	0
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	60	66	22-142	10
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	51	58	10-142	13
Naphthalene	mg/kg (ppm)	2.5	0.42	74	78	14-157	5
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	66	72	20-144	9

Date of Report: 02/01/19
Date Received: 01/30/19
Project: Walker Chevy Morell's 080190, F&BI 901399

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	42	10-146
Chloromethane	mg/kg (ppm)	2.5	70	27-133
Vinyl chloride	mg/kg (ppm)	2.5	84	22-139
Bromomethane	mg/kg (ppm)	2.5	91	38-114
Chloroethane	mg/kg (ppm)	2.5	89	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	97	10-196
Acetone	mg/kg (ppm)	12.5	94	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	96	47-128
Hexane	mg/kg (ppm)	2.5	79	43-142
Methylene chloride	mg/kg (ppm)	2.5	97	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	99	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	100	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	102	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	104	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	104	72-113
Chloroform	mg/kg (ppm)	2.5	106	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	104	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	106	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	111	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	102	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	111	60-139
Benzene	mg/kg (ppm)	2.5	100	68-114
Trichloroethene	mg/kg (ppm)	2.5	106	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	102	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	107	72-130
Dibromomethane	mg/kg (ppm)	2.5	106	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	106	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	106	75-136
Toluene	mg/kg (ppm)	2.5	97	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	100	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	101	75-113
2-Hexanone	mg/kg (ppm)	12.5	94	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	100	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	104	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	106	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	102	74-132
Chlorobenzene	mg/kg (ppm)	2.5	102	76-111
Ethylbenzene	mg/kg (ppm)	2.5	101	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	108	69-135
m,p-Xylene	mg/kg (ppm)	5	103	78-122
o-Xylene	mg/kg (ppm)	2.5	98	77-124
Styrene	mg/kg (ppm)	2.5	108	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	104	76-127
Bromoform	mg/kg (ppm)	2.5	109	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	107	74-124
Bromobenzene	mg/kg (ppm)	2.5	109	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	108	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	109	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	106	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	109	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	110	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	104	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	103	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	101	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	104	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	105	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	102	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	104	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	97	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	102	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	106	50-153
Naphthalene	mg/kg (ppm)	2.5	102	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	105	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

901399

SAMPLE CHAIN OF CUSTODY

ME 01/30/19

VSS

Page # 1 of 2

Report To Dave Heffner

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone 2068385831 Email dheffner@aspectconsulting.com
bgreer@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME: Walker Chevy / Morell's

PO #: 090190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4-day

Rush charges authorized by: Dave H

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
B-26-5.5	01 A-D	1/29/19	2145	S	4					X							
B-26-10.5	02		2200														Please Hold
B-26-15.5	03		2215														"
B-26-20.5	04		2230														"
B-26-25.5	05		2300														"
B-26-30.5	06		2315							X							
B-26-35.5	07		2330														Please Hold
B-26-40.5	08		2355														"
B-26-45.5	09	1/30	0100														"
B-26-50.5	10	1/30	0130							X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Greer	Breeyn Greer	Aspect	1/30/19	0800
Received by:	VIA	FBI	1/30/19	10:00
Relinquished by:				
Received by:		Samples received at 3 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

901399

SAMPLE CHAIN OF CUSTODY ME 01/30/19 VSS

Page # 2 of 2

Report To Dave Heffner

Company Aspect

Address

City, State, ZIP

Phone 2068385831 Email dheffner@aspectconsulting.com

SAMPLERS (signature) Breeyn Green

PROJECT NAME: Walker Cleaners / Morells

PO #: 080190

REMARKS

INVOICE TO

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4 day
- Rush charges authorized by: DAH

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-26-55.5	11 A-D	1/30	0200	S	4												Hold
B-26-60.0	12 V	1/30	0200 3 BE														11 ↓
				↓	↓												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Green	Breeyn Green	Aspect	1/30/19	0800
Received by:	VINH	FBI	1/30/19	10:00
Relinquished by:				
Received by:		Samples received at 3 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

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February 6, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on January 31, 2019 from the Morell's Walker Chevy 080190, F&BI 901423 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0206R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on January 31, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's Walker Chevy 080190, F&BI 901423 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
901423 -01	B-24-5.5
901423 -02	B-24-10.5
901423 -03	B-24-15.5
901423 -04	B-24-20.5
901423 -05	B-24-25.5
901423 -06	B-24-30.5
901423 -07	B-24-35.5
901423 -08	B-24-40.5
901423 -09	B-24-45.5
901423 -10	B-24-50.5
901423 -11	B-24-55.5
901423 -12	B-24-60.5

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-24-5.5	Client:	Aspect Consulting, LLC
Date Received:	01/31/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	02/01/19	Lab ID:	901423-01
Date Analyzed:	02/01/19	Data File:	020113.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-24-30.5	Client:	Aspect Consulting, LLC
Date Received:	01/31/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	02/01/19	Lab ID:	901423-06
Date Analyzed:	02/01/19	Data File:	020114.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	95	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-24-50.5	Client:	Aspect Consulting, LLC
Date Received:	01/31/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	02/01/19	Lab ID:	901423-10
Date Analyzed:	02/01/19	Data File:	020115.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's Walker Chevy 080190
Date Extracted:	02/01/19	Lab ID:	09-0199 mb
Date Analyzed:	02/01/19	Data File:	020110.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	98	55	145
4-Bromofluorobenzene	95	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 02/06/19
Date Received: 01/31/19
Project: Morell's Walker Chevy 080190, F&BI 901423

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 901411-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	16	16	10-142	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	46	44	10-126	4
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	48	46	10-138	4
Bromomethane	mg/kg (ppm)	2.5	<0.5	64	62	10-163	3
Chloroethane	mg/kg (ppm)	2.5	<0.5	60	57	10-176	5
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	52	49	10-176	6
Acetone	mg/kg (ppm)	12.5	0.64	76	78	10-163	3
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	64	62	10-160	3
Hexane	mg/kg (ppm)	2.5	<0.25	27	26	10-137	4
Methylene chloride	mg/kg (ppm)	2.5	<0.5	77	73	10-156	5
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	81	74	21-145	9
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	72	66	14-137	9
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	79	74	19-140	7
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	81	74	10-158	9
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	82	78	25-135	5
Chloroform	mg/kg (ppm)	2.5	<0.05	83	80	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	76	84	19-147	10
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	74	75	12-160	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	75	72	10-156	4
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	68	68	17-140	0
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	70	68	9-164	3
Benzene	mg/kg (ppm)	2.5	<0.03	72	72	29-129	0
Trichloroethene	mg/kg (ppm)	2.5	<0.02	72	68	21-139	6
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	72	73	30-135	1
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	77	80	23-155	4
Dibromomethane	mg/kg (ppm)	2.5	<0.05	77	76	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	76	81	24-155	6
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	70	78	28-144	11
Toluene	mg/kg (ppm)	2.5	<0.05	68	68	35-130	0
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	71	78	26-149	9
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	80	86	10-205	7
2-Hexanone	mg/kg (ppm)	12.5	<0.5	67	81	15-166	19
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	70	80	31-137	13
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	60	62	20-133	3
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	81	82	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	71	76	28-142	7
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	71	72	32-129	1
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	65	65	32-137	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	86	79	31-143	8
m,p-Xylene	mg/kg (ppm)	5	<0.1	65	65	34-136	0
o-Xylene	mg/kg (ppm)	2.5	<0.05	64	62	33-134	3
Styrene	mg/kg (ppm)	2.5	<0.05	73	75	35-137	3
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	64	63	31-142	2
Bromoform	mg/kg (ppm)	2.5	<0.05	86	89	21-156	3
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	57	58	23-146	2
Bromobenzene	mg/kg (ppm)	2.5	<0.05	69	73	34-130	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	55	52	18-149	6
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	102	103	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	75	79	25-144	5
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	66	64	31-134	3
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	64	64	31-136	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	57	53	30-137	7
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	57	54	10-182	5
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	54	50	23-145	8
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	52	49	21-149	6
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	67	66	30-131	2
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	67	67	29-129	0
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	73	69	31-132	6
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	90	80	11-161	12
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	66	60	22-142	10
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	46	44	10-142	4
Naphthalene	mg/kg (ppm)	2.5	<0.05	87	79	14-157	10
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	73	66	20-144	10

Date of Report: 02/06/19
Date Received: 01/31/19
Project: Morell's Walker Chevy 080190, F&BI 901423

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	47	10-146
Chloromethane	mg/kg (ppm)	2.5	67	27-133
Vinyl chloride	mg/kg (ppm)	2.5	80	22-139
Bromomethane	mg/kg (ppm)	2.5	89	38-114
Chloroethane	mg/kg (ppm)	2.5	94	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	101	10-196
Acetone	mg/kg (ppm)	12.5	100	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	102	47-128
Hexane	mg/kg (ppm)	2.5	82	43-142
Methylene chloride	mg/kg (ppm)	2.5	109	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	101	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	107	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	108	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	117	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	111	72-113
Chloroform	mg/kg (ppm)	2.5	110	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	93	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	101	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	112	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	104	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	112	60-139
Benzene	mg/kg (ppm)	2.5	98	68-114
Trichloroethene	mg/kg (ppm)	2.5	103	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	96	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	100	72-130
Dibromomethane	mg/kg (ppm)	2.5	99	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	90	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	93	75-136
Toluene	mg/kg (ppm)	2.5	100	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	90	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	93	75-113
2-Hexanone	mg/kg (ppm)	12.5	77	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	88	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	106	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	104	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	91	74-132
Chlorobenzene	mg/kg (ppm)	2.5	99	76-111
Ethylbenzene	mg/kg (ppm)	2.5	100	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	116	69-135
m,p-Xylene	mg/kg (ppm)	5	102	78-122
o-Xylene	mg/kg (ppm)	2.5	101	77-124
Styrene	mg/kg (ppm)	2.5	103	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	108	76-127
Bromoform	mg/kg (ppm)	2.5	108	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	101	74-124
Bromobenzene	mg/kg (ppm)	2.5	98	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	105	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	92	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	104	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	99	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	107	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	103	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	105	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	106	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	102	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	98	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	105	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	112	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	108	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	108	50-153
Naphthalene	mg/kg (ppm)	2.5	111	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	110	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

901423

SAMPLE CHAIN OF CUSTODY

ME 01/31/19

VS4

Page # 1 of 2

Report To Dave Heffner

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone 206 838 5831 Email dheffner@aspectconsulting.com
bgreer@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME: Monell's / Walker Cmny

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4 day
- Rush charges authorized by: DAH

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
B-24-5.5	01 A-D	1/30/19	2035	S	4					X							
B-24-10.5	02		2050														Please HOLD
B-24-15.5	03		2105														
B-24-20.5	04		2130														
B-24-25.5	05		2145														
B-24-30.5	06		2200							X							
B-24-35.5	07		2230														Please HOLD
B-24-40.5	08		2240														
B-24-45.5	09		2300														
B-24-50.5	10	1/31	0200							X							Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: David Heffner	David Heffner	Aspect	1/31/19	8:50
Received by:	DAVID NICACIO	FED EX	1/31/19	10:37
Relinquished by:				
Received by: Nhan Phan	Nhan Phan	FBI	1/31/19	11:05

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

901423

SAMPLE CHAIN OF CUSTODY ME 01/31/19

VS4

Page # 2 of 2

Report To Dave Heffner

Company Aspect

Address

City, State, ZIP

Phone 2068385831 Email dheffner bgreer

SAMPLERS (*signature*) Brian Green

PROJECT NAME: Morell's / Walker Chevy

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4 Day
- Rush charges authorized by: DAH

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
B-24-55.5	11 A.D	1/31	0045	S	4												Please HOLD
B-24-60.5	12 A.D	1/31	0110	S	4												↓
																	Samples received at 4 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: David Heffner	David Heffner	Aspect	1/31/19	8:50
Received by: DAVID NEGACID	DAVID NEGACID	FED EX	1/31/19	10:37
Relinquished by:				
Received by:	Nhan Dhan	FBI	1/31/19	11 05

Friedman & Bruya, Inc.
3012 16th Avenue West
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Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
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www.friedmanandbruya.com

February 6, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on February 1, 2019 from the Morell's Walker Chevy 080190, F&BI 902014 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0206R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 1, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's Walker Chevy 080190, F&BI 902014 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
902014 -01	B-27-5.5
902014 -02	B-27-10.5
902014 -03	B-27-15.5
902014 -04	B-27-20.5
902014 -05	B-27-25.5
902014 -06	B-27-30.5
902014 -07	B-27-35.5
902014 -08	B-27-40.5
902014 -09	B-27-45.5
902014 -10	B-27-50.5
902014 -11	B-27-55.5
902014 -12	B-27-60.5

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-27-5.5	Client:	Aspect Consulting, LLC
Date Received:	02/01/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	02/01/19	Lab ID:	902014-01
Date Analyzed:	02/01/19	Data File:	020121.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	94	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-27-30.5	Client:	Aspect Consulting, LLC
Date Received:	02/01/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	02/01/19	Lab ID:	902014-06
Date Analyzed:	02/01/19	Data File:	020122.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-27-50.5	Client:	Aspect Consulting, LLC
Date Received:	02/01/19	Project:	Morell's Walker Chevy 080190
Date Extracted:	02/01/19	Lab ID:	902014-10
Date Analyzed:	02/01/19	Data File:	020123.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's Walker Chevy 080190
Date Extracted:	02/01/19	Lab ID:	09-0199 mb
Date Analyzed:	02/01/19	Data File:	020110.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/JS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	98	55	145
4-Bromofluorobenzene	95	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 02/06/19
Date Received: 02/01/19
Project: Morell's Walker Chevy 080190, F&BI 902014

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 901411-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	16	16	10-142	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	46	44	10-126	4
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	48	46	10-138	4
Bromomethane	mg/kg (ppm)	2.5	<0.5	64	62	10-163	3
Chloroethane	mg/kg (ppm)	2.5	<0.5	60	57	10-176	5
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	52	49	10-176	6
Acetone	mg/kg (ppm)	12.5	0.64	76	78	10-163	3
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	64	62	10-160	3
Hexane	mg/kg (ppm)	2.5	<0.25	27	26	10-137	4
Methylene chloride	mg/kg (ppm)	2.5	<0.5	77	73	10-156	5
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	81	74	21-145	9
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	72	66	14-137	9
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	79	74	19-140	7
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	81	74	10-158	9
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	82	78	25-135	5
Chloroform	mg/kg (ppm)	2.5	<0.05	83	80	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	76	84	19-147	10
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	74	75	12-160	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	75	72	10-156	4
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	68	68	17-140	0
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	70	68	9-164	3
Benzene	mg/kg (ppm)	2.5	<0.03	72	72	29-129	0
Trichloroethene	mg/kg (ppm)	2.5	<0.02	72	68	21-139	6
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	72	73	30-135	1
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	77	80	23-155	4
Dibromomethane	mg/kg (ppm)	2.5	<0.05	77	76	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	76	81	24-155	6
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	70	78	28-144	11
Toluene	mg/kg (ppm)	2.5	<0.05	68	68	35-130	0
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	71	78	26-149	9
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	80	86	10-205	7
2-Hexanone	mg/kg (ppm)	12.5	<0.5	67	81	15-166	19
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	70	80	31-137	13
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	60	62	20-133	3
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	81	82	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	71	76	28-142	7
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	71	72	32-129	1
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	65	65	32-137	0
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	86	79	31-143	8
m,p-Xylene	mg/kg (ppm)	5	<0.1	65	65	34-136	0
o-Xylene	mg/kg (ppm)	2.5	<0.05	64	62	33-134	3
Styrene	mg/kg (ppm)	2.5	<0.05	73	75	35-137	3
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	64	63	31-142	2
Bromoform	mg/kg (ppm)	2.5	<0.05	86	89	21-156	3
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	57	58	23-146	2
Bromobenzene	mg/kg (ppm)	2.5	<0.05	69	73	34-130	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	55	52	18-149	6
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	102	103	28-140	1
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	75	79	25-144	5
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	66	64	31-134	3
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	64	64	31-136	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	57	53	30-137	7
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	57	54	10-182	5
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	54	50	23-145	8
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	52	49	21-149	6
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	67	66	30-131	2
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	67	67	29-129	0
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	73	69	31-132	6
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	90	80	11-161	12
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	66	60	22-142	10
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	46	44	10-142	4
Naphthalene	mg/kg (ppm)	2.5	<0.05	87	79	14-157	10
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	73	66	20-144	10

Date of Report: 02/06/19
Date Received: 02/01/19
Project: Morell's Walker Chevy 080190, F&BI 902014

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	47	10-146
Chloromethane	mg/kg (ppm)	2.5	67	27-133
Vinyl chloride	mg/kg (ppm)	2.5	80	22-139
Bromomethane	mg/kg (ppm)	2.5	89	38-114
Chloroethane	mg/kg (ppm)	2.5	94	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	101	10-196
Acetone	mg/kg (ppm)	12.5	100	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	102	47-128
Hexane	mg/kg (ppm)	2.5	82	43-142
Methylene chloride	mg/kg (ppm)	2.5	109	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	101	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	107	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	108	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	117	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	111	72-113
Chloroform	mg/kg (ppm)	2.5	110	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	93	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	101	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	112	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	104	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	112	60-139
Benzene	mg/kg (ppm)	2.5	98	68-114
Trichloroethene	mg/kg (ppm)	2.5	103	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	96	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	100	72-130
Dibromomethane	mg/kg (ppm)	2.5	99	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	90	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	93	75-136
Toluene	mg/kg (ppm)	2.5	100	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	90	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	93	75-113
2-Hexanone	mg/kg (ppm)	12.5	77	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	88	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	106	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	104	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	91	74-132
Chlorobenzene	mg/kg (ppm)	2.5	99	76-111
Ethylbenzene	mg/kg (ppm)	2.5	100	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	116	69-135
m,p-Xylene	mg/kg (ppm)	5	102	78-122
o-Xylene	mg/kg (ppm)	2.5	101	77-124
Styrene	mg/kg(ppm)	2.5	103	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	108	76-127
Bromoform	mg/kg (ppm)	2.5	108	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	101	74-124
Bromobenzene	mg/kg (ppm)	2.5	98	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	105	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	101	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	92	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	104	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	99	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	107	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	103	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	105	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	106	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	102	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	98	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	105	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	112	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	108	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	108	50-153
Naphthalene	mg/kg (ppm)	2.5	111	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	110	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

902014

SAMPLE CHAIN OF CUSTODY

ME 02/01/19

VS4

Page # 1 of 2

Report To Dave Heffner

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone _____ Email dheffner@aspectconsulting.com
bgreer@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME: Morell's / Walker Chevy

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4 day
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-27-5.5	01 A-D	1/31/19	2045	S	4					X							
B-27-10.5	02		2120														Please HOLD
B-27-15.5	03		2135														
B-27-20.5	04		2145														
B-27-25.5	05		2200														
B-27-30.5	06		2240							X							
B-27-35.5	07		2255														Please HOLD
B-27-40.5	08		2310														
B-27-45.5	09		2330														
B-27-50.5	10		2345							X							Samples received at 4 °C

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: David Heffner	David Heffner	Aspect	2/1/19	8:20
Received by:	Kyle Surovy	FedEx Office	2/1/19	10:23A
Relinquished by:				
Received by:	Nhan Phan	FCBI	2/1/19	1105

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

902014

SAMPLE CHAIN OF CUSTODY

ME 02/01/19

VS4

Page # 2 of 2

Report To Dave Heffner

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone _____ Email dheffner, bgreer

SAMPLERS (*signature*) Brian Green

PROJECT NAME: Morell's / Walker Chevy

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☐ RUSH _____
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-27-55.5	11 A-D	2/1/19	0040	S	4												Please HOLD
B-27-60.5	12 V	2/1/19	0110	S	4												↓
													Samples received at 4 °C				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: David Heffner	David Heffner	Aspect	2/1/19	8:20
Received by:				
Relinquished by:				
Received by:	Nhan Phan	FCBI	2/1/19	1105

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
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fbi@isomedia.com
www.friedmanandbruya.com

February 12, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on February 6, 2019 from the Morell's 080190, F&BI 902073 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0212R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 6, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 902073 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
902073 -01	B-31-5.5
902073 -02	B-31-10.5
902073 -03	B-31-15.5
902073 -04	B-31-20.5
902073 -05	B-31-25.5
902073 -06	B-31-30.5
902073 -07	B-31-35.5
902073 -08	B-31-40.5
902073 -09	B-31-45.5
902073 -10	B-31-50.5
902073 -11	B-31-55.5
902073 -12	B-31-60.5

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-31-15.5	Client:	Aspect Consulting, LLC
Date Received:	02/06/19	Project:	Morell's 080190, F&BI 902073
Date Extracted:	02/07/19	Lab ID:	902073-03
Date Analyzed:	02/07/19	Data File:	020725.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-31-40.5	Client:	Aspect Consulting, LLC
Date Received:	02/06/19	Project:	Morell's 080190, F&BI 902073
Date Extracted:	02/07/19	Lab ID:	902073-08
Date Analyzed:	02/07/19	Data File:	020726.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-31-55.5	Client:	Aspect Consulting, LLC
Date Received:	02/06/19	Project:	Morell's 080190, F&BI 902073
Date Extracted:	02/07/19	Lab ID:	902073-11
Date Analyzed:	02/07/19	Data File:	020727.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.058
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-31-60.5	Client:	Aspect Consulting, LLC
Date Received:	02/06/19	Project:	Morell's 080190, F&BI 902073
Date Extracted:	02/07/19	Lab ID:	902073-12
Date Analyzed:	02/07/19	Data File:	020728.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	97	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.058
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 902073
Date Extracted:	02/07/19	Lab ID:	09-0271 mb
Date Analyzed:	02/07/19	Data File:	020711.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 02/12/19
Date Received: 02/06/19
Project: Morell's 080190, F&BI 902073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 902082-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	35	33	10-56	6
Chloromethane	mg/kg (ppm)	2.5	<0.5	58	58	10-90	0
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	63	62	10-91	2
Bromomethane	mg/kg (ppm)	2.5	<0.5	74	73	10-110	1
Chloroethane	mg/kg (ppm)	2.5	<0.5	68	70	10-101	3
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	67	68	10-95	1
Acetone	mg/kg (ppm)	12.5	<0.5	98	99	11-141	1
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	76	76	22-107	0
Hexane	mg/kg (ppm)	2.5	<0.25	62	63	10-95	2
Methylene chloride	mg/kg (ppm)	2.5	<0.5	83	86	14-128	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	85	87	17-134	2
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	83	85	13-112	2
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	85	88	23-115	3
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	90	92	18-117	2
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	85	89	25-120	5
Chloroform	mg/kg (ppm)	2.5	<0.05	85	86	29-117	1
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	92	90	20-133	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	90	92	22-124	2
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	91	93	27-112	2
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	83	85	26-107	2
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	88	90	28-126	2
Benzene	mg/kg (ppm)	2.5	<0.03	86	87	26-114	1
Trichloroethene	mg/kg (ppm)	2.5	<0.02	87	87	30-112	0
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	92	92	31-119	0
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	94	95	31-131	1
Dibromomethane	mg/kg (ppm)	2.5	<0.05	89	89	27-124	0
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	99	98	16-147	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	95	96	28-137	1
Toluene	mg/kg (ppm)	2.5	<0.05	87	89	34-112	2
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	94	95	30-136	1
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	94	94	32-126	0
2-Hexanone	mg/kg (ppm)	12.5	<0.5	98	97	17-147	1
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	92	91	29-125	1
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	87	89	25-114	2
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	98	99	32-143	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	101	100	32-126	1
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	86	87	37-113	1
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	89	90	34-115	1
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	102	103	35-126	1
m,p-Xylene	mg/kg (ppm)	5	<0.1	88	90	25-125	2
o-Xylene	mg/kg (ppm)	2.5	<0.05	88	90	27-126	2
Styrene	mg/kg (ppm)	2.5	<0.05	91	94	39-121	3
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	90	92	34-123	2
Bromoform	mg/kg (ppm)	2.5	<0.05	97	100	18-155	3
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	90	90	31-120	0
Bromobenzene	mg/kg (ppm)	2.5	<0.05	90	92	40-115	2
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	91	94	24-130	3
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	94	96	27-148	2
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	93	92	33-123	1
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	91	92	39-110	1
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	91	91	39-111	0
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	91	93	36-116	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	90	93	35-116	3
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	91	93	33-118	2
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	90	92	32-119	2
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	89	90	38-111	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	86	87	39-109	1
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	90	91	40-111	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	97	95	47-127	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	84	87	31-121	4
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	86	90	24-128	5
Naphthalene	mg/kg (ppm)	2.5	<0.05	87	88	24-139	1
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	85	88	35-117	3

Date of Report: 02/12/19
Date Received: 02/06/19
Project: Morell's 080190, F&BI 902073

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	62	10-76
Chloromethane	mg/kg (ppm)	2.5	80	34-98
Vinyl chloride	mg/kg (ppm)	2.5	90	42-107
Bromomethane	mg/kg (ppm)	2.5	102	46-113
Chloroethane	mg/kg (ppm)	2.5	96	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	98	53-112
Acetone	mg/kg (ppm)	12.5	97	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	99	65-110
Hexane	mg/kg (ppm)	2.5	87	55-107
Methylene chloride	mg/kg (ppm)	2.5	115	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	96	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	101	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	99	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	118	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	99	73-110
Chloroform	mg/kg (ppm)	2.5	97	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	86	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	97	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	107	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	95	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	107	67-123
Benzene	mg/kg (ppm)	2.5	94	72-106
Trichloroethene	mg/kg (ppm)	2.5	94	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	96	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	102	75-126
Dibromomethane	mg/kg (ppm)	2.5	92	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	97	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	71-138
Toluene	mg/kg (ppm)	2.5	97	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	97	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	95	77-116
2-Hexanone	mg/kg (ppm)	12.5	87	70-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	90	75-115
Tetrachloroethene	mg/kg (ppm)	2.5	96	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	107	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	100	77-117
Chlorobenzene	mg/kg (ppm)	2.5	91	76-109
Ethylbenzene	mg/kg (ppm)	2.5	96	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	119	76-125
m,p-Xylene	mg/kg (ppm)	5	97	77-115
o-Xylene	mg/kg (ppm)	2.5	99	76-115
Styrene	mg/kg (ppm)	2.5	97	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	103	76-120
Bromoform	mg/kg (ppm)	2.5	106	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	99	77-115
Bromobenzene	mg/kg (ppm)	2.5	97	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	105	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	104	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	96	74-116
2-Chlorotoluene	mg/kg (ppm)	2.5	101	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	96	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	105	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	103	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	105	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	104	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	95	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	92	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	100	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	106	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	100	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	105	74-130
Naphthalene	mg/kg (ppm)	2.5	100	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	102	75-117

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

902073

SAMPLE CHAIN OF CUSTODY

ME 02-06-19 Page # 1 of 2 DW

Report To Dave Heffner | Breeyn Greer

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone 2068385831 Email dheffner@aspectconsulting.com bgreer@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME: Morell's

PO #: 090190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4 day
- Rush charges authorized by: DAH

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
B-31-5.5	01 A-D	2/5/19	0900	S	4												
B-31-10.5	02		0930														
B-31-15.5	03		0940							X							
B-31-20.5	04		1000														
B-31-25.5	05		1015														
B-31-30.5	06		1030														
B-31-35.5	07		1045														
B-31-40.5	08		1100							X							
B-31-45.5	09		1115														
B-31-50.5	10	↓	1130	↓	↓												

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Peabody	A. Consu	1.6.19	9:42
Received by:	DAVID NEWKED	FED EX	1/6/19	9:47
Relinquished by:	Liz Webber-Bruya	F?B	2/6/19	1100
Received by:		Samples received at 2 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SAMPLE CHAIN OF CUSTODY

902073

02-06-19

Page # 2 of 2

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Report To Dave Heffner / Breeyn Greer

Company Aspect

Address

City, State, ZIP

Phone 2068385831 Email dheffner, bgreer

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME Morell's

PO # 080190

REMARKS

INVOICE TO AP

TURNAROUND TIME

☐ Standard Turnaround

☒ RUSH 4 day

Rush charges authorized by: DAH

SAMPLE DISPOSAL

☒ Dispose after 30 days

☐ Archive Samples

☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-31-55.5	11 A-D	2/5/19	1145	S	4					X							
B-31-60.5	12 I	2/5/19	1200	S	4					X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Peabody	Aspect C	1.6.19	945
Received by:	DAVID NEGARD	FEDEX	1/6/19	9:47
Relinquished by:	Liz Webber Bruya	FTBI	2/6/19	1100
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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Arina Podnozova, B.S.
Eric Young, B.S.

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www.friedmanandbruya.com

February 14, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on February 7, 2019 from the Morrells 080190, F&BI 902103 project. There are 10 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect, Breeyn Greer
ASP0214R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 7, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morrells 080190, F&BI 902103 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
902103 -01	B-23-5.5
902103 -02	B-23-10.5
902103 -03	B-23-20.5
902103 -04	B-23-25.5
902103 -05	B-23-30.5
902103 -06	B-23-35.5
902103 -07	B-23-55.5

Methylene chloride was detected in the 8260C analysis of samples B-23-10.5, B-23-20.5, and B-23-55.5. The data were flagged as due to laboratory contamination.

The 8260C matrix spike and matrix spike duplicate failed the relative percent difference for several compounds. The laboratory control sample passed the acceptance criteria, therefore the results were likely due to matrix effect.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-23-5.5	Client:	Aspect Consulting, LLC
Date Received:	02/07/19	Project:	Morrells 080190, F&BI 902103
Date Extracted:	02/08/19	Lab ID:	902103-01
Date Analyzed:	02/11/19	Data File:	021150.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	0.14
Benzene	<0.03	sec-Butylbenzene	0.059
Trichloroethene	<0.02	p-Isopropyltoluene	0.058
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-23-10.5	Client:	Aspect Consulting, LLC
Date Received:	02/07/19	Project:	Morrells 080190, F&BI 902103
Date Extracted:	02/08/19	Lab ID:	902103-02
Date Analyzed:	02/11/19	Data File:	021153.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.40
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	1.4 lc	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.19	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.18	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-23-20.5	Client:	Aspect Consulting, LLC
Date Received:	02/07/19	Project:	Morrells 080190, F&BI 902103
Date Extracted:	02/08/19	Lab ID:	902103-03
Date Analyzed:	02/11/19	Data File:	021148.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.045
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	0.50 lc	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-23-25.5	Client:	Aspect Consulting, LLC
Date Received:	02/07/19	Project:	Morrells 080190, F&BI 902103
Date Extracted:	02/08/19	Lab ID:	902103-04
Date Analyzed:	02/12/19	Data File:	021154.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	2.3
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	0.11
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	0.064
Trichloroethene	<0.02	p-Isopropyltoluene	0.094
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-23-55.5	Client:	Aspect Consulting, LLC
Date Received:	02/07/19	Project:	Morrells 080190, F&BI 902103
Date Extracted:	02/08/19	Lab ID:	902103-07
Date Analyzed:	02/11/19	Data File:	021149.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.095
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	0.83 lc	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morrells 080190, F&BI 902103
Date Extracted:	02/08/19	Lab ID:	09-0272 mb
Date Analyzed:	02/08/19	Data File:	020810.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	50	150
Toluene-d8	98	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 02/14/19
Date Received: 02/07/19
Project: Morrells 080190, F&BI 902103

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 902035-36 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	28	26	10-56	7
Chloromethane	mg/kg (ppm)	2.5	<0.5	39	48	10-90	21 vo
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	40	49	10-91	20
Bromomethane	mg/kg (ppm)	2.5	<0.5	50	65	10-110	26 vo
Chloroethane	mg/kg (ppm)	2.5	<0.5	48	60	10-101	22 vo
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	44	53	10-95	19
Acetone	mg/kg (ppm)	12.5	0.51	75	95	11-141	24 vo
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	51	63	22-107	21 vo
Hexane	mg/kg (ppm)	2.5	<0.25	36	42	10-95	15
Methylene chloride	mg/kg (ppm)	2.5	<0.5	70	84	14-128	18
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	71	88	17-134	21 vo
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	56	73	13-112	26 vo
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	64	82	23-115	25 vo
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	70	90	18-117	25 vo
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	64	82	25-120	25 vo
Chloroform	mg/kg (ppm)	2.5	<0.05	65	84	29-117	26 vo
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	72	92	20-133	24 vo
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	69	88	22-124	24 vo
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	68	86	27-112	23 vo
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	60	76	26-107	24 vo
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	65	82	28-126	23 vo
Benzene	mg/kg (ppm)	2.5	<0.03	63	80	26-114	24 vo
Trichloroethene	mg/kg (ppm)	2.5	<0.02	61	79	30-112	26 vo
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	70	89	31-119	24 vo
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	71	93	31-131	27 vo
Dibromomethane	mg/kg (ppm)	2.5	<0.05	65	84	27-124	26 vo
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	80	104	16-147	26 vo
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	71	92	28-137	26 vo
Toluene	mg/kg (ppm)	2.5	<0.05	65	83	34-112	24 vo
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	71	92	30-136	26 vo
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	71	94	32-126	28 vo
2-Hexanone	mg/kg (ppm)	12.5	<0.5	78	102	17-147	27 vo
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	70	91	29-125	26 vo
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	61	80	25-114	27 vo
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	75	98	32-143	27 vo
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	74	95	32-126	25 vo
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	64	81	37-113	23 vo
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	68	86	34-115	23 vo
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	80	102	35-126	24 vo
m,p-Xylene	mg/kg (ppm)	5	<0.1	66	85	25-125	25 vo
o-Xylene	mg/kg (ppm)	2.5	<0.05	67	86	27-126	25 vo
Styrene	mg/kg (ppm)	2.5	<0.05	67	88	39-121	27 vo
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	71	89	34-123	22 vo
Bromoform	mg/kg (ppm)	2.5	<0.05	74	97	18-155	27 vo
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	68	86	31-120	23 vo
Bromobenzene	mg/kg (ppm)	2.5	<0.05	66	85	40-115	25 vo
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	71	89	24-130	22 vo
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	80	100	27-148	22 vo
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	75	94	33-123	22 vo
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	69	87	39-110	23 vo
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	67	86	39-111	25 vo
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	72	90	36-116	22 vo
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	68	87	35-116	25 vo
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	72	90	33-118	22 vo
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	70	88	32-119	23 vo
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	64	81	38-111	23 vo
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	62	78	39-109	23 vo
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	66	84	40-111	24 vo
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	73	94	47-127	25 vo
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	57	73	31-121	25 vo
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	70	87	24-128	22 vo
Naphthalene	mg/kg (ppm)	2.5	<0.05	60	77	24-139	25 vo
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	59	75	35-117	24 vo

Date of Report: 02/14/19
Date Received: 02/07/19
Project: Morrells 080190, F&BI 902103

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	58	10-76
Chloromethane	mg/kg (ppm)	2.5	77	34-98
Vinyl chloride	mg/kg (ppm)	2.5	87	42-107
Bromomethane	mg/kg (ppm)	2.5	97	46-113
Chloroethane	mg/kg (ppm)	2.5	91	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	95	53-112
Acetone	mg/kg (ppm)	12.5	105	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	96	65-110
Hexane	mg/kg (ppm)	2.5	92	55-107
Methylene chloride	mg/kg (ppm)	2.5	108	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	97	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	101	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	102	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	114	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	101	73-110
Chloroform	mg/kg (ppm)	2.5	98	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	95	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	102	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	108	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	97	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	106	67-123
Benzene	mg/kg (ppm)	2.5	97	72-106
Trichloroethene	mg/kg (ppm)	2.5	96	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	100	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	103	75-126
Dibromomethane	mg/kg (ppm)	2.5	96	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	102	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	102	71-138
Toluene	mg/kg (ppm)	2.5	97	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	103	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	100	77-116
2-Hexanone	mg/kg (ppm)	12.5	98	70-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	96	75-115
Tetrachloroethene	mg/kg (ppm)	2.5	96	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	109	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	105	77-117
Chlorobenzene	mg/kg (ppm)	2.5	93	76-109
Ethylbenzene	mg/kg (ppm)	2.5	98	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	116	76-125
m,p-Xylene	mg/kg (ppm)	5	97	77-115
o-Xylene	mg/kg (ppm)	2.5	100	76-115
Styrene	mg/kg (ppm)	2.5	101	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	103	76-120
Bromoform	mg/kg (ppm)	2.5	107	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	99	77-115
Bromobenzene	mg/kg (ppm)	2.5	99	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	103	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	106	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	98	74-116
2-Chlorotoluene	mg/kg (ppm)	2.5	102	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	99	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	102	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	104	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	102	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	98	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	94	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	100	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	108	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	97	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	103	74-130
Naphthalene	mg/kg (ppm)	2.5	99	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	99	75-117

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

902103

SAMPLE CHAIN OF CUSTODY ME 02-07-19

Page # 1 of 1

Report To Dave Heffner

Company Aspect

Address dheffner@aspectconsulting.com bgreen@aspectconsulting.com

City, State, ZIP

Phone 6122327343 Email

SAMPLERS (*signature*) M/C Matthew VanderAhe

PROJECT NAME Morrells

PO # 080190

REMARKS

INVOICE TO AP

TURNAROUND TIME

☐ Standard Turnaround

☒ RUSH 4 day Turnaround

Rush charges authorized by: DAH

SAMPLE DISPOSAL

☒ Dispose after 30 days

☐ Archive Samples

☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-23-5.5	01A-D	2/6/19	0945	Soil	4					✓							
B-23-10.5	02	"	10:10							✓							
B-23-20.5	03	"	10:10							✓							
B-23-25.5	04	"	10:55							✓							
B-23-30.5	05	"	11:15														Hold
B-23-35.5	06	"	11:25														Hold
B-23-55.5	07	"	12:30							✓							

Samples received at ~1 °C

Samples received at ___ °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Green	Breeyn Green	Aspect	2/7/19	0800
Received by:	DAVID NICACIO	FED EX	2/7/19	10:40
Relinquished by:				
Received by:	DO VO	FEBI	2-7-19	11:30

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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Arina Podnozova, B.S.
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www.friedmanandbruya.com

February 14, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on February 8, 2019 from the Morell's 080190, F&BI 902125 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0214R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 8, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 902125 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
902125 -01	B-30-5.5
902125 -02	B-30-10.5
902125 -03	B-30-20.5
902125 -04	B-30-25.5
902125 -05	B-30-30.5
902125 -06	B-30-35.5
902125 -07	B-30-50.5
902125 -08	B-30-60.5

Methylene chloride was detected in the 8260C method blank. The data were flagged as due to laboratory contamination.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-30-10.5	Client:	Aspect Consulting, LLC
Date Received:	02/08/19	Project:	Morell's 080190, F&BI 902125
Date Extracted:	02/11/19	Lab ID:	902125-02
Date Analyzed:	02/11/19	Data File:	021141.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.084
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.021	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-30-35.5	Client:	Aspect Consulting, LLC
Date Received:	02/08/19	Project:	Morell's 080190, F&BI 902125
Date Extracted:	02/11/19	Lab ID:	902125-06
Date Analyzed:	02/11/19	Data File:	021142.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.10
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-30-60.5	Client:	Aspect Consulting, LLC
Date Received:	02/08/19	Project:	Morell's 080190, F&BI 902125
Date Extracted:	02/11/19	Lab ID:	902125-08
Date Analyzed:	02/11/19	Data File:	021143.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.026
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 902125
Date Extracted:	02/11/19	Lab ID:	09-0274 mb
Date Analyzed:	02/11/19	Data File:	021128.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	102	50	150
Toluene-d8	99	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	0.90 lc	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 02/14/19
Date Received: 02/08/19
Project: Morell's 080190, F&BI 902125

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 902114-21 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	31	26	10-56	18
Chloromethane	mg/kg (ppm)	2.5	<0.5	57	52	10-90	9
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	60	56	10-91	7
Bromomethane	mg/kg (ppm)	2.5	<0.5	70	65	10-110	7
Chloroethane	mg/kg (ppm)	2.5	<0.5	69	64	10-101	8
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	66	61	10-95	8
Acetone	mg/kg (ppm)	12.5	<0.5	97	98	11-141	1
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	78	74	22-107	5
Hexane	mg/kg (ppm)	2.5	<0.25	58	54	10-95	7
Methylene chloride	mg/kg (ppm)	2.5	<0.5	113	132 vo	14-128	16
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	88	84	17-134	5
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	84	80	13-112	5
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	88	84	23-115	5
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	84	81	18-117	4
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	88	85	25-120	3
Chloroform	mg/kg (ppm)	2.5	<0.05	88	84	29-117	5
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	91	89	20-133	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	90	87	22-124	3
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	92	89	27-112	3
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	85	80	26-107	6
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	90	86	28-126	5
Benzene	mg/kg (ppm)	2.5	<0.03	87	84	26-114	4
Trichloroethene	mg/kg (ppm)	2.5	<0.02	90	86	30-112	5
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	94	90	31-119	4
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	96	92	31-131	4
Dibromomethane	mg/kg (ppm)	2.5	<0.05	91	88	27-124	3
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	103	99	16-147	4
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	97	93	28-137	4
Toluene	mg/kg (ppm)	2.5	<0.05	90	86	34-112	5
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	95	92	30-136	3
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	96	93	32-126	3
2-Hexanone	mg/kg (ppm)	12.5	<0.5	100	95	17-147	5
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	93	89	29-125	4
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	91	85	25-114	7
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	102	97	32-143	5
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	103	99	32-126	4
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	89	86	37-113	3
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	92	88	34-115	4
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	105	102	35-126	3
m,p-Xylene	mg/kg (ppm)	5	<0.1	91	87	25-125	4
o-Xylene	mg/kg (ppm)	2.5	<0.05	92	88	27-126	4
Styrene	mg/kg (ppm)	2.5	<0.05	96	92	39-121	4
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	94	90	34-123	4
Bromoform	mg/kg (ppm)	2.5	<0.05	101	98	18-155	3
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	92	88	31-120	4
Bromobenzene	mg/kg (ppm)	2.5	<0.05	95	90	40-115	5
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	95	91	24-130	4
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	98	95	27-148	3
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	95	93	33-123	2
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	94	89	39-110	5
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	93	89	39-111	4
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	95	90	36-116	5
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	93	89	35-116	4
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	95	89	33-118	7
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	94	90	32-119	4
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	93	88	38-111	6
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	89	85	39-109	5
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	93	88	40-111	6
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	99	96	47-127	3
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	89	86	31-121	3
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	91	86	24-128	6
Naphthalene	mg/kg (ppm)	2.5	<0.05	92	88	24-139	4
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	90	86	35-117	5

Date of Report: 02/14/19
Date Received: 02/08/19
Project: Morell's 080190, F&BI 902125

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	57	10-76
Chloromethane	mg/kg (ppm)	2.5	74	34-98
Vinyl chloride	mg/kg (ppm)	2.5	84	42-107
Bromomethane	mg/kg (ppm)	2.5	90	46-113
Chloroethane	mg/kg (ppm)	2.5	86	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	90	53-112
Acetone	mg/kg (ppm)	12.5	102	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	95	65-110
Hexane	mg/kg (ppm)	2.5	84	55-107
Methylene chloride	mg/kg (ppm)	2.5	119	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	94	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	97	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	97	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	95	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	98	73-110
Chloroform	mg/kg (ppm)	2.5	95	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	96	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	100	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	104	72-116
1,1-Dichloropropene	mg/kg(ppm)	2.5	96	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	101	67-123
Benzene	mg/kg (ppm)	2.5	96	72-106
Trichloroethene	mg/kg (ppm)	2.5	95	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	101	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	104	75-126
Dibromomethane	mg/kg (ppm)	2.5	99	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	108	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	104	71-138
Toluene	mg/kg (ppm)	2.5	97	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	102	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	102	77-116
2-Hexanone	mg/kg (ppm)	12.5	105	70-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	99	75-115
Tetrachloroethene	mg/kg (ppm)	2.5	97	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	109	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	110	77-117
Chlorobenzene	mg/kg (ppm)	2.5	95	76-109
Ethylbenzene	mg/kg (ppm)	2.5	97	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	113	76-125
m,p-Xylene	mg/kg (ppm)	5	98	77-115
o-Xylene	mg/kg (ppm)	2.5	97	76-115
Styrene	mg/kg (ppm)	2.5	102	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	99	76-120
Bromoform	mg/kg (ppm)	2.5	108	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	98	77-115
Bromobenzene	mg/kg (ppm)	2.5	101	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	101	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	99	74-116
2-Chlorotoluene	mg/kg (ppm)	2.5	100	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	99	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	100	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	100	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	100	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	99	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	98	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	94	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	99	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	104	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	95	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	97	74-130
Naphthalene	mg/kg (ppm)	2.5	97	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	96	75-117

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

902125

ME 02-08-19

Page # 1 of 1 VS2

Report To Dave Heffner | Breeyn Greer

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone 2068385831 Email heffner@aspectconsulting.com
bgreer@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME Morell's

PO # 090190

REMARKS

INVOICE TO AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 4 day
- Rush charges authorized by: DAH

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
B-30-5.5	01A-D	2/7/19	1000	S	4												Hold
B-30-10.5	02		1010							X							
B-30-20.5	03		1030														Hold
B-30-25.5	04		1040														↓
B-30-30.5	05		1100														
B-30-35.5	06		1115	↓						X							
~~B-30-40.5~~			~~1125~~	~~BG~~													Hold
~~B-30-45.5~~			~~1135~~	~~BG~~													↓
B-30-50.5	07A-D		1150	S													↓
B-30-60.5	08	↓	1300	S	↓					X							

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Greer	Breeyn Greer	Aspect	2/8/19	0800
Received by:	WILSON TANGYAS	FEDEX	2-8-19	09:25am
Relinquished by: Liz D. Webber-Bruya	Liz Webber-Bruya	FEDEX	2/8/19	945
Received by:				

Samples received at 3 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
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fbi@isomedia.com
www.friedmanandbruya.com

March 7, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on February 26, 2019 from the Morell's 080190, F&BI 902383 project. There are 11 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect, Breeyn Greer
ASP0307R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 26, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 902383 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
902383 -01	MW-31-022519
902383 -02	MW-30-022519
902383 -03	A-5-7.0
902383 -04	A-5-15.0
902383 -05	A-5-22.5
902383 -06	A-5-32.0
902383 -07	A-5-43.0

Samples MW-31-022519 and MW-30-022519 were sent to Fremont Analytical for nitrate, nitrite, chloride, sulfate, and TOC analyses. The report is enclosed.

All quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-31-022519	Client:	Aspect Consulting, LLC
Date Received:	02/26/19	Project:	Morell's 080190, F&BI 902383
Date Extracted:	03/01/19	Lab ID:	902383-01 x10
Date Analyzed:	03/04/19	Data File:	902383-01 x10.067
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	8,680

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-30-022519	Client:	Aspect Consulting, LLC
Date Received:	02/26/19	Project:	Morell's 080190, F&BI 902383
Date Extracted:	03/01/19	Lab ID:	902383-02
Date Analyzed:	03/01/19	Data File:	902383-02.078
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	4,530

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 902383
Date Extracted:	03/01/19	Lab ID:	I9-136 mb
Date Analyzed:	03/04/19	Data File:	I9-136 mb.061
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-5-22.5	Client:	Aspect Consulting, LLC
Date Received:	02/26/19	Project:	Morell's 080190, F&BI 902383
Date Extracted:	02/28/19	Lab ID:	902383-05
Date Analyzed:	02/28/19	Data File:	022819.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	96	50	150
4-Bromofluorobenzene	96	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	0.069
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-5-32.0	Client:	Aspect Consulting, LLC
Date Received:	02/26/19	Project:	Morell's 080190, F&BI 902383
Date Extracted:	02/28/19	Lab ID:	902383-06
Date Analyzed:	02/28/19	Data File:	022818.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 902383
Date Extracted:	02/28/19	Lab ID:	09-0308 mb
Date Analyzed:	02/28/19	Data File:	022808.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 03/07/19
Date Received: 02/26/19
Project: Morell's 080190, F&BI 902383

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 902435-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Iron	ug/L (ppb)	100	49,200	0 b	0 b	75-125	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Iron	ug/L (ppb)	100	101	80-120

Date of Report: 03/07/19
Date Received: 02/26/19
Project: Morell's 080190, F&BI 902383

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 902419-09 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	13	14	10-56	7
Chloromethane	mg/kg (ppm)	2.5	<0.5	29	31	10-90	7
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	27	28	10-91	4
Bromomethane	mg/kg (ppm)	2.5	<0.5	34	37	10-110	8
Chloroethane	mg/kg (ppm)	2.5	<0.5	31	35	10-101	12
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	27	30	10-95	11
Acetone	mg/kg (ppm)	12.5	<0.5	62	69	11-141	11
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	36	39	22-107	8
Hexane	mg/kg (ppm)	2.5	<0.25	29	32	10-95	10
Methylene chloride	mg/kg (ppm)	2.5	<0.5	50	54	14-128	8
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	55	59	17-134	7
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	43	47	13-112	9
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	48	52	23-115	8
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	45	48	18-117	6
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	52	55	25-120	6
Chloroform	mg/kg (ppm)	2.5	<0.05	53	57	29-117	7
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	83	88	20-133	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	63	67	22-124	6
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	47	51	27-112	8
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	51	55	26-107	8
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	45	48	28-126	6
Benzene	mg/kg (ppm)	2.5	<0.03	54	57	26-114	5
Trichloroethene	mg/kg (ppm)	2.5	<0.02	56	62	30-112	10
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	64	68	31-119	6
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	62	67	31-131	8
Dibromomethane	mg/kg (ppm)	2.5	<0.05	60	64	27-124	6
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	79	85	16-147	7
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	72	77	28-137	7
Toluene	mg/kg (ppm)	2.5	1.1	61 b	62 b	34-112	2 b
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	71	76	30-136	7
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	69	73	32-126	6
2-Hexanone	mg/kg (ppm)	12.5	<0.5	84	91	17-147	8
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	69	72	29-125	4
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	54	60	25-114	11
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	64	68	32-143	6
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	71	74	32-126	4
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	61	66	37-113	8
Ethylbenzene	mg/kg (ppm)	2.5	3.3	70 b	53 b	34-115	28 b
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	60	65	35-126	8
m,p-Xylene	mg/kg (ppm)	5	17	87 b	32 b	25-125	92 b
o-Xylene	mg/kg (ppm)	2.5	4.3	57 b	36 b	27-126	45 b
Styrene	mg/kg (ppm)	2.5	<0.05	68	72	39-121	6
Isopropylbenzene	mg/kg (ppm)	2.5	0.11	59	62	34-123	5
Bromoform	mg/kg (ppm)	2.5	<0.05	70	74	18-155	6
n-Propylbenzene	mg/kg (ppm)	2.5	0.31	60	64	31-120	6
Bromobenzene	mg/kg (ppm)	2.5	<0.05	63	70	40-115	11
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	0.55	61 b	64 b	24-130	5 b
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	71	77	27-148	8
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	66	72	33-123	9
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	68	71	39-110	4
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	65	70	39-111	7
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	62	69	36-116	11
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	2.1	64 b	58 b	35-116	10 b
sec-Butylbenzene	mg/kg (ppm)	2.5	0.080	62	67	33-118	8
p-Isopropyltoluene	mg/kg (ppm)	2.5	0.092	61	65	32-119	6
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	0.036	61	66	38-111	8
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	0.29	62	64	39-109	3
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	1.7	66 b	54 b	40-111	20 b
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	61	66	47-127	8
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	54	59	31-121	9
Hexachlorobutadiene	mg/kg(ppm)	2.5	<0.25	55	60	24-128	9
Naphthalene	mg/kg (ppm)	2.5	0.14	57	61	24-139	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	54	58	35-117	7

Date of Report: 03/07/19
Date Received: 02/26/19
Project: Morell's 080190, F&BI 902383

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	37	10-76
Chloromethane	mg/kg (ppm)	2.5	58	34-98
Vinyl chloride	mg/kg (ppm)	2.5	62	42-107
Bromomethane	mg/kg (ppm)	2.5	67	46-113
Chloroethane	mg/kg (ppm)	2.5	65	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	71	53-112
Acetone	mg/kg (ppm)	12.5	90	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	77	65-110
Hexane	mg/kg (ppm)	2.5	86	55-107
Methylene chloride	mg/kg (ppm)	2.5	81	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	84	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	82	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	88	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	76	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	87	73-110
Chloroform	mg/kg (ppm)	2.5	88	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	119	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	103	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	86	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	98	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	87	67-123
Benzene	mg/kg (ppm)	2.5	94	72-106
Trichloroethene	mg/kg (ppm)	2.5	104	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	107	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	105	75-126
Dibromomethane	mg/kg (ppm)	2.5	99	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	113	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	118	71-138
Toluene	mg/kg (ppm)	2.5	100	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	118	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	114	77-116
2-Hexanone	mg/kg (ppm)	12.5	122	70-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	114	75-115
Tetrachloroethene	mg/kg (ppm)	2.5	102	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	109	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	117	77-117
Chlorobenzene	mg/kg (ppm)	2.5	103	76-109
Ethylbenzene	mg/kg (ppm)	2.5	100	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	99	76-125
m,p-Xylene	mg/kg (ppm)	5	101	77-115
o-Xylene	mg/kg (ppm)	2.5	95	76-115
Styrene	mg/kg (ppm)	2.5	107	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	97	76-120
Bromoform	mg/kg (ppm)	2.5	115	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	102	77-115
Bromobenzene	mg/kg (ppm)	2.5	110	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	100	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	110	74-116
2-Chlorotoluene	mg/kg (ppm)	2.5	103	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	107	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	107	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	105	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	102	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	104	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	101	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	99	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	96	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	90	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	89	74-130
Naphthalene	mg/kg (ppm)	2.5	93	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	88	75-117

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

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Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 902383
Work Order Number: 1902335

March 06, 2019

Attention Michael Erdahl:

Fremont Analytical, Inc. received 2 sample(s) on 2/27/2019 for the analyses presented in the following report.

Ion Chromatography by EPA Method 300.0
Total Organic Carbon by SM 5310C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *03/06/2019*

CLIENT: Friedman & Bruya
Project: 902383
Work Order: 1902335

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1902335-001	MW-31-022519	02/25/2019 7:30 PM	02/27/2019 9:59 AM
1902335-002	MW-30-022519	02/25/2019 11:00 PM	02/27/2019 9:59 AM

Case Narrative

WO#: **1902335**
Date: **3/6/2019**

CLIENT: Friedman & Bruya
Project: 902383

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1902335**
Date Reported: **3/6/2019**

Client: Friedman & Bruya
Project: 902383
Lab ID: 1902335-001
Client Sample ID: **MW-31-022519**

Collection Date: 2/25/2019 7:30:00 PM
Matrix: Water

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 23656		Analyst: GM
Chloride	23.7	1.00	D	mg/L	10	3/4/2019 5:23:00 PM
Nitrite (as N)	0.166	0.200	JD	mg/L	2	2/27/2019 1:48:00 PM
Nitrate (as N)	1.09	0.200	D	mg/L	2	2/27/2019 1:48:00 PM
Sulfate	13.3	0.600	D	mg/L	2	2/27/2019 1:48:00 PM
NOTES: Diluted due to matrix.						
Total Organic Carbon by SM 5310C				Batch ID: R49834		Analyst: GM
Total Organic Carbon	0.723	0.500		mg/L	1	3/5/2019 6:47:00 PM

Analytical Report

Work Order: **1902335**
Date Reported: **3/6/2019**

Client: Friedman & Bruya
Collection Date: 2/25/2019 11:00:00 PM
Project: 902383
Lab ID: 1902335-002
Matrix: Water
Client Sample ID: **MW-30-022519**

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 23656		Analyst: GM
Chloride	10.1	1.00	D	mg/L	10	3/4/2019 5:46:00 PM
Nitrite (as N)	ND	0.200	D	mg/L	2	2/27/2019 2:11:00 PM
Nitrate (as N)	1.17	0.200	D	mg/L	2	2/27/2019 2:11:00 PM
Sulfate	24.2	0.600	D	mg/L	2	2/27/2019 2:11:00 PM
NOTES: Diluted due to matrix.						
Total Organic Carbon by SM 5310C				Batch ID: R49834		Analyst: GM
Total Organic Carbon	1.24	0.500		mg/L	1	3/5/2019 8:06:00 PM

Work Order: 1902335
CLIENT: Friedman & Bruya
Project: 902383

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID	**MB-23656**	SampType:	**MBLK**	Units:	**mg/L**	Prep Date:	**2/27/2019**	RunNo:	**49735**
Client ID:	**MBLKW**	Batch ID:	**23656**			Analysis Date:	**2/27/2019**	SeqNo:	**974986**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.100									
Nitrite (as N)	ND	0.100									
Nitrate (as N)	ND	0.100									
Sulfate	ND	0.300									

Sample ID	**LCS-23656**	SampType:	**LCS**	Units:	**mg/L**	Prep Date:	**2/27/2019**	RunNo:	**49735**
Client ID:	**LCSW**	Batch ID:	**23656**			Analysis Date:	**2/27/2019**	SeqNo:	**974987**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.742	0.100	0.7500	0	98.9	90	110				
Nitrite (as N)	0.732	0.100	0.7500	0	97.6	90	110				
Nitrate (as N)	0.747	0.100	0.7500	0	99.6	90	110				
Sulfate	3.66	0.300	3.750	0	97.5	90	110				

Sample ID	**1902336-001ADUP**	SampType:	**DUP**	Units:	**mg/L**	Prep Date:	**2/27/2019**	RunNo:	**49735**
Client ID:	**BATCH**	Batch ID:	**23656**			Analysis Date:	**2/27/2019**	SeqNo:	**974994**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3.15	0.100						3.112	1.09	20	E
Nitrite (as N)	ND	0.100						0		20	H
Nitrate (as N)	ND	0.100						0		20	H
Sulfate	9.41	0.300						9.360	0.533	20	

NOTES:
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID	**1902336-001AMS**	SampType:	**MS**	Units:	**mg/L**	Prep Date:	**2/27/2019**	RunNo:	**49735**
Client ID:	**BATCH**	Batch ID:	**23656**			Analysis Date:	**2/27/2019**	SeqNo:	**974995**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.03	0.100	0.7500	3.112	122	80	120				ES

Work Order: 1902335
CLIENT: Friedman & Bruya
Project: 902383

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID **1902336-001AMS** SampType: **MS** Units: **mg/L** Prep Date: **2/27/2019** RunNo: **49735**
Client ID: **BATCH** Batch ID: **23656** Analysis Date: **2/27/2019** SeqNo: **974995**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrite (as N)	0.682	0.100	0.7500	0	90.9	80	120				H
Nitrate (as N)	0.762	0.100	0.7500	0.05200	94.7	80	120				H
Sulfate	13.4	0.300	3.750	9.360	108	80	120				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range (Chloride).
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1902336-001AMSD** SampType: **MSD** Units: **mg/L** Prep Date: **2/27/2019** RunNo: **49735**
Client ID: **BATCH** Batch ID: **23656** Analysis Date: **2/27/2019** SeqNo: **974998**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	4.01	0.100	0.7500	3.112	120	80	120	4.029	0.498	20	E
Nitrite (as N)	0.534	0.100	0.7500	0	71.2	80	120	0.6820	24.3	20	RSH
Nitrate (as N)	0.753	0.100	0.7500	0.05200	93.5	80	120	0.7620	1.19	20	H
Sulfate	13.4	0.300	3.750	9.360	108	80	120	13.42	0.0298	20	

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range (Nitrite).
R - High RPD observed. The method is in control as indicated by the LCS.
E - Estimated value. The amount exceeds the linear working range of the instrument.

Work Order: 1902335
CLIENT: Friedman & Bruya
Project: 902383

QC SUMMARY REPORT

Total Organic Carbon by SM 5310C

Sample ID	**MB-49834**	SampType:	**MBLK**	Units:	**mg/L**	Prep Date:	**3/5/2019**	RunNo:	**49834**
Client ID:	**MBLKW**	Batch ID:	**R49834**			Analysis Date:	**3/5/2019**	SeqNo:	**977061**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	ND	0.500									

Sample ID	**LCS-49834**	SampType:	**LCS**	Units:	**mg/L**	Prep Date:	**3/5/2019**	RunNo:	**49834**
Client ID:	**LCSW**	Batch ID:	**R49834**			Analysis Date:	**3/5/2019**	SeqNo:	**977062**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	5.08	0.500	5.000	0	102	80	120				

Sample ID	**1902335-001BDUP**	SampType:	**DUP**	Units:	**mg/L**	Prep Date:	**3/5/2019**	RunNo:	**49834**
Client ID:	**MW-31-022519**	Batch ID:	**R49834**			Analysis Date:	**3/5/2019**	SeqNo:	**977064**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	0.733	0.500						0.7230	1.37	20	

Sample ID	**1902335-001BMS**	SampType:	**MS**	Units:	**mg/L**	Prep Date:	**3/5/2019**	RunNo:	**49834**
Client ID:	**MW-31-022519**	Batch ID:	**R49834**			Analysis Date:	**3/5/2019**	SeqNo:	**977065**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	5.96	0.500	5.000	0.7230	105	70	130				

Sample ID	**1902335-001BMSD**	SampType:	**MSD**	Units:	**mg/L**	Prep Date:	**3/5/2019**	RunNo:	**49834**
Client ID:	**MW-31-022519**	Batch ID:	**R49834**			Analysis Date:	**3/5/2019**	SeqNo:	**977066**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	5.77	0.500	5.000	0.7230	101	70	130	5.957	3.24	30	

Work Order: 1902335
CLIENT: Friedman & Bruya
Project: 902383

QC SUMMARY REPORT

Total Organic Carbon by SM 5310C

Sample ID **1903018-001ADUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **3/5/2019**		RunNo: **49834**		
Client ID: **BATCH**	Batch ID: **R49834**					Analysis Date: **3/5/2019**		SeqNo: **977076**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	4.79	0.500						5.022	4.77	20	

Sample ID **1903018-001AMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **3/5/2019**		RunNo: **49834**		
Client ID: **BATCH**	Batch ID: **R49834**					Analysis Date: **3/5/2019**		SeqNo: **977077**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	9.63	0.500	5.000	5.022	92.1	70	130				

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**1902335**
Logged by:	**Brianna Barnes**	Date Received:	**2/27/2019 9:59:00 AM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No ☐	Not Present	☐
2.	How was the sample delivered?	FedEx				

Log In

3.	Coolers are present?	Yes	☐	No ☑	NA	☐
	Sample received at appropriate temperature.					
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☑	Not Required	☐
6.	Was an attempt made to cool the samples?	Yes	☑	No ☐	NA	☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes	☑	No ☐	NA	☐
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☐	NA	☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No ☐	NA	☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	3.1

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

1902335

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
902383	B-152

REMARKS

Please Email Results

TURNAROUND TIME

☐ Standard (2 Weeks)

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	Nitrate	Nitrite	Chloride	Sulfate	TOC			Notes
MW-31-022519		2/25/19	1930	H_2O	2				x	x	x	x	x			
MW-30-022519		↓	2300	↓	2				x	x	x	x	x			

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	2/26/19	1504
Received by:		Casey O'Keefe	FAI	2/27/19	959
Relinquished by:					
Received by:					

902383

SAMPLE CHAIN OF CUSTODY ME 02-26-19

Page # 1 of 1

Report To Dave Heffner / Breyn Greer
Company Aspect Consulting
Address 710 2nd Ave Ste 550
City, State, ZIP Seattle WA 98104
Phone 2068385831 Email dheffner@aspectconsulting.com

SAMPLERS (signature) BreynGreer
PROJECT NAME: Morell's
PO #: 080190
REMARKS
INVOICE TO: AP

TURNAROUND TIME
☒ Standard Turnaround
RUSH
Rush charges authorized by: DATE

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Archive Samples
☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Nitrate/Nitrite Cl/Sulfate EPA 300.0	Total Fe EPA 6020	TOC SM 5310		Notes
MW-31-022519	01AC	2/25/19	1930	W	3								X	X	X		
MW-30-022519	02	2/25/19	2300	W	3								X	X	X		
A-5-7.0	03A-D	2/26/19	0115	S	4												Hold
A-5-15.0	04	2/26/19	0140	S	4												Hold
A-5-22.5	05	2/26/19	0215	S	4					X							
A-5-32.0	06	2/26/19	0245	S	4					X							
A-5-43.0	07	2/26/19	0315	S	4												Hold

ANALYSES REQUESTED

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: David Heffner	David Heffner	Aspect Consulting	2/26/19	9:45
Received by: Andre Abenoja	Andre Abenoja	Fedex SDC	2/26/19	1226
Relinquished by: Liz D. Webber-Bruya	Liz Webber-Bruya	F? B1	2/26/19	1355
Received by:		Samples received at 1 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 6, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on February 27, 2019 from the Morell's 080190, F&BI 902407 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0306R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on February 27, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 902407 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
902407 -01	A-8-8.0
902407 -02	A-8-14.0
902407 -03	A-8-34.0
902407 -04	A-8-47.0
902407 -05	A-8-56.0

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-8-14.0	Client:	Aspect Consulting, LLC
Date Received:	02/27/19	Project:	Morell's 080190, F&BI 902407
Date Extracted:	02/28/19	Lab ID:	902407-02
Date Analyzed:	02/28/19	Data File:	022831.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	104	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.089
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.084
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	0.27
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.34	1,3,5-Trimethylbenzene	1.0
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	0.91
Benzene	<0.03	sec-Butylbenzene	0.35
Trichloroethene	<0.02	p-Isopropyltoluene	0.57
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	0.10
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-8-34.0	Client:	Aspect Consulting, LLC
Date Received:	02/27/19	Project:	Morell's 080190, F&BI 902407
Date Extracted:	02/28/19	Lab ID:	902407-03
Date Analyzed:	02/28/19	Data File:	022832.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	103	55	145
4-Bromofluorobenzene	112	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	7.3
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.12
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	0.40
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	0.76
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	0.88
Benzene	<0.03	sec-Butylbenzene	1.2
Trichloroethene	0.15	p-Isopropyltoluene	0.55
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-8-47.0	Client:	Aspect Consulting, LLC
Date Received:	02/27/19	Project:	Morell's 080190, F&BI 902407
Date Extracted:	02/28/19	Lab ID:	902407-04
Date Analyzed:	02/28/19	Data File:	022817.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	101	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.047
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 902407
Date Extracted:	02/28/19	Lab ID:	09-0308 mb
Date Analyzed:	02/28/19	Data File:	022808.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	100	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 03/06/19
Date Received: 02/27/19
Project: Morell's 080190, F&BI 902407

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 902419-09 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	13	14	10-56	7
Chloromethane	mg/kg (ppm)	2.5	<0.5	29	31	10-90	7
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	27	28	10-91	4
Bromomethane	mg/kg (ppm)	2.5	<0.5	34	37	10-110	8
Chloroethane	mg/kg (ppm)	2.5	<0.5	31	35	10-101	12
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	27	30	10-95	11
Acetone	mg/kg (ppm)	12.5	<0.5	62	69	11-141	11
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	36	39	22-107	8
Hexane	mg/kg (ppm)	2.5	<0.25	29	32	10-95	10
Methylene chloride	mg/kg (ppm)	2.5	<0.5	50	54	14-128	8
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	55	59	17-134	7
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	43	47	13-112	9
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	48	52	23-115	8
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	45	48	18-117	6
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	52	55	25-120	6
Chloroform	mg/kg (ppm)	2.5	<0.05	53	57	29-117	7
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	83	88	20-133	6
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	63	67	22-124	6
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	47	51	27-112	8
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	51	55	26-107	8
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	45	48	28-126	6
Benzene	mg/kg (ppm)	2.5	<0.03	54	57	26-114	5
Trichloroethene	mg/kg (ppm)	2.5	<0.02	56	62	30-112	10
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	64	68	31-119	6
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	62	67	31-131	8
Dibromomethane	mg/kg (ppm)	2.5	<0.05	60	64	27-124	6
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	79	85	16-147	7
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	72	77	28-137	7
Toluene	mg/kg (ppm)	2.5	1.1	61 b	62 b	34-112	2 b
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	71	76	30-136	7
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	69	73	32-126	6
2-Hexanone	mg/kg (ppm)	12.5	<0.5	84	91	17-147	8
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	69	72	29-125	4
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	54	60	25-114	11
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	64	68	32-143	6
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	71	74	32-126	4
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	61	66	37-113	8
Ethylbenzene	mg/kg (ppm)	2.5	3.3	70 b	53 b	34-115	28 b
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	60	65	35-126	8
m,p-Xylene	mg/kg (ppm)	5	17	87 b	32 b	25-125	92 b
o-Xylene	mg/kg (ppm)	2.5	4.3	57 b	36 b	27-126	45 b
Styrene	mg/kg (ppm)	2.5	<0.05	68	72	39-121	6
Isopropylbenzene	mg/kg (ppm)	2.5	0.11	59	62	34-123	5
Bromoform	mg/kg (ppm)	2.5	<0.05	70	74	18-155	6
n-Propylbenzene	mg/kg (ppm)	2.5	0.31	60	64	31-120	6
Bromobenzene	mg/kg (ppm)	2.5	<0.05	63	70	40-115	11
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	0.55	61 b	64 b	24-130	5 b
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	71	77	27-148	8
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	66	72	33-123	9
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	68	71	39-110	4
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	65	70	39-111	7
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	62	69	36-116	11
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	2.1	64 b	58 b	35-116	10 b
sec-Butylbenzene	mg/kg (ppm)	2.5	0.080	62	67	33-118	8
p-Isopropyltoluene	mg/kg (ppm)	2.5	0.092	61	65	32-119	6
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	0.036	61	66	38-111	8
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	0.29	62	64	39-109	3
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	1.7	66 b	54 b	40-111	20 b
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	61	66	47-127	8
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	54	59	31-121	9
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	55	60	24-128	9
Naphthalene	mg/kg (ppm)	2.5	0.14	57	61	24-139	7
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	54	58	35-117	7

Date of Report: 03/06/19
Date Received: 02/27/19
Project: Morell's 080190, F&BI 902407

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	37	10-76
Chloromethane	mg/kg (ppm)	2.5	58	34-98
Vinyl chloride	mg/kg (ppm)	2.5	62	42-107
Bromomethane	mg/kg (ppm)	2.5	67	46-113
Chloroethane	mg/kg (ppm)	2.5	65	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	71	53-112
Acetone	mg/kg (ppm)	12.5	90	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	77	65-110
Hexane	mg/kg (ppm)	2.5	86	55-107
Methylene chloride	mg/kg (ppm)	2.5	81	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	84	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	82	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	88	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	76	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	87	73-110
Chloroform	mg/kg (ppm)	2.5	88	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	119	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	103	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	86	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	98	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	87	67-123
Benzene	mg/kg (ppm)	2.5	94	72-106
Trichloroethene	mg/kg (ppm)	2.5	104	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	107	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	105	75-126
Dibromomethane	mg/kg (ppm)	2.5	99	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	113	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	118	71-138
Toluene	mg/kg (ppm)	2.5	100	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	118	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	114	77-116
2-Hexanone	mg/kg (ppm)	12.5	122	70-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	114	75-115
Tetrachloroethene	mg/kg (ppm)	2.5	102	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	109	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	117	77-117
Chlorobenzene	mg/kg (ppm)	2.5	103	76-109
Ethylbenzene	mg/kg (ppm)	2.5	100	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	99	76-125
m,p-Xylene	mg/kg (ppm)	5	101	77-115
o-Xylene	mg/kg (ppm)	2.5	95	76-115
Styrene	mg/kg (ppm)	2.5	107	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	97	76-120
Bromoform	mg/kg (ppm)	2.5	115	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	102	77-115
Bromobenzene	mg/kg (ppm)	2.5	110	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	100	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	110	74-116
2-Chlorotoluene	mg/kg (ppm)	2.5	103	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	107	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	107	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	105	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	102	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	104	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	101	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	99	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	96	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	90	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	89	74-130
Naphthalene	mg/kg (ppm)	2.5	93	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	88	75-117

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

902407

SAMPLE CHAIN OF CUSTODY

ME 02-27-19

VS1

Report To Dave Heffner

Company Aspect Consulting

Address 710 2nd Ave Ste. 550

City, State, ZIP Seattle WA 98104

Phone 2068385031 Email dheffner@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Green

PROJECT NAME: Morell's

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
A-8-8.0	01A-D	2/26/19	2200	S	4												HOLD
A-8-14.0	02	2/26/19	2240	S	4					X							
A-8-34.0	03	2/27/19	0000	S	4					X							
A-8-47.0	04	2/27/19	0120	S	4					X							
A-8-56.0	05	2/27/19	0220	S	4												HOLD

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Green	Breeyn Greer	Aspect	2/27/19	0600
Received by:	DAVID NEGRETE	FED EX	2/27/19	9:32
Relinquished by: D. M. Bya	Liz Webber - Bruya	F?B1	2/27/19	1052
Received by:		Samples received at 2 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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March 11, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on February 28, 2019 from the Morell's 080190, F&BI 902435 project. There are 12 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0311R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on February 28, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 902435 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
902435 -01	MW-2-022719
902435 -02	MW-20-022819
902435 -03	A-6-13.0
902435 -04	A-6-21.0
902435 -05	A-6-36.0
902435 -06	A-6-57.5
902435 -07	A-6-65.0

Samples MW-31-022519 and MW-30-022519 were sent to Fremont Analytical for nitrate, nitrite, chloride, sulfate, and TOC analyses. The report is enclosed.

Several compounds in the 8260C matrix spike and laboratory control sample exceeded the acceptance criteria. The analyte was not detected in the samples, therefore the data were acceptable.

All other quality control requirements were acceptable.

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-2-022719	Client:	Aspect Consulting, LLC
Date Received:	02/28/19	Project:	Morell's 080190, F&BI 902435
Date Extracted:	03/01/19	Lab ID:	902435-01 x10
Date Analyzed:	03/04/19	Data File:	902435-01 x10.095
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	49,200

Analysis For Total Metals By EPA Method 6020B

Client ID:	MW-20-022819	Client:	Aspect Consulting, LLC
Date Received:	02/28/19	Project:	Morell's 080190, F&BI 902435
Date Extracted:	03/01/19	Lab ID:	902435-02 x10
Date Analyzed:	03/04/19	Data File:	902435-02 x10.098
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	71,000

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 902435
Date Extracted:	03/01/19	Lab ID:	I9-136 mb
Date Analyzed:	03/04/19	Data File:	I9-136 mb.061
Matrix:	Water	Instrument:	ICPMS2
Units:	ug/L (ppb)	Operator:	SP

Analyte:	Concentration ug/L (ppb)
Iron	<50

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-6-13.0	Client:	Aspect Consulting, LLC
Date Received:	02/28/19	Project:	Morell's 080190, F&BI 902435
Date Extracted:	03/01/19	Lab ID:	902435-03
Date Analyzed:	03/01/19	Data File:	030119.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.47
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-6-36.0	Client:	Aspect Consulting, LLC
Date Received:	02/28/19	Project:	Morell's 080190, F&BI 902435
Date Extracted:	03/01/19	Lab ID:	902435-05
Date Analyzed:	03/01/19	Data File:	030120.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	106	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-6-57.5	Client:	Aspect Consulting, LLC
Date Received:	02/28/19	Project:	Morell's 080190, F&BI 902435
Date Extracted:	03/01/19	Lab ID:	902435-06
Date Analyzed:	03/01/19	Data File:	030121.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	105	50	150
4-Bromofluorobenzene	104	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 902435
Date Extracted:	03/01/19	Lab ID:	09-0434 mb
Date Analyzed:	03/01/19	Data File:	030114.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	105	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 03/11/19
Date Received: 02/28/19
Project: Morell's 080190, F&BI 902435

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 902435-01 x10 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Iron	ug/L (ppb)	100	49,200	0 b	0 b	75-125	0 b

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Iron	ug/L (ppb)	100	101	80-120

Date of Report: 03/11/19
Date Received: 02/28/19
Project: Morell's 080190, F&BI 902435

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 902261-29 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	27	24	10-56	12
Chloromethane	mg/kg (ppm)	2.5	<0.5	58	50	10-90	15
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	59	51	10-91	15
Bromomethane	mg/kg (ppm)	2.5	<0.5	72	62	10-110	15
Chloroethane	mg/kg (ppm)	2.5	<0.5	71	59	10-101	18
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	69	60	10-95	14
Acetone	mg/kg (ppm)	12.5	<0.5	106	101	11-141	5
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	82	71	22-107	14
Hexane	mg/kg (ppm)	2.5	<0.25	81	78	10-95	4
Methylene chloride	mg/kg (ppm)	2.5	<0.5	97	81	14-128	18
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	101	88	17-134	14
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	92	80	13-112	14
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	97	85	23-115	13
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	98	81	18-117	19
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	101	88	25-120	14
Chloroform	mg/kg (ppm)	2.5	<0.05	102	89	29-117	14
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	122	132	20-133	8
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	108	102	22-124	6
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	99	87	27-112	13
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	104	96	26-107	8
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	99	87	28-126	13
Benzene	mg/kg (ppm)	2.5	<0.03	100	93	26-114	7
Trichloroethene	mg/kg (ppm)	2.5	<0.02	106	101	30-112	5
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	112	107	31-119	5
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	111	103	31-131	7
Dibromomethane	mg/kg (ppm)	2.5	<0.05	103	98	27-124	5
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	126	128	16-147	2
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	120	119	28-137	1
Toluene	mg/kg (ppm)	2.5	<0.05	105	97	34-112	8
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	120	121	30-136	1
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	116	113	32-126	3
2-Hexanone	mg/kg (ppm)	12.5	<0.5	123	137	17-147	11
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	111	112	29-125	1
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	108	100	25-114	8
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	115	109	32-143	5
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	113	115	32-126	2
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	109	103	37-113	6
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	107	99	34-115	8
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	118	103	35-126	14
m,p-Xylene	mg/kg (ppm)	5	<0.1	109	101	25-125	8
o-Xylene	mg/kg (ppm)	2.5	<0.05	108	97	27-126	11
Styrene	mg/kg (ppm)	2.5	<0.05	111	106	39-121	5
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	112	99	34-123	12
Bromoform	mg/kg (ppm)	2.5	<0.05	122	114	18-155	7
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	112	101	31-120	10
Bromobenzene	mg/kg (ppm)	2.5	<0.05	112	106	40-115	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	116	100	24-130	15
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	115	107	27-148	7
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	112	107	33-123	5
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	114 vo	101	39-110	12
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	114 vo	105	39-111	8
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	122 vo	107	36-116	13
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	115	101	35-116	13
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	122 vo	106	33-118	14
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	117	103	32-119	13
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	111	103	38-111	7
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	108	100	39-109	8
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	110	99	40-111	11
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	105	97	47-127	8
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	109	91	31-121	18
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	109	94	24-128	15
Naphthalene	mg/kg (ppm)	2.5	<0.05	111	95	24-139	16
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	108	90	35-117	18

Date of Report: 03/11/19
Date Received: 02/28/19
Project: Morell's 080190, F&BI 902435

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	63	10-76
Chloromethane	mg/kg (ppm)	2.5	82	34-98
Vinyl chloride	mg/kg (ppm)	2.5	87	42-107
Bromomethane	mg/kg (ppm)	2.5	94	46-113
Chloroethane	mg/kg (ppm)	2.5	90	47-115
Trichlorofluoromethane	mg/kg (ppm)	2.5	96	53-112
Acetone	mg/kg (ppm)	12.5	120	39-147
1,1-Dichloroethene	mg/kg (ppm)	2.5	99	65-110
Hexane	mg/kg (ppm)	2.5	113 vo	55-107
Methylene chloride	mg/kg (ppm)	2.5	104	50-127
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	103	72-122
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	103	71-113
1,1-Dichloroethane	mg/kg (ppm)	2.5	102	74-109
2,2-Dichloropropane	mg/kg (ppm)	2.5	115	64-151
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	105	73-110
Chloroform	mg/kg (ppm)	2.5	103	76-110
2-Butanone (MEK)	mg/kg (ppm)	12.5	118	60-121
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	103	73-111
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	106	72-116
1,1-Dichloropropene	mg/kg (ppm)	2.5	106	72-112
Carbon tetrachloride	mg/kg (ppm)	2.5	105	67-123
Benzene	mg/kg (ppm)	2.5	99	72-106
Trichloroethene	mg/kg (ppm)	2.5	100	72-107
1,2-Dichloropropane	mg/kg (ppm)	2.5	105	74-115
Bromodichloromethane	mg/kg (ppm)	2.5	103	75-126
Dibromomethane	mg/kg (ppm)	2.5	96	76-116
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	121	80-128
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	107	71-138
Toluene	mg/kg (ppm)	2.5	103	74-111
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	105	77-135
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	105	77-116
2-Hexanone	mg/kg (ppm)	12.5	116	70-129
1,3-Dichloropropane	mg/kg (ppm)	2.5	101	75-115
Tetrachloroethene	mg/kg (ppm)	2.5	108	73-111
Dibromochloromethane	mg/kg (ppm)	2.5	107	64-152
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	101	77-117
Chlorobenzene	mg/kg (ppm)	2.5	103	76-109
Ethylbenzene	mg/kg (ppm)	2.5	106	75-112
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	119	76-125
m,p-Xylene	mg/kg (ppm)	5	108	77-115
o-Xylene	mg/kg (ppm)	2.5	110	76-115
Styrene	mg/kg (ppm)	2.5	107	76-119
Isopropylbenzene	mg/kg (ppm)	2.5	113	76-120
Bromoform	mg/kg (ppm)	2.5	113	50-174
n-Propylbenzene	mg/kg (ppm)	2.5	108	77-115
Bromobenzene	mg/kg (ppm)	2.5	106	76-112
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	113	77-121
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	112	74-121
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	104	74-116
2-Chlorotoluene	mg/kg (ppm)	2.5	111	75-113
4-Chlorotoluene	mg/kg (ppm)	2.5	107	77-115
tert-Butylbenzene	mg/kg (ppm)	2.5	118	77-123
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	113	77-119
sec-Butylbenzene	mg/kg (ppm)	2.5	118	78-120
p-Isopropyltoluene	mg/kg (ppm)	2.5	116	77-120
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	106	76-112
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	102	74-109
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	107	75-114
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	109	68-122
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	108	75-122
Hexachlorobutadiene	mg/kg (ppm)	2.5	110	74-130
Naphthalene	mg/kg (ppm)	2.5	114	73-122
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	109	75-117

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

3600 Fremont Ave. N.
Seattle, WA 98103
T: (206) 352-3790
F: (206) 352-7178
info@fremontanalytical.com

Friedman & Bruya
Michael Erdahl
3012 16th Ave. W.
Seattle, WA 98119

RE: 902435
Work Order Number: 1902363

March 07, 2019

Attention Michael Erdahl:

Fremont Analytical, Inc. received 2 sample(s) on 2/28/2019 for the analyses presented in the following report.

Ion Chromatography by EPA Method 300.0
Total Organic Carbon by SM 5310C

This report consists of the following:

- Case Narrative
- Analytical Results
- Applicable Quality Control Summary Reports
- Chain of Custody

All analyses were performed consistent with the Quality Assurance program of Fremont Analytical, Inc. Please contact the laboratory if you should have any questions about the results.

Thank you for using Fremont Analytical.

Sincerely,

Mike Ridgeway
Laboratory Director

Date: *03/07/2019*

CLIENT: Friedman & Bruya
Project: 902435
Work Order: 1902363

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date/Time Collected	Date/Time Received
1902363-001	MW-2-022719	02/27/2019 8:45 PM	02/28/2019 3:26 PM
1902363-002	MW-20-022818	02/28/2019 2:45 AM	02/28/2019 3:26 PM

Case Narrative

WO#: **1902363**

Date: **3/7/2019**

CLIENT: Friedman & Bruya
Project: 902435

I. SAMPLE RECEIPT:
Samples receipt information is recorded on the attached Sample Receipt Checklist.

II. GENERAL REPORTING COMMENTS:
Results are reported on a wet weight basis unless dry-weight correction is denoted in the units field on the analytical report ("mg/kg-dry" or "ug/kg-dry").

Matrix Spike (MS) and MS Duplicate (MSD) samples are tested from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data only for those samples which are spiked by the laboratory. The sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group. The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The LCS and the MB are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process.

III. ANALYSES AND EXCEPTIONS:
Exceptions associated with this report will be footnoted in the analytical results page(s) or the quality control summary page(s) and/or noted below.

Qualifiers:

* - Flagged value is not within established control limits
B - Analyte detected in the associated Method Blank
D - Dilution was required
E - Value above quantitation range
H - Holding times for preparation or analysis exceeded
I - Analyte with an internal standard that does not meet established acceptance criteria
J - Analyte detected below Reporting Limit
N - Tentatively Identified Compound (TIC)
Q - Analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20% Drift or minimum RRF)
S - Spike recovery outside accepted recovery limits
ND - Not detected at the Reporting Limit
R - High relative percent difference observed

Acronyms:

%Rec - Percent Recovery
CCB - Continued Calibration Blank
CCV - Continued Calibration Verification
DF - Dilution Factor
HEM - Hexane Extractable Material
ICV - Initial Calibration Verification
LCS/LCSD - Laboratory Control Sample / Laboratory Control Sample Duplicate
MB or MBLANK - Method Blank
MDL - Method Detection Limit
MS/MSD - Matrix Spike / Matrix Spike Duplicate
PDS - Post Digestion Spike
Ref Val - Reference Value
RL - Reporting Limit
RPD - Relative Percent Difference
SD - Serial Dilution
SGT - Silica Gel Treatment
SPK - Spike
Surr - Surrogate

Analytical Report

Work Order: **1902363**
Date Reported: **3/7/2019**

Client: Friedman & Bruya
Project: 902435
Lab ID: 1902363-001
Client Sample ID: **MW-2-022719**

Collection Date: 2/27/2019 8:45:00 PM
Matrix: Water

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 1		Analyst: GM
Chloride	50.6	5.00	D	mg/L	50	3/4/2019 4:37:00 PM
Nitrite (as N)	0.675	0.100		mg/L	1	2/28/2019 6:23:00 PM
Nitrate (as N)	ND	0.100		mg/L	1	2/28/2019 6:23:00 PM
Sulfate	1.22	1.20	D	mg/L	4	3/4/2019 6:56:00 PM
Total Organic Carbon by SM 5310C				Batch ID: 1		Analyst: GM
Total Organic Carbon	209	10.0	D	mg/L	20	3/6/2019 10:49:00 AM

Analytical Report

Work Order: **1902363**
Date Reported: **3/7/2019**

Client: Friedman & Bruya
Collection Date: 2/28/2019 2:45:00 AM
Project: 902435
Lab ID: 1902363-002
Matrix: Water
Client Sample ID: **MW-20-022818**

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
Ion Chromatography by EPA Method 300.0				Batch ID: 1		Analyst: GM
Chloride	31.4	2.00	D	mg/L	20	3/4/2019 5:00:00 PM
Nitrite (as N)	0.128	0.100		mg/L	1	2/28/2019 9:29:00 PM
Nitrate (as N)	ND	0.100		mg/L	1	2/28/2019 9:29:00 PM
Sulfate	ND	0.300		mg/L	1	2/28/2019 9:29:00 PM
Total Organic Carbon by SM 5310C				Batch ID: 1		Analyst: GM
Total Organic Carbon	179	10.0	D	mg/L	20	3/6/2019 12:37:00 PM

Work Order: 1902363
CLIENT: Friedman & Bruya
Project: 902435

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID	**MB-23680**	SampType:	**MBLK**	Units:	**mg/L**	Prep Date:	**2/28/2019**	RunNo:	**49776**
Client ID:	**MBLKW**	Batch ID:	**23680**			Analysis Date:	**2/28/2019**	SeqNo:	**975827**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.100									
Nitrite (as N)	ND	0.100									
Nitrate (as N)	ND	0.100									
Sulfate	ND	0.300									

Sample ID	**LCS-23680**	SampType:	**LCS**	Units:	**mg/L**	Prep Date:	**2/28/2019**	RunNo:	**49776**
Client ID:	**LCSW**	Batch ID:	**23680**			Analysis Date:	**2/28/2019**	SeqNo:	**975828**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.760	0.100	0.7500	0	101	90	110				
Nitrite (as N)	0.735	0.100	0.7500	0	98.0	90	110				
Nitrate (as N)	0.754	0.100	0.7500	0	101	90	110				
Sulfate	3.60	0.300	3.750	0	95.9	90	110				

Sample ID	**1902354-001BDUP**	SampType:	**DUP**	Units:	**mg/L**	Prep Date:	**2/28/2019**	RunNo:	**49776**
Client ID:	**BATCH**	Batch ID:	**23680**			Analysis Date:	**2/28/2019**	SeqNo:	**975832**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	32.3	0.100						32.31	0.111	20	QE
Nitrite (as N)	ND	0.100						0		20	
Nitrate (as N)	ND	0.100						0		20	
Sulfate	6.21	0.300						6.252	0.706	20	

NOTES:
Q - Indicates an analyte with a continuing calibration that does not meet established acceptance criteria
E - Estimated value. The amount exceeds the linear working range of the instrument.

Work Order: 1902363
CLIENT: Friedman & Bruya
Project: 902435

QC SUMMARY REPORT

Ion Chromatography by EPA Method 300.0

Sample ID **1902354-001BMS** SampType: **MS** Units: **mg/L** Prep Date: **2/28/2019** RunNo: **49776**
Client ID: **BATCH** Batch ID: **23680** Analysis Date: **2/28/2019** SeqNo: **975833**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	33.1	0.100	0.7500	32.31	111	80	120				E
Nitrite (as N)	0.571	0.100	0.7500	0	76.1	80	120				S
Nitrate (as N)	0.739	0.100	0.7500	0.05300	91.5	80	120				
Sulfate	9.98	0.300	3.750	6.252	99.5	80	120				

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range.
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **1902354-001BMSD** SampType: **MSD** Units: **mg/L** Prep Date: **2/28/2019** RunNo: **49776**
Client ID: **BATCH** Batch ID: **23680** Analysis Date: **2/28/2019** SeqNo: **975834**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	33.2	0.100	0.7500	32.31	122	80	120	33.15	0.238	20	ES
Nitrite (as N)	0.605	0.100	0.7500	0	80.7	80	120	0.5710	5.78	20	
Nitrate (as N)	0.749	0.100	0.7500	0.05300	92.8	80	120	0.7390	1.34	20	
Sulfate	10.0	0.300	3.750	6.252	101	80	120	9.982	0.520	20	

NOTES:
S - Outlying spike recovery(ies) observed. A duplicate analysis was performed and recovered within range (Chloride).
E - Estimated value. The amount exceeds the linear working range of the instrument.

Sample ID **CCV-23680F** SampType: **CCV** Units: **mg/L** Prep Date: **3/4/2019** RunNo: **49776**
Client ID: **CCV** Batch ID: **23680** Analysis Date: **3/4/2019** SeqNo: **976381**

Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.746	0.100	0.7500	0	99.5	90	110				
Sulfate	3.79	0.300	3.750	0	101	90	110				

Work Order: 1902363
CLIENT: Friedman & Bruya
Project: 902435

QC SUMMARY REPORT

Total Organic Carbon by SM 5310C

Sample ID	MB-49834	SampType:	MBLK		Units:	mg/L	Prep Date:	3/5/2019		RunNo:	49834	
Client ID:	MBLKW	Batch ID:	R49834				Analysis Date:	3/5/2019		SeqNo:	977061	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Organic Carbon	ND	0.500										

Sample ID	LCS-49834	SampType:	LCS		Units:	mg/L	Prep Date:	3/5/2019		RunNo:	49834	
Client ID:	LCSW	Batch ID:	R49834				Analysis Date:	3/5/2019		SeqNo:	977062	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Organic Carbon	5.08	0.500	5.000	0	102	80	120					

Sample ID	1902335-001BDUP	SampType:	DUP		Units:	mg/L	Prep Date:	3/5/2019		RunNo:	49834	
Client ID:	BATCH	Batch ID:	R49834				Analysis Date:	3/5/2019		SeqNo:	977064	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Organic Carbon	0.733	0.500						0.7230	1.37	20		

Sample ID	1902335-001BMS	SampType:	MS		Units:	mg/L	Prep Date:	3/5/2019		RunNo:	49834	
Client ID:	BATCH	Batch ID:	R49834				Analysis Date:	3/5/2019		SeqNo:	977065	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Organic Carbon	5.96	0.500	5.000	0.7230	105	70	130					

Sample ID	1902335-001BMSD	SampType:	MSD		Units:	mg/L	Prep Date:	3/5/2019		RunNo:	49834	
Client ID:	BATCH	Batch ID:	R49834				Analysis Date:	3/5/2019		SeqNo:	977066	
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Total Organic Carbon	5.77	0.500	5.000	0.7230	101	70	130	5.957	3.24	30		

Work Order: 1902363
CLIENT: Friedman & Bruya
Project: 902435

QC SUMMARY REPORT

Total Organic Carbon by SM 5310C

Sample ID **1903018-001ADUP**	SampType: **DUP**			Units: **mg/L**		Prep Date: **3/5/2019**		RunNo: **49834**		
Client ID: **BATCH**	Batch ID: **R49834**					Analysis Date: **3/5/2019**		SeqNo: **977076**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	4.79	0.500						5.022	4.77	20	

Sample ID **1903018-001AMS**	SampType: **MS**			Units: **mg/L**		Prep Date: **3/5/2019**		RunNo: **49834**		
Client ID: **BATCH**	Batch ID: **R49834**					Analysis Date: **3/5/2019**		SeqNo: **977077**		
Analyte	Result	RL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Organic Carbon	9.63	0.500	5.000	5.022	92.1	70	130				

Sample Log-In Check List

Client Name:	**FB**	Work Order Number:	**1902363**
Logged by:	**Brianna Barnes**	Date Received:	**2/28/2019 3:26:00 PM**

Chain of Custody

1.	Is Chain of Custody complete?	Yes	☑	No ☐	Not Present	☐
2.	How was the sample delivered?	FedEx				

Log In

3.	Coolers are present?	Yes	☐	No ☑	NA	☐
	Sample received at appropriate temperature.					
4.	Shipping container/cooler in good condition?	Yes	☑	No ☐		
5.	Custody Seals present on shipping container/cooler? (Refer to comments for Custody Seals not intact)	Yes	☐	No ☑	Not Required	☐
6.	Was an attempt made to cool the samples?	Yes	☑	No ☐	NA	☐
7.	Were all items received at a temperature of >0°C to 10.0°C*	Yes	☑	No ☐	NA	☐
8.	Sample(s) in proper container(s)?	Yes	☑	No ☐		
9.	Sufficient sample volume for indicated test(s)?	Yes	☑	No ☐		
10.	Are samples properly preserved?	Yes	☑	No ☐		
11.	Was preservative added to bottles?	Yes	☐	No ☑	NA	☐
12.	Is there headspace in the VOA vials?	Yes	☐	No ☐	NA	☑
13.	Did all samples containers arrive in good condition(unbroken)?	Yes	☑	No ☐		
14.	Does paperwork match bottle labels?	Yes	☑	No ☐		
15.	Are matrices correctly identified on Chain of Custody?	Yes	☑	No ☐		
16.	Is it clear what analyses were requested?	Yes	☑	No ☐		
17.	Were all holding times able to be met?	Yes	☑	No ☐		

Special Handling (if applicable)

18.	Was client notified of all discrepancies with this order?	Yes	☐	No ☐	NA	☑

Person Notified:		Date	
By Whom:		Via:	☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding:			
Client Instructions:			

19. Additional remarks:

Item Information

Item #	Temp ºC
Sample	3.2

* Note: DoD/ELAP and TNI require items to be received at 4°C +/- 2°C

SUBCONTRACT SAMPLE CHAIN OF CUSTODY

1902363

Page # 1 of 1

Send Report To Michael Erdahl

Company Friedman and Bruya, Inc.

Address 3012 16th Ave W

City, State, ZIP Seattle, WA 98119

Phone # (206) 285-8282 Fax # (206) 283-5044

SUBCONTRACTER Fremont

PROJECT NAME/NO.	PO #
902435	B-159

REMARKS

Please Email Results

Aspect EDD

TURNAROUND TIME

☑ Standard (2 Weeks)

☐ RUSH

Rush charges authorized by:

SAMPLE DISPOSAL

☐ Dispose after 30 days

☐ Return samples

☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Matrix	# of jars	ANALYSES REQUESTED: Dioxins/Furans	EPH	VPH	TOC	Nitrate	Nitrite	Chloride	Sulfate			Notes
MW-2 -022719		2/27	2045	water					X	X	X	X	X			
MW-20 -022818		2/28	0245	↓					X	X	X	X	X			

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Michael Erdahl	Friedman & Bruya	2/28/19	1430
Received by:		Carter Johnson	FAI	2/28/19	1526
Relinquished by:					
Received by:					

902435

SAMPLE CHAIN OF CUSTODY

ME 2/28/19

Page # 1 of 1 AIZ IVS3

Report To Dave Heffner

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98108

Phone 2068385831 Email dheffner@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME: Morell's

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- [x] Standard Turnaround
- [ ] RUSH
- Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Dispose after 30 days
- [ ] Archive Samples
- [ ] Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM	Nitrate/Nitrite Cl⁻/Sulfate EPA 300	Total Fe EPA 6020	TOC Sm 5310		Notes
MW-2-022719	01AC	2/27	2045	W	3								X	X	X		
MW-20-022819	02AC	2/28	0245	W	3								X	X	X		
A-6-13.0 ME 2/28/19	03AD	2/27	2220	S	4					X							
A-6-21.0	04AD	2/27	2300	S	4												Hold
A-6-36.0	05AD	2/27	2330	S	4					X							
A-6-57.5	06AD	2/28	0040	S	4					X							
A-6-65.0	07AD	2/28	0110	S	4												Hold

Samples received at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Greer	Breeyn Greer	Aspect	2/28/19	0500
Received by: Liz D. W-B	Liz Webber-Bruya	~~Aspect~~ FTBI	2/28/19	1320
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
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fbi@isomedia.com
www.friedmanandbruya.com

March 18, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on March 1, 2019 from the Morell's 080190, F&BI 903011 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0318R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 1, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 903011 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
903011 -01	A-7-9.5
903011 -02	A-7-16.0
903011 -03	A-7-22.0
903011 -04	A-7-37.0
903011 -05	A-7-41.0

The 8260C calibration standard failed the acceptance criteria for 2-hexanone in the dilution of sample A-7-22.0. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-7-9.5	Client:	Aspect Consulting, LLC
Date Received:	03/01/19	Project:	Morell's 080190, F&BI 903011
Date Extracted:	03/01/19	Lab ID:	903011-01
Date Analyzed:	03/01/19	Data File:	030138a.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	98	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	1.4
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	0.16	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	0.16	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-7-22.0	Client:	Aspect Consulting, LLC
Date Received:	03/01/19	Project:	Morell's 080190, F&BI 903011
Date Extracted:	03/01/19	Lab ID:	903011-03
Date Analyzed:	03/01/19	Data File:	030139.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	113	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	110 ve
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	0.43
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	1.6
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	3.0
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	0.094
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	5.4
Benzene	<0.03	sec-Butylbenzene	1.6
Trichloroethene	1.5	p-Isopropyltoluene	0.12
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	0.44
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-7-22.0	Client:	Aspect Consulting, LLC
Date Received:	03/01/19	Project:	Morell's 080190, F&BI 903011
Date Extracted:	03/08/19	Lab ID:	903011-03 1/10
Date Analyzed:	03/08/19	Data File:	030823.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	101	50	150
4-Bromofluorobenzene	102	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<5	1,3-Dichloropropane	<0.5
Chloromethane	<5	Tetrachloroethene	120
Vinyl chloride	<0.5	Dibromochloromethane	<0.5
Bromomethane	<5	1,2-Dibromoethane (EDB)	<0.5
Chloroethane	<5	Chlorobenzene	<0.5
Trichlorofluoromethane	<5	Ethylbenzene	<0.5
Acetone	<5	1,1,1,2-Tetrachloroethane	<0.5
1,1-Dichloroethene	<0.5	m,p-Xylene	<1
Hexane	<2.5	o-Xylene	<0.5
Methylene chloride	<5	Styrene	<0.5
Methyl t-butyl ether (MTBE)	<0.5	Isopropylbenzene	<0.5
trans-1,2-Dichloroethene	<0.5	Bromoform	<0.5
1,1-Dichloroethane	<0.5	n-Propylbenzene	1.5
2,2-Dichloropropane	<0.5	Bromobenzene	<0.5
cis-1,2-Dichloroethene	<0.5	1,3,5-Trimethylbenzene	2.8
Chloroform	<0.5	1,1,2,2-Tetrachloroethane	<0.5
2-Butanone (MEK)	<5	1,2,3-Trichloropropane	<0.5
1,2-Dichloroethane (EDC)	<0.5	2-Chlorotoluene	<0.5
1,1,1-Trichloroethane	<0.5	4-Chlorotoluene	<0.5
1,1-Dichloropropene	<0.5	tert-Butylbenzene	<0.5
Carbon tetrachloride	<0.5	1,2,4-Trimethylbenzene	5.3
Benzene	<0.3	sec-Butylbenzene	1.6
Trichloroethene	1.4	p-Isopropyltoluene	<0.5
1,2-Dichloropropane	<0.5	1,3-Dichlorobenzene	<0.5
Bromodichloromethane	<0.5	1,4-Dichlorobenzene	<0.5
Dibromomethane	<0.5	1,2-Dichlorobenzene	<0.5
4-Methyl-2-pentanone	<5	1,2-Dibromo-3-chloropropane	<5
cis-1,3-Dichloropropene	<0.5	1,2,4-Trichlorobenzene	<2.5
Toluene	<0.5	Hexachlorobutadiene	<2.5
trans-1,3-Dichloropropene	<0.5	Naphthalene	<0.5
1,1,2-Trichloroethane	<0.5	1,2,3-Trichlorobenzene	<2.5
2-Hexanone	<5 ca		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	A-7-37.0	Client:	Aspect Consulting, LLC
Date Received:	03/01/19	Project:	Morell's 080190, F&BI 903011
Date Extracted:	03/01/19	Lab ID:	903011-04
Date Analyzed:	03/01/19	Data File:	030137.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	105	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 903011
Date Extracted:	03/01/19	Lab ID:	09-0438 mb
Date Analyzed:	03/01/19	Data File:	030132.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	97	60	133

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 03/18/19
Date Received: 03/01/19
Project: Morell's 080190, F&BI 903011

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 902238-06 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	29	10-142
Chloromethane	mg/kg (ppm)	2.5	<0.5	52	10-126
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	57	10-138
Bromomethane	mg/kg (ppm)	2.5	<0.5	61	10-163
Chloroethane	mg/kg (ppm)	2.5	<0.5	65	10-176
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	68	10-176
Acetone	mg/kg (ppm)	12.5	<0.5	84	10-163
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	70	10-160
Hexane	mg/kg (ppm)	2.5	<0.25	78	10-137
Methylene chloride	mg/kg (ppm)	2.5	<0.5	88	10-156
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	90	21-145
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	85	14-137
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	88	19-140
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	93	10-158
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	91	25-135
Chloroform	mg/kg (ppm)	2.5	<0.05	90	21-145
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	91	19-147
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	96	12-160
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	90	10-156
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	86	17-140
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	91	9-164
Benzene	mg/kg (ppm)	2.5	<0.03	86	29-129
Trichloroethene	mg/kg (ppm)	2.5	<0.02	85	21-139
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	88	30-135
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	91	23-155
Dibromomethane	mg/kg (ppm)	2.5	<0.05	91	23-145
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	100	24-155
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	91	28-144
Toluene	mg/kg (ppm)	2.5	<0.05	95	35-130
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	92	26-149
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	95	10-205
2-Hexanone	mg/kg (ppm)	12.5	<0.5	95	15-166
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	95	31-137
Tetrachloroethene	mg/kg (ppm)	2.5	0.049	96	20-133
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	95	28-150
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	92	28-142
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	91	32-129
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	92	32-137
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	97	31-143
m,p-Xylene	mg/kg (ppm)	5	<0.1	95	34-136
o-Xylene	mg/kg (ppm)	2.5	<0.05	94	33-134
Styrene	mg/kg (ppm)	2.5	<0.05	95	35-137
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	95	31-142
Bromoform	mg/kg (ppm)	2.5	<0.05	98	21-156
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	94	23-146
Bromobenzene	mg/kg (ppm)	2.5	<0.05	94	34-130
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	92	18-149
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	92	28-140
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	91	25-144
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	92	31-134
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	90	31-136
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	92	30-137
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	91	10-182
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	91	23-145
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	93	21-149
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	93	30-131
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	92	29-129
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	93	31-132
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	88	11-161
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	92	22-142
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	101	10-142
Naphthalene	mg/kg (ppm)	2.5	<0.05	87	14-157
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	91	20-144

Date of Report: 03/18/19
Date Received: 03/01/19
Project: Morell's 080190, F&BI 903011

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	50	56	10-146	11
Chloromethane	mg/kg (ppm)	2.5	66	73	27-133	10
Vinyl chloride	mg/kg (ppm)	2.5	77	84	22-139	9
Bromomethane	mg/kg (ppm)	2.5	71	78	38-114	9
Chloroethane	mg/kg (ppm)	2.5	80	90	10-163	12
Trichlorofluoromethane	mg/kg (ppm)	2.5	86	95	10-196	10
Acetone	mg/kg (ppm)	12.5	84	102	52-141	19
1,1-Dichloroethene	mg/kg (ppm)	2.5	83	91	47-128	9
Hexane	mg/kg (ppm)	2.5	104	114	43-142	9
Methylene chloride	mg/kg (ppm)	2.5	95	107	42-132	12
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	98	108	60-123	10
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	96	105	67-127	9
1,1-Dichloroethane	mg/kg (ppm)	2.5	97	108	68-115	11
2,2-Dichloropropane	mg/kg (ppm)	2.5	92	103	52-170	11
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	92	101	72-113	9
Chloroform	mg/kg (ppm)	2.5	89	102	66-120	14
2-Butanone (MEK)	mg/kg (ppm)	12.5	93	104	57-123	11
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	92	101	56-135	9
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	89	98	62-131	10
1,1-Dichloropropene	mg/kg (ppm)	2.5	88	98	69-128	11
Carbon tetrachloride	mg/kg (ppm)	2.5	90	100	60-139	11
Benzene	mg/kg (ppm)	2.5	89	98	68-114	10
Trichloroethene	mg/kg (ppm)	2.5	85	95	64-117	11
1,2-Dichloropropane	mg/kg (ppm)	2.5	90	101	72-127	12
Bromodichloromethane	mg/kg (ppm)	2.5	90	98	72-130	9
Dibromomethane	mg/kg (ppm)	2.5	89	98	70-120	10
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	102	117	45-145	14
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	96	103	75-136	7
Toluene	mg/kg (ppm)	2.5	88	98	66-126	11
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	84	93	72-132	10
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	90	102	75-113	12
2-Hexanone	mg/kg (ppm)	12.5	92	102	33-152	10
1,3-Dichloropropane	mg/kg (ppm)	2.5	90	99	72-130	10
Tetrachloroethene	mg/kg (ppm)	2.5	94	101	72-114	7
Dibromochloromethane	mg/kg (ppm)	2.5	92	101	74-125	9
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	93	101	74-132	8
Chlorobenzene	mg/kg (ppm)	2.5	95	100	76-111	5
Ethylbenzene	mg/kg (ppm)	2.5	96	101	64-123	5
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	98	108	69-135	10
m,p-Xylene	mg/kg (ppm)	5	100	103	78-122	3
o-Xylene	mg/kg (ppm)	2.5	97	107	77-124	10
Styrene	mg/kg (ppm)	2.5	99	109	74-126	10
Isopropylbenzene	mg/kg (ppm)	2.5	100	108	76-127	8
Bromoform	mg/kg (ppm)	2.5	101	110	56-132	9
n-Propylbenzene	mg/kg (ppm)	2.5	96	103	74-124	7
Bromobenzene	mg/kg (ppm)	2.5	97	108	72-122	11
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	94	103	76-126	9
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	94	104	56-143	10
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	91	104	61-137	13
2-Chlorotoluene	mg/kg (ppm)	2.5	95	102	74-121	7
4-Chlorotoluene	mg/kg (ppm)	2.5	92	100	75-122	8
tert-Butylbenzene	mg/kg (ppm)	2.5	97	100	73-130	3
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	94	100	76-125	6
sec-Butylbenzene	mg/kg (ppm)	2.5	94	100	71-130	6
p-Isopropyltoluene	mg/kg (ppm)	2.5	98	101	70-132	3
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	96	101	75-121	5
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	96	100	74-117	4
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	97	101	76-121	4
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	98	105	58-138	7
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	92	106	64-135	14
Hexachlorobutadiene	mg/kg (ppm)	2.5	96	109	50-153	13
Naphthalene	mg/kg (ppm)	2.5	85	102	63-140	18
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	88	105	63-138	18

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

903011

SAMPLE CHAIN OF CUSTODY

ME 03/01/19

VS-D2

Page # 1 of 1

Report To Dave Heffner

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone 2068385831 Email dheffner@aspectconsulting.com

SAMPLERS (signature) Breeyn Greer

PROJECT NAME: Morell's

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ~~Standard Turnaround~~
- ~~RUSH~~ 3-day per DH 3/1/19
- Rush charges authorized by: MO

SAMPLE DISPOSAL
- Dispose after 30 days
- Archive Samples
- Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
A-7-9.5	01 AED	2/28/19	2300	S	4					X							~~Hold~~ DAH 3/1/19
A-7-16.0	02	2/28/19	2330	S	4												Hold
A-7-22.0	03	3/1/19	0030	S	4					X							
A-7-37.0	04	3/1/19	0100	S	4					X							
A-7-41.0	05	3/1/19	0130	S	4												Hold
	AEN																

Samples ~~received~~ at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Greer	Breeyn Greer	Aspect	3/1/19	0630
Received by:	DAVID VSKALD	FED EX	3/1/19	10:38
Relinquished by:				
Received by:	NWAN PHAM	FEBI	3/1/19	1208

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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March 18, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on March 12, 2019 from the Morell's 080190, F&BI 903193 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect
ASP0318R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 12, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 903193 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
903193 -01	B-29-15.0
903193 -02	B-29-40.0
903193 -03	B-29-50.0
903193 -04	B-29-55.0

The 8260C calibration standard failed the acceptance criteria for acetone and 2-hexanone. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-29-15.0	Client:	Aspect Consulting, LLC
Date Received:	03/12/19	Project:	Morell's 080190, F&BI 903193
Date Extracted:	03/13/19	Lab ID:	903193-01
Date Analyzed:	03/14/19	Data File:	031351.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	102	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.043
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5 ca		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-29-50.0	Client:	Aspect Consulting, LLC
Date Received:	03/12/19	Project:	Morell's 080190, F&BI 903193
Date Extracted:	03/13/19	Lab ID:	903193-03
Date Analyzed:	03/14/19	Data File:	031352.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	100	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.043
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5 ca	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5 ca		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 903193
Date Extracted:	03/13/19	Lab ID:	09-564 mb
Date Analyzed:	03/13/19	Data File:	031311.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	VM

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	100	55	145
4-Bromofluorobenzene	101	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 03/18/19
Date Received: 03/12/19
Project: Morell's 080190, F&BI 903193

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 903196-05 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	21	17	10-142	21 vo
Chloromethane	mg/kg (ppm)	2.5	<0.5	49	45	10-126	9
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	52	49	10-138	6
Bromomethane	mg/kg (ppm)	2.5	<0.5	66	64	10-163	3
Chloroethane	mg/kg (ppm)	2.5	<0.5	65	62	10-176	5
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	59	57	10-176	3
Acetone	mg/kg (ppm)	12.5	<0.5	78	79	10-163	1
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	70	67	10-160	4
Hexane	mg/kg (ppm)	2.5	<0.25	53	51	10-137	4
Methylene chloride	mg/kg (ppm)	2.5	<0.5	80	77	10-156	4
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	83	81	21-145	2
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	80	77	14-137	4
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	80	76	19-140	5
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	79	77	10-158	3
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	77	74	25-135	4
Chloroform	mg/kg (ppm)	2.5	<0.05	83	80	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	83	84	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	83	81	12-160	2
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	80	78	10-156	3
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	81	77	17-140	5
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	81	80	9-164	1
Benzene	mg/kg (ppm)	2.5	<0.03	80	78	29-129	3
Trichloroethene	mg/kg (ppm)	2.5	<0.02	82	81	21-139	1
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	86	82	30-135	5
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	88	86	23-155	2
Dibromomethane	mg/kg (ppm)	2.5	<0.05	87	85	23-145	2
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	90	90	24-155	0
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	88	86	28-144	2
Toluene	mg/kg (ppm)	2.5	<0.05	76	75	35-130	1
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	91	88	26-149	3
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	90	87	10-205	3
2-Hexanone	mg/kg (ppm)	12.5	<0.5	87	85	15-166	2
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	89	86	31-137	3
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	86	84	20-133	2
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	88	87	28-150	1
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	89	87	28-142	2
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	86	83	32-129	4
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	85	83	32-137	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	94	92	31-143	2
m,p-Xylene	mg/kg (ppm)	5	<0.1	85	83	34-136	2
o-Xylene	mg/kg (ppm)	2.5	<0.05	85	83	33-134	2
Styrene	mg/kg (ppm)	2.5	<0.05	92	89	35-137	3
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	89	87	31-142	2
Bromoform	mg/kg (ppm)	2.5	<0.05	83	82	21-156	1
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	88	86	23-146	2
Bromobenzene	mg/kg (ppm)	2.5	<0.05	88	85	34-130	3
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	89	87	18-149	2
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	89	87	28-140	2
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	90	88	25-144	2
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	87	84	31-134	4
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	87	85	31-136	2
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	90	88	30-137	2
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	89	87	10-182	2
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	91	88	23-145	3
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	90	89	21-149	1
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	89	88	30-131	1
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	87	84	29-129	4
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	88	87	31-132	1
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	92	90	11-161	2
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	92	90	22-142	2
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	95	93	10-142	2
Naphthalene	mg/kg (ppm)	2.5	<0.05	92	90	14-157	2
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	93	91	20-144	2

Date of Report: 03/18/19
Date Received: 03/12/19
Project: Morell's 080190, F&BI 903193

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	57	10-146
Chloromethane	mg/kg (ppm)	2.5	76	27-133
Vinyl chloride	mg/kg (ppm)	2.5	82	22-139
Bromomethane	mg/kg (ppm)	2.5	93	38-114
Chloroethane	mg/kg (ppm)	2.5	94	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	93	10-196
Acetone	mg/kg (ppm)	12.5	95	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	94	47-128
Hexane	mg/kg (ppm)	2.5	97	43-142
Methylene chloride	mg/kg (ppm)	2.5	100	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	99	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	102	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	99	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	100	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	93	72-113
Chloroform	mg/kg (ppm)	2.5	100	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	105	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	103	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	101	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	101	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	103	60-139
Benzene	mg/kg (ppm)	2.5	97	68-114
Trichloroethene	mg/kg (ppm)	2.5	99	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	102	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	106	72-130
Dibromomethane	mg/kg (ppm)	2.5	103	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	108	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	107	75-136
Toluene	mg/kg (ppm)	2.5	91	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	110	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	105	75-113
2-Hexanone	mg/kg (ppm)	12.5	107	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	107	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	103	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	110	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	106	74-132
Chlorobenzene	mg/kg (ppm)	2.5	100	76-111
Ethylbenzene	mg/kg (ppm)	2.5	100	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	110	69-135
m,p-Xylene	mg/kg (ppm)	5	100	78-122
o-Xylene	mg/kg (ppm)	2.5	100	77-124
Styrene	mg/kg (ppm)	2.5	108	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	105	76-127
Bromoform	mg/kg (ppm)	2.5	103	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	105	74-124
Bromobenzene	mg/kg (ppm)	2.5	102	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	106	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	108	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	103	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	104	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	105	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	105	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	107	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	106	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	104	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	101	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	103	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	114	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	107	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	111	50-153
Naphthalene	mg/kg (ppm)	2.5	108	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	108	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

903193

SAMPLE CHAIN OF CUSTODY

ME 03/12/19

Report To Dave Heffner / Breeyn Greer

Company Aspect Consulting

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone _____ Email dheffner@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME: Morell's

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME

☐ Standard Turnaround

☒ RUSH 3 day

Rush charges authorized by: DAH

SAMPLE DISPOSAL

☒ Dispose after 30 days

☐ Archive Samples

☐ Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
B-29-15.0	01 A-D	3/11/19	2240	S	4					X							
B-29-40.0	02	3/11/19	2350	S	4												Hold
B-29-50.0	03	3/12/19	0015	S	4					X							B-29-505 TB
B-29-55.0	04	3/12/19	0130	S	4												Hold 3/12
													Samples received at 4 °C				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Green	Breeyn Greer	Aspect	3/12/19	0720
Received by:	DAVID NEGRETO	FED EX	3/12/19	9:07
Relinquished by: D. Mc-Bryg	Liz Webber-Bryg	FBI	3/12/19	1235
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 19, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on March 13, 2019 from the Morell's 080190, F&BI 903200 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect, Breeyn Greer
ASP0319R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 13, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 903200 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
903200 -01	B-33-5.5
903200 -02	B-33-10.0
903200 -03	B-33-35.5
903200 -04	B-33-55.5

The 8260C dichlorodifluoromethane failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-33-10.0	Client:	Aspect Consulting, LLC
Date Received:	03/13/19	Project:	Morell's 080190, F&BI 903200
Date Extracted:	03/14/19	Lab ID:	903200-02
Date Analyzed:	03/14/19	Data File:	031434.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	97	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-33-55.5	Client:	Aspect Consulting, LLC
Date Received:	03/13/19	Project:	Morell's 080190, F&BI 903200
Date Extracted:	03/14/19	Lab ID:	903200-04
Date Analyzed:	03/14/19	Data File:	031435.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	103	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 903200
Date Extracted:	03/14/19	Lab ID:	09-0567 mb
Date Analyzed:	03/14/19	Data File:	031433.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 03/19/19
Date Received: 03/13/19
Project: Morell's 080190, F&BI 903200

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 903157-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	9 vo	9 vo	10-142	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	35	34	10-126	3
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	35	34	10-138	3
Bromomethane	mg/kg (ppm)	2.5	<0.5	49	48	10-163	2
Chloroethane	mg/kg (ppm)	2.5	<0.5	45	42	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	37	34	10-176	8
Acetone	mg/kg (ppm)	12.5	<0.5	59	58	10-163	2
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	48	45	10-160	6
Hexane	mg/kg (ppm)	2.5	<0.25	22	21	10-137	5
Methylene chloride	mg/kg (ppm)	2.5	<0.5	62	56	10-156	10
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	75	68	21-145	10
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	60	56	14-137	7
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	66	62	19-140	6
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	80	72	10-158	11
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	70	66	25-135	6
Chloroform	mg/kg (ppm)	2.5	<0.05	72	66	21-145	9
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	64	63	19-147	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	72	68	12-160	6
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	70	64	10-156	9
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	62	59	17-140	5
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	67	61	9-164	9
Benzene	mg/kg (ppm)	2.5	<0.03	66	61	29-129	8
Trichloroethene	mg/kg (ppm)	2.5	<0.02	63	60	21-139	5
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	70	67	30-135	4
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	78	72	23-155	8
Dibromomethane	mg/kg (ppm)	2.5	<0.05	71	68	23-145	4
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	68	66	24-155	3
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	73	28-144	5
Toluene	mg/kg (ppm)	2.5	<0.05	68	64	35-130	6
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	76	71	26-149	7
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	71	67	10-205	6
2-Hexanone	mg/kg (ppm)	12.5	<0.5	59	61	15-166	3
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	68	67	31-137	1
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	70	65	20-133	7
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	79	74	28-150	7
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	69	66	28-142	4
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	70	65	32-129	7
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	70	66	32-137	6
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	81	72	31-143	12
m,p-Xylene	mg/kg (ppm)	5	<0.1	69	65	34-136	6
o-Xylene	mg/kg (ppm)	2.5	<0.05	70	66	33-134	6
Styrene	mg/kg (ppm)	2.5	<0.05	71	68	35-137	4
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	75	70	31-142	7
Bromoform	mg/kg (ppm)	2.5	<0.05	85	81	21-156	5
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	71	65	23-146	9
Bromobenzene	mg/kg (ppm)	2.5	<0.05	70	66	34-130	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	73	67	18-149	9
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	77	73	28-140	5
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	66	64	25-144	3
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	71	66	31-134	7
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	71	67	31-136	6
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	75	69	30-137	8
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	73	67	10-182	9
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	74	67	23-145	10
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	75	69	21-149	8
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	71	67	30-131	6
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	69	64	29-129	8
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	72	66	31-132	9
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	79	73	11-161	8
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	72	66	22-142	9
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	76	72	10-142	5
Naphthalene	mg/kg (ppm)	2.5	<0.05	71	67	14-157	6
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	73	66	20-144	10

Date of Report: 03/19/19
Date Received: 03/13/19
Project: Morell's 080190, F&BI 903200

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	51	10-146
Chloromethane	mg/kg (ppm)	2.5	73	27-133
Vinyl chloride	mg/kg (ppm)	2.5	86	22-139
Bromomethane	mg/kg (ppm)	2.5	101	38-114
Chloroethane	mg/kg (ppm)	2.5	94	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	99	10-196
Acetone	mg/kg (ppm)	12.5	79	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	98	47-128
Hexane	mg/kg (ppm)	2.5	81	43-142
Methylene chloride	mg/kg (ppm)	2.5	100	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	109	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	105	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	107	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	136	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	107	72-113
Chloroform	mg/kg (ppm)	2.5	106	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	77	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	99	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	112	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	99	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	114	60-139
Benzene	mg/kg (ppm)	2.5	97	68-114
Trichloroethene	mg/kg (ppm)	2.5	93	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	96	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	103	72-130
Dibromomethane	mg/kg (ppm)	2.5	94	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	83	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	98	75-136
Toluene	mg/kg (ppm)	2.5	96	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	96	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	92	75-113
2-Hexanone	mg/kg (ppm)	12.5	71	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	88	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	101	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	101	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	87	74-132
Chlorobenzene	mg/kg (ppm)	2.5	95	76-111
Ethylbenzene	mg/kg (ppm)	2.5	98	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	116	69-135
m,p-Xylene	mg/kg (ppm)	5	96	78-122
o-Xylene	mg/kg (ppm)	2.5	100	77-124
Styrene	mg/kg (ppm)	2.5	97	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	109	76-127
Bromoform	mg/kg (ppm)	2.5	107	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	101	74-124
Bromobenzene	mg/kg (ppm)	2.5	95	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	106	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	105	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	89	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	102	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	98	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	107	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	106	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	108	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	109	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	97	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	94	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	102	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	106	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	109	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	117	50-153
Naphthalene	mg/kg (ppm)	2.5	106	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	110	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

~~902~~ 903200

SAMPLE CHAIN OF CUSTODY

ME 3/13/19 VSI

Page # 1 of 1

Report To Dave Heffner/Breeyn Greer

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98100

Phone _____ Email dheffner@aspectconsulting.com

SAMPLERS (signature) Breeyn Greer

PROJECT NAME: Morell's

PO #: 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH DAH 3 day
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-33-5.5	01A-D	3/12	2200														
B-33-10.0	02	3/12	2210							X							Hold
B-33-35.5	03	3/12	2320														Hold
B-33-55.5	04	3/13	0030							X							

Samples received at 3 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Greer	Breeyn Greer	Aspect	3/13/19	0600
Received by:	DAVID NELSON	FedEx	3/13/19	8:44
Relinquished by:				
Received by:	Nhan Phan	FCBI	3/13/19	0945

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

March 19, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on March 14, 2019 from the Morell's 080190, F&BI 903259 project. There are 7 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect, Breeyn Greer
ASP0319R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 14, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 903259 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
903259 -01	B-32-15.5
903259 -02	B-32-25.5
903259 -03	B-32-55.5

The 8260C dichlorodifluoromethane failed below the acceptance criteria in the matrix spike samples. The laboratory control samples met the acceptance criteria, therefore the data were likely due to sample matrix effect.

All other quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-32-15.5	Client:	Aspect Consulting, LLC
Date Received:	03/14/19	Project:	Morell's 080190, F&BI 903259
Date Extracted:	03/14/19	Lab ID:	903259-01
Date Analyzed:	03/14/19	Data File:	031436.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	98	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-32-55.5	Client:	Aspect Consulting, LLC
Date Received:	03/14/19	Project:	Morell's 080190, F&BI 903259
Date Extracted:	03/14/19	Lab ID:	903259-03
Date Analyzed:	03/14/19	Data File:	031437.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	101	50	150
Toluene-d8	103	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 903259
Date Extracted:	03/14/19	Lab ID:	09-0567 mb
Date Analyzed:	03/14/19	Data File:	031433.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	MS/IJL

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	104	50	150
Toluene-d8	104	50	150
4-Bromofluorobenzene	99	50	150

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

Date of Report: 03/19/19
Date Received: 03/14/19
Project: Morell's 080190, F&BI 903259

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 903157-03 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	9 vo	9 vo	10-142	0
Chloromethane	mg/kg (ppm)	2.5	<0.5	35	34	10-126	3
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	35	34	10-138	3
Bromomethane	mg/kg (ppm)	2.5	<0.5	49	48	10-163	2
Chloroethane	mg/kg (ppm)	2.5	<0.5	45	42	10-176	7
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	37	34	10-176	8
Acetone	mg/kg (ppm)	12.5	<0.5	59	58	10-163	2
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	48	45	10-160	6
Hexane	mg/kg (ppm)	2.5	<0.25	22	21	10-137	5
Methylene chloride	mg/kg (ppm)	2.5	<0.5	62	56	10-156	10
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	75	68	21-145	10
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	60	56	14-137	7
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	66	62	19-140	6
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	80	72	10-158	11
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	70	66	25-135	6
Chloroform	mg/kg (ppm)	2.5	<0.05	72	66	21-145	9
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	64	63	19-147	2
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	72	68	12-160	6
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	70	64	10-156	9
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	62	59	17-140	5
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	67	61	9-164	9
Benzene	mg/kg (ppm)	2.5	<0.03	66	61	29-129	8
Trichloroethene	mg/kg (ppm)	2.5	<0.02	63	60	21-139	5
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	70	67	30-135	4
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	78	72	23-155	8
Dibromomethane	mg/kg (ppm)	2.5	<0.05	71	68	23-145	4
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	68	66	24-155	3
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	73	28-144	5
Toluene	mg/kg (ppm)	2.5	<0.05	68	64	35-130	6
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	76	71	26-149	7
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	71	67	10-205	6
2-Hexanone	mg/kg (ppm)	12.5	<0.5	59	61	15-166	3
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	68	67	31-137	1
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	70	65	20-133	7
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	79	74	28-150	7
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	69	66	28-142	4
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	70	65	32-129	7
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	70	66	32-137	6
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	81	72	31-143	12
m,p-Xylene	mg/kg (ppm)	5	<0.1	69	65	34-136	6
o-Xylene	mg/kg (ppm)	2.5	<0.05	70	66	33-134	6
Styrene	mg/kg (ppm)	2.5	<0.05	71	68	35-137	4
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	75	70	31-142	7
Bromoform	mg/kg (ppm)	2.5	<0.05	85	81	21-156	5
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	71	65	23-146	9
Bromobenzene	mg/kg (ppm)	2.5	<0.05	70	66	34-130	6
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	73	67	18-149	9
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	77	73	28-140	5
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	66	64	25-144	3
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	71	66	31-134	7
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	71	67	31-136	6
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	75	69	30-137	8
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	73	67	10-182	9
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	74	67	23-145	10
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	75	69	21-149	8
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	71	67	30-131	6
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	69	64	29-129	8
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	72	66	31-132	9
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	79	73	11-161	8
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	72	66	22-142	9
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	76	72	10-142	5
Naphthalene	mg/kg (ppm)	2.5	<0.05	71	67	14-157	6
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	73	66	20-144	10

Date of Report: 03/19/19
Date Received: 03/14/19
Project: Morell's 080190, F&BI 903259

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	51	10-146
Chloromethane	mg/kg (ppm)	2.5	73	27-133
Vinyl chloride	mg/kg (ppm)	2.5	86	22-139
Bromomethane	mg/kg (ppm)	2.5	101	38-114
Chloroethane	mg/kg (ppm)	2.5	94	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	99	10-196
Acetone	mg/kg (ppm)	12.5	79	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	98	47-128
Hexane	mg/kg (ppm)	2.5	81	43-142
Methylene chloride	mg/kg (ppm)	2.5	100	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	109	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	105	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	107	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	136	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	107	72-113
Chloroform	mg/kg (ppm)	2.5	106	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	77	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	99	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	112	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	99	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	114	60-139
Benzene	mg/kg (ppm)	2.5	97	68-114
Trichloroethene	mg/kg (ppm)	2.5	93	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	96	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	103	72-130
Dibromomethane	mg/kg (ppm)	2.5	94	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	83	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	98	75-136
Toluene	mg/kg (ppm)	2.5	96	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	96	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	92	75-113
2-Hexanone	mg/kg (ppm)	12.5	71	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	88	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	101	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	101	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	87	74-132
Chlorobenzene	mg/kg (ppm)	2.5	95	76-111
Ethylbenzene	mg/kg (ppm)	2.5	98	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	116	69-135
m,p-Xylene	mg/kg (ppm)	5	96	78-122
o-Xylene	mg/kg (ppm)	2.5	100	77-124
Styrene	mg/kg (ppm)	2.5	97	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	109	76-127
Bromoform	mg/kg (ppm)	2.5	107	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	101	74-124
Bromobenzene	mg/kg (ppm)	2.5	95	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	106	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	105	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	89	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	102	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	98	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	107	73-130
1,2,4-Trimethylbenzene	mg/kg(ppm)	2.5	106	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	108	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	109	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	97	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	94	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	102	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	106	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	109	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	117	50-153
Naphthalene	mg/kg (ppm)	2.5	106	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	110	63-138

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

903259

SAMPLE CHAIN OF CUSTODY ME 3/14/19 VSJ

Page # 1 of 1

Report To Dave Heffner / B Greer
Company Aspect
Address 710 2nd Ave Ste 550
City, State, ZIP Seattle WA 98104
Phone _____ Email dheffner@aspectconsulting.com

SAMPLERS (signature) Breeyn Greer
PROJECT NAME Morell's
PO # 080190
REMARKS
INVOICE TO AP

TURNAROUND TIME
☐ Standard Turnaround
☒ RUSH 3 day
Rush charges authorized by: DAH

SAMPLE DISPOSAL
☒ Dispose after 30 days
☐ Archive Samples
☐ Other _____

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	ANALYSES REQUESTED: TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
B-32-15.5	01 AD	3/13/19	2200	S	4			X	X	X							
B-32-25.5	02	3/13/19	2235	S	4												Hold
B-32-55.5	03	3/13/19	2330	S	4					X							

Samples received at 2 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Greer	Breeyn Greer	Aspect	3/14/19	0500
Received by: [signature]	[illegible]	FED EX	3/14/19	10:37
Relinquished by:				
Received by: [signature]	[illegible]	FMT	3/14/19	11:10

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
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fbi@isomedia.com
www.friedmanandbruya.com

March 21, 2019

Dave Heffner, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Mr Heffner:

Included are the results from the testing of material submitted on March 15, 2019 from the Morell's 080190, F&BI 903291 project. There are 13 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Data Aspect, Breeyn Greer
ASP0321R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on March 15, 2019 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's 080190, F&BI 903291 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
903291 -01	B-28-10.5
903291 -02	B-28-15.5
903291 -03	B-28-30.5
903291 -04	B-28-55.5
903291 -05	MW-23-031419

All quality control requirements were acceptable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-28-30.5	Client:	Aspect Consulting, LLC
Date Received:	03/15/19	Project:	Morell's 080190, F&BI 903291
Date Extracted:	03/15/19	Lab ID:	903291-03
Date Analyzed:	03/19/19	Data File:	031920.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	97	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	0.038
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	B-28-55.5	Client:	Aspect Consulting, LLC
Date Received:	03/15/19	Project:	Morell's 080190, F&BI 903291
Date Extracted:	03/15/19	Lab ID:	903291-04
Date Analyzed:	03/19/19	Data File:	031921.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	AEN

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	101	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 903291
Date Extracted:	03/15/19	Lab ID:	09-0568 mb
Date Analyzed:	03/15/19	Data File:	031529.D
Matrix:	Soil	Instrument:	GCMS4
Units:	mg/kg (ppm) Dry Weight	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	99	62	142
Toluene-d8	99	55	145
4-Bromofluorobenzene	96	65	139

Compounds:	Concentration mg/kg (ppm)	Compounds:	Concentration mg/kg (ppm)
Dichlorodifluoromethane	<0.5	1,3-Dichloropropane	<0.05
Chloromethane	<0.5	Tetrachloroethene	<0.025
Vinyl chloride	<0.05	Dibromochloromethane	<0.05
Bromomethane	<0.5	1,2-Dibromoethane (EDB)	<0.05
Chloroethane	<0.5	Chlorobenzene	<0.05
Trichlorofluoromethane	<0.5	Ethylbenzene	<0.05
Acetone	<0.5	1,1,1,2-Tetrachloroethane	<0.05
1,1-Dichloroethene	<0.05	m,p-Xylene	<0.1
Hexane	<0.25	o-Xylene	<0.05
Methylene chloride	<0.5	Styrene	<0.05
Methyl t-butyl ether (MTBE)	<0.05	Isopropylbenzene	<0.05
trans-1,2-Dichloroethene	<0.05	Bromoform	<0.05
1,1-Dichloroethane	<0.05	n-Propylbenzene	<0.05
2,2-Dichloropropane	<0.05	Bromobenzene	<0.05
cis-1,2-Dichloroethene	<0.05	1,3,5-Trimethylbenzene	<0.05
Chloroform	<0.05	1,1,2,2-Tetrachloroethane	<0.05
2-Butanone (MEK)	<0.5	1,2,3-Trichloropropane	<0.05
1,2-Dichloroethane (EDC)	<0.05	2-Chlorotoluene	<0.05
1,1,1-Trichloroethane	<0.05	4-Chlorotoluene	<0.05
1,1-Dichloropropene	<0.05	tert-Butylbenzene	<0.05
Carbon tetrachloride	<0.05	1,2,4-Trimethylbenzene	<0.05
Benzene	<0.03	sec-Butylbenzene	<0.05
Trichloroethene	<0.02	p-Isopropyltoluene	<0.05
1,2-Dichloropropane	<0.05	1,3-Dichlorobenzene	<0.05
Bromodichloromethane	<0.05	1,4-Dichlorobenzene	<0.05
Dibromomethane	<0.05	1,2-Dichlorobenzene	<0.05
4-Methyl-2-pentanone	<0.5	1,2-Dibromo-3-chloropropane	<0.5
cis-1,3-Dichloropropene	<0.05	1,2,4-Trichlorobenzene	<0.25
Toluene	<0.05	Hexachlorobutadiene	<0.25
trans-1,3-Dichloropropene	<0.05	Naphthalene	<0.05
1,1,2-Trichloroethane	<0.05	1,2,3-Trichlorobenzene	<0.25
2-Hexanone	<0.5		

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	MW-23-031419	Client:	Aspect Consulting, LLC
Date Received:	03/15/19	Project:	Morell's 080190, F&BI 903291
Date Extracted:	03/15/19	Lab ID:	903291-05
Date Analyzed:	03/15/19	Data File:	031543.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	98	57	121
Toluene-d8	98	63	127
4-Bromofluorobenzene	96	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	100
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	18	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	25	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Analysis For Volatile Compounds By EPA Method 8260C

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's 080190, F&BI 903291
Date Extracted:	03/18/19	Lab ID:	09-0569 mb
Date Analyzed:	03/18/19	Data File:	031817.D
Matrix:	Water	Instrument:	GCMS4
Units:	ug/L (ppb)	Operator:	MS

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
1,2-Dichloroethane-d4	100	57	121
Toluene-d8	100	63	127
4-Bromofluorobenzene	99	60	133

Compounds:	Concentration ug/L (ppb)	Compounds:	Concentration ug/L (ppb)
Dichlorodifluoromethane	<1	1,3-Dichloropropane	<1
Chloromethane	<10	Tetrachloroethene	<1
Vinyl chloride	<0.2	Dibromochloromethane	<1
Bromomethane	<1	1,2-Dibromoethane (EDB)	<1
Chloroethane	<1	Chlorobenzene	<1
Trichlorofluoromethane	<1	Ethylbenzene	<1
Acetone	<50	1,1,1,2-Tetrachloroethane	<1
1,1-Dichloroethene	<1	m,p-Xylene	<2
Hexane	<1	o-Xylene	<1
Methylene chloride	<5	Styrene	<1
Methyl t-butyl ether (MTBE)	<1	Isopropylbenzene	<1
trans-1,2-Dichloroethene	<1	Bromoform	<1
1,1-Dichloroethane	<1	n-Propylbenzene	<1
2,2-Dichloropropane	<1	Bromobenzene	<1
cis-1,2-Dichloroethene	<1	1,3,5-Trimethylbenzene	<1
Chloroform	<1	1,1,2,2-Tetrachloroethane	<1
2-Butanone (MEK)	<10	1,2,3-Trichloropropane	<1
1,2-Dichloroethane (EDC)	<1	2-Chlorotoluene	<1
1,1,1-Trichloroethane	<1	4-Chlorotoluene	<1
1,1-Dichloropropene	<1	tert-Butylbenzene	<1
Carbon tetrachloride	<1	1,2,4-Trimethylbenzene	<1
Benzene	<0.35	sec-Butylbenzene	<1
Trichloroethene	<1	p-Isopropyltoluene	<1
1,2-Dichloropropane	<1	1,3-Dichlorobenzene	<1
Bromodichloromethane	<1	1,4-Dichlorobenzene	<1
Dibromomethane	<1	1,2-Dichlorobenzene	<1
4-Methyl-2-pentanone	<10	1,2-Dibromo-3-chloropropane	<10
cis-1,3-Dichloropropene	<1	1,2,4-Trichlorobenzene	<1
Toluene	<1	Hexachlorobutadiene	<1
trans-1,3-Dichloropropene	<1	Naphthalene	<1
1,1,2-Trichloroethane	<1	1,2,3-Trichlorobenzene	<1
2-Hexanone	<10		

Date of Report: 03/21/19
Date Received: 03/15/19
Project: Morell's 080190, F&BI 903291

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 903262-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	mg/kg (ppm)	2.5	<0.5	24	20	10-142	18
Chloromethane	mg/kg (ppm)	2.5	<0.5	52	49	10-126	6
Vinyl chloride	mg/kg (ppm)	2.5	<0.05	55	51	10-138	8
Bromomethane	mg/kg (ppm)	2.5	<0.5	69	70	10-163	1
Chloroethane	mg/kg (ppm)	2.5	<0.5	70	63	10-176	11
Trichlorofluoromethane	mg/kg (ppm)	2.5	<0.5	67	60	10-176	11
Acetone	mg/kg (ppm)	12.5	<0.5	86	79	10-163	8
1,1-Dichloroethene	mg/kg (ppm)	2.5	<0.05	71	64	10-160	10
Hexane	mg/kg (ppm)	2.5	<0.25	53	48	10-137	10
Methylene chloride	mg/kg (ppm)	2.5	<0.5	83	77	10-156	7
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	<0.05	81	79	21-145	2
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	76	70	14-137	8
1,1-Dichloroethane	mg/kg (ppm)	2.5	<0.05	76	73	19-140	4
2,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	95	89	10-158	7
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	<0.05	81	77	25-135	5
Chloroform	mg/kg (ppm)	2.5	<0.05	81	78	21-145	4
2-Butanone (MEK)	mg/kg (ppm)	12.5	<0.5	79	80	19-147	1
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	<0.05	85	84	12-160	1
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	<0.05	80	77	10-156	4
1,1-Dichloropropene	mg/kg (ppm)	2.5	<0.05	75	73	17-140	3
Carbon tetrachloride	mg/kg (ppm)	2.5	<0.05	80	74	9-164	8
Benzene	mg/kg (ppm)	2.5	<0.03	77	76	29-129	1
Trichloroethene	mg/kg (ppm)	2.5	<0.02	75	73	21-139	3
1,2-Dichloropropane	mg/kg (ppm)	2.5	<0.05	77	77	30-135	0
Bromodichloromethane	mg/kg (ppm)	2.5	<0.05	78	77	23-155	1
Dibromomethane	mg/kg (ppm)	2.5	<0.05	78	77	23-145	1
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	<0.5	86	87	24-155	1
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	79	80	28-144	1
Toluene	mg/kg (ppm)	2.5	<0.05	77	75	35-130	3
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	<0.05	77	77	26-149	0
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	<0.05	85	84	10-205	1
2-Hexanone	mg/kg (ppm)	12.5	<0.5	75	78	15-166	4
1,3-Dichloropropane	mg/kg (ppm)	2.5	<0.05	79	80	31-137	1
Tetrachloroethene	mg/kg (ppm)	2.5	<0.025	81	77	20-133	5
Dibromochloromethane	mg/kg (ppm)	2.5	<0.05	78	75	28-150	4
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	<0.05	80	79	28-142	1
Chlorobenzene	mg/kg (ppm)	2.5	<0.05	83	81	32-129	2
Ethylbenzene	mg/kg (ppm)	2.5	<0.05	82	80	32-137	2
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	81	77	31-143	5
m,p-Xylene	mg/kg (ppm)	5	<0.1	83	81	34-136	2
o-Xylene	mg/kg (ppm)	2.5	<0.05	82	78	33-134	5

Date of Report: 03/21/19
Date Received: 03/15/19
Project: Morell's 080190, F&BI 903291

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 903262-15 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Styrene	mg/kg (ppm)	2.5	<0.05	81	81	35-137	0
Isopropylbenzene	mg/kg (ppm)	2.5	<0.05	85	82	31-142	4
Bromoform	mg/kg (ppm)	2.5	<0.05	71	70	21-156	1
n-Propylbenzene	mg/kg (ppm)	2.5	<0.05	84	79	23-146	6
Bromobenzene	mg/kg (ppm)	2.5	<0.05	81	78	34-130	4
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	84	78	18-149	7
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	<0.05	89	85	28-140	5
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	<0.05	82	80	25-144	2
2-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	84	78	31-134	7
4-Chlorotoluene	mg/kg (ppm)	2.5	<0.05	81	77	31-136	5
tert-Butylbenzene	mg/kg (ppm)	2.5	<0.05	86	81	30-137	6
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	<0.05	85	79	10-182	7
sec-Butylbenzene	mg/kg (ppm)	2.5	<0.05	85	79	23-145	7
p-Isopropyltoluene	mg/kg (ppm)	2.5	<0.05	88	82	21-149	7
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	82	79	30-131	4
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	83	80	29-129	4
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	<0.05	81	77	31-132	5
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	<0.5	82	75	11-161	9
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	88	81	22-142	8
Hexachlorobutadiene	mg/kg (ppm)	2.5	<0.25	91	83	10-142	9
Naphthalene	mg/kg (ppm)	2.5	<0.05	88	81	14-157	8
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	<0.25	89	81	20-144	9

Date of Report: 03/21/19
Date Received: 03/15/19
Project: Morell's 080190, F&BI 903291

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Dichlorodifluoromethane	mg/kg (ppm)	2.5	47	10-146
Chloromethane	mg/kg (ppm)	2.5	67	27-133
Vinyl chloride	mg/kg (ppm)	2.5	78	22-139
Bromomethane	mg/kg (ppm)	2.5	90	38-114
Chloroethane	mg/kg (ppm)	2.5	83	10-163
Trichlorofluoromethane	mg/kg (ppm)	2.5	93	10-196
Acetone	mg/kg (ppm)	12.5	79	52-141
1,1-Dichloroethene	mg/kg (ppm)	2.5	90	47-128
Hexane	mg/kg (ppm)	2.5	81	43-142
Methylene chloride	mg/kg (ppm)	2.5	93	42-132
Methyl t-butyl ether (MTBE)	mg/kg (ppm)	2.5	102	60-123
trans-1,2-Dichloroethene	mg/kg (ppm)	2.5	97	67-127
1,1-Dichloroethane	mg/kg (ppm)	2.5	100	68-115
2,2-Dichloropropane	mg/kg (ppm)	2.5	125	52-170
cis-1,2-Dichloroethene	mg/kg (ppm)	2.5	100	72-113
Chloroform	mg/kg (ppm)	2.5	103	66-120
2-Butanone (MEK)	mg/kg (ppm)	12.5	92	57-123
1,2-Dichloroethane (EDC)	mg/kg (ppm)	2.5	105	56-135
1,1,1-Trichloroethane	mg/kg (ppm)	2.5	106	62-131
1,1-Dichloropropene	mg/kg (ppm)	2.5	100	69-128
Carbon tetrachloride	mg/kg (ppm)	2.5	108	60-139
Benzene	mg/kg (ppm)	2.5	97	68-114
Trichloroethene	mg/kg (ppm)	2.5	96	64-117
1,2-Dichloropropane	mg/kg (ppm)	2.5	102	72-127
Bromodichloromethane	mg/kg (ppm)	2.5	110	72-130
Dibromomethane	mg/kg (ppm)	2.5	101	70-120
4-Methyl-2-pentanone	mg/kg (ppm)	12.5	95	45-145
cis-1,3-Dichloropropene	mg/kg (ppm)	2.5	111	75-136
Toluene	mg/kg (ppm)	2.5	98	66-126
trans-1,3-Dichloropropene	mg/kg (ppm)	2.5	111	72-132
1,1,2-Trichloroethane	mg/kg (ppm)	2.5	100	75-113
2-Hexanone	mg/kg (ppm)	12.5	88	33-152
1,3-Dichloropropane	mg/kg (ppm)	2.5	99	72-130
Tetrachloroethene	mg/kg (ppm)	2.5	105	72-114
Dibromochloromethane	mg/kg (ppm)	2.5	109	74-125
1,2-Dibromoethane (EDB)	mg/kg (ppm)	2.5	98	74-132
Chlorobenzene	mg/kg (ppm)	2.5	100	76-111
Ethylbenzene	mg/kg (ppm)	2.5	99	64-123
1,1,1,2-Tetrachloroethane	mg/kg (ppm)	2.5	108	69-135
m,p-Xylene	mg/kg (ppm)	5	98	78-122
o-Xylene	mg/kg (ppm)	2.5	98	77-124

Date of Report: 03/21/19
Date Received: 03/15/19
Project: Morell's 080190, F&BI 903291

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Styrene	mg/kg (ppm)	2.5	102	74-126
Isopropylbenzene	mg/kg (ppm)	2.5	105	76-127
Bromoform	mg/kg (ppm)	2.5	118	56-132
n-Propylbenzene	mg/kg (ppm)	2.5	100	74-124
Bromobenzene	mg/kg (ppm)	2.5	98	72-122
1,3,5-Trimethylbenzene	mg/kg (ppm)	2.5	102	76-126
1,1,2,2-Tetrachloroethane	mg/kg (ppm)	2.5	107	56-143
1,2,3-Trichloropropane	mg/kg (ppm)	2.5	94	61-137
2-Chlorotoluene	mg/kg (ppm)	2.5	99	74-121
4-Chlorotoluene	mg/kg (ppm)	2.5	100	75-122
tert-Butylbenzene	mg/kg (ppm)	2.5	103	73-130
1,2,4-Trimethylbenzene	mg/kg (ppm)	2.5	102	76-125
sec-Butylbenzene	mg/kg (ppm)	2.5	102	71-130
p-Isopropyltoluene	mg/kg (ppm)	2.5	105	70-132
1,3-Dichlorobenzene	mg/kg (ppm)	2.5	99	75-121
1,4-Dichlorobenzene	mg/kg (ppm)	2.5	97	74-117
1,2-Dichlorobenzene	mg/kg (ppm)	2.5	99	76-121
1,2-Dibromo-3-chloropropane	mg/kg (ppm)	2.5	104	58-138
1,2,4-Trichlorobenzene	mg/kg (ppm)	2.5	98	64-135
Hexachlorobutadiene	mg/kg (ppm)	2.5	107	50-153
Naphthalene	mg/kg (ppm)	2.5	98	63-140
1,2,3-Trichlorobenzene	mg/kg (ppm)	2.5	99	63-138

Date of Report: 03/21/19
Date Received: 03/15/19
Project: Morell's 080190, F&BI 903291

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: 903261-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Acceptance Criteria
Dichlorodifluoromethane	ug/L (ppb)	50	<1	108	10-172
Chloromethane	ug/L (ppb)	50	<10	100	25-166
Vinyl chloride	ug/L (ppb)	50	<0.2	104	36-166
Bromomethane	ug/L (ppb)	50	<1	113	47-169
Chloroethane	ug/L (ppb)	50	<1	101	46-160
Trichlorofluoromethane	ug/L (ppb)	50	<1	110	44-165
Acetone	ug/L (ppb)	250	<50	90	10-182
1,1-Dichloroethene	ug/L (ppb)	50	<1	94	60-136
Hexane	ug/L (ppb)	50	<1	93	52-150
Methylene chloride	ug/L (ppb)	50	<5	97	67-132
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	<1	92	74-127
trans-1,2-Dichloroethene	ug/L (ppb)	50	<1	91	72-129
1,1-Dichloroethane	ug/L (ppb)	50	<1	90	70-128
2,2-Dichloropropane	ug/L (ppb)	50	<1	109	36-154
cis-1,2-Dichloroethene	ug/L (ppb)	50	<1	92	71-127
Chloroform	ug/L (ppb)	50	<1	91	65-132
2-Butanone (MEK)	ug/L (ppb)	250	<10	94	10-129
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	<1	99	69-133
1,1,1-Trichloroethane	ug/L (ppb)	50	<1	94	60-146
1,1-Dichloropropene	ug/L (ppb)	50	<1	92	69-133
Carbon tetrachloride	ug/L (ppb)	50	<1	95	56-152
Benzene	ug/L (ppb)	50	<0.35	91	76-125
Trichloroethene	ug/L (ppb)	50	<1	87	66-135
1,2-Dichloropropane	ug/L (ppb)	50	<1	90	78-125
Bromodichloromethane	ug/L (ppb)	50	<1	89	61-150
Dibromomethane	ug/L (ppb)	50	<1	89	66-141
4-Methyl-2-pentanone	ug/L (ppb)	250	<10	102	10-185
cis-1,3-Dichloropropene	ug/L (ppb)	50	<1	93	72-132
Toluene	ug/L (ppb)	50	<1	86	76-122
trans-1,3-Dichloropropene	ug/L (ppb)	50	<1	88	76-130
1,1,2-Trichloroethane	ug/L (ppb)	50	<1	97	68-131
2-Hexanone	ug/L (ppb)	250	<10	89	10-185
1,3-Dichloropropane	ug/L (ppb)	50	<1	92	71-128
Tetrachloroethene	ug/L (ppb)	50	<1	91	10-226
Dibromochloromethane	ug/L (ppb)	50	<1	89	70-139
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	<1	91	69-134
Chlorobenzene	ug/L (ppb)	50	<1	92	77-122
Ethylbenzene	ug/L (ppb)	50	<1	90	69-135
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	<1	88	73-137
m,p-Xylene	ug/L (ppb)	100	<2	92	69-135
o-Xylene	ug/L (ppb)	50	<1	88	60-140
Styrene	ug/L (ppb)	50	<1	91	71-133
Isopropylbenzene	ug/L (ppb)	50	<1	90	65-142
Bromoform	ug/L (ppb)	50	<1 ca	83	65-142
n-Propylbenzene	ug/L (ppb)	50	<1	88	58-144
Bromobenzene	ug/L (ppb)	50	<1	89	75-124
1,3,5-Trimethylbenzene	ug/L (ppb)	50	<1	89	66-137
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	<1	98	51-154
1,2,3-Trichloropropane	ug/L (ppb)	50	<1	92	53-150
2-Chlorotoluene	ug/L (ppb)	50	<1	88	66-127
4-Chlorotoluene	ug/L (ppb)	50	<1	88	65-130
tert-Butylbenzene	ug/L (ppb)	50	<1	89	65-137
1,2,4-Trimethylbenzene	ug/L (ppb)	50	<1	89	59-146
sec-Butylbenzene	ug/L (ppb)	50	<1	86	64-140
p-Isopropyltoluene	ug/L (ppb)	50	<1	89	65-141
1,3-Dichlorobenzene	ug/L (ppb)	50	<1	89	72-123
1,4-Dichlorobenzene	ug/L (ppb)	50	<1	89	69-126
1,2-Dichlorobenzene	ug/L (ppb)	50	<1	87	69-128
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	<10	89	32-164
1,2,4-Trichlorobenzene	ug/L (ppb)	50	<1	89	66-136
Hexachlorobutadiene	ug/L (ppb)	50	<1	77	60-143
Naphthalene	ug/L (ppb)	50	<1	92	44-164
1,2,3-Trichlorobenzene	ug/L (ppb)	50	<1	90	69-148

Date of Report: 03/21/19
Date Received: 03/15/19
Project: Morell's 080190, F&BI 903291

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR VOLATILES BY EPA METHOD 8260C

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Dichlorodifluoromethane	ug/L (ppb)	50	105	105	25-158	0
Chloromethane	ug/L (ppb)	50	93	95	45-156	2
Vinyl chloride	ug/L (ppb)	50	104	105	50-154	1
Bromomethane	ug/L (ppb)	50	105	106	55-143	1
Chloroethane	ug/L (ppb)	50	98	99	58-146	1
Trichlorofluoromethane	ug/L (ppb)	250	109	112	50-150	3
Acetone	ug/L (ppb)	250	84	84	53-131	0
1,1-Dichloroethene	ug/L (ppb)	50	98	101	67-136	3
Hexane	ug/L (ppb)	50	90	91	57-137	1
Methylene chloride	ug/L (ppb)	50	98	100	39-148	2
Methyl t-butyl ether (MTBE)	ug/L (ppb)	50	105	108	64-147	3
trans-1,2-Dichloroethene	ug/L (ppb)	50	102	105	68-128	3
1,1-Dichloroethane	ug/L (ppb)	50	104	106	79-121	2
2,2-Dichloropropane	ug/L (ppb)	50	127	132	55-143	4
cis-1,2-Dichloroethene	ug/L (ppb)	50	102	105	80-123	3
Chloroform	ug/L (ppb)	50	103	107	80-121	4
2-Butanone (MEK)	ug/L (ppb)	250	96	96	57-149	0
1,2-Dichloroethane (EDC)	ug/L (ppb)	50	106	108	73-132	2
1,1,1-Trichloroethane	ug/L (ppb)	50	110	113	83-130	3
1,1-Dichloropropene	ug/L (ppb)	50	103	105	77-129	2
Carbon tetrachloride	ug/L (ppb)	50	112	115	75-158	3
Benzene	ug/L (ppb)	50	100	102	69-134	2
Trichloroethene	ug/L (ppb)	50	97	97	80-120	0
1,2-Dichloropropane	ug/L (ppb)	50	103	106	77-123	3
Bromodichloromethane	ug/L (ppb)	50	115	117	81-133	2
Dibromomethane	ug/L (ppb)	50	104	106	82-125	2
4-Methyl-2-pentanone	ug/L (ppb)	250	100	101	65-138	1
cis-1,3-Dichloropropene	ug/L (ppb)	50	111	113	82-132	2
Toluene	ug/L (ppb)	50	98	100	72-122	2
trans-1,3-Dichloropropene	ug/L (ppb)	50	116	117	80-136	1
1,1,2-Trichloroethane	ug/L (ppb)	50	102	102	75-124	0
2-Hexanone	ug/L (ppb)	250	90	90	60-136	0
1,3-Dichloropropane	ug/L (ppb)	50	100	101	76-126	1
Tetrachloroethene	ug/L (ppb)	50	104	105	76-121	1
Dibromochloromethane	ug/L (ppb)	50	110	111	84-133	1
1,2-Dibromoethane (EDB)	ug/L (ppb)	50	101	101	82-125	0
Chlorobenzene	ug/L (ppb)	50	100	100	83-114	0
Ethylbenzene	ug/L (ppb)	50	100	101	77-124	1
1,1,1,2-Tetrachloroethane	ug/L (ppb)	50	112	115	84-127	3
m,p-Xylene	ug/L (ppb)	100	99	100	83-125	1
o-Xylene	ug/L (ppb)	50	98	100	81-121	2
Styrene	ug/L (ppb)	50	103	104	84-119	1
Isopropylbenzene	ug/L (ppb)	50	106	107	85-117	1
Bromoform	ug/L (ppb)	50	118	119	74-136	1
n-Propylbenzene	ug/L (ppb)	50	98	101	74-126	3
Bromobenzene	ug/L (ppb)	50	99	101	80-121	2
1,3,5-Trimethylbenzene	ug/L (ppb)	50	101	103	78-123	2
1,1,2,2-Tetrachloroethane	ug/L (ppb)	50	109	111	66-126	2
1,2,3-Trichloropropane	ug/L (ppb)	50	94	96	67-124	2
2-Chlorotoluene	ug/L (ppb)	50	98	100	77-127	2
4-Chlorotoluene	ug/L (ppb)	50	99	101	78-128	2
tert-Butylbenzene	ug/L (ppb)	50	101	105	80-123	4
1,2,4-Trimethylbenzene	ug/L (ppb)	50	100	102	79-122	2
sec-Butylbenzene	ug/L (ppb)	50	101	104	80-125	3
p-Isopropyltoluene	ug/L (ppb)	50	104	107	81-123	3
1,3-Dichlorobenzene	ug/L (ppb)	50	99	102	85-116	3
1,4-Dichlorobenzene	ug/L (ppb)	50	95	98	84-121	3
1,2-Dichlorobenzene	ug/L (ppb)	50	98	102	85-116	4
1,2-Dibromo-3-chloropropane	ug/L (ppb)	50	111	115	57-141	4
1,2,4-Trichlorobenzene	ug/L (ppb)	50	97	101	72-130	4
Hexachlorobutadiene	ug/L (ppb)	50	103	105	53-141	2
Naphthalene	ug/L (ppb)	50	99	102	64-133	3
1,2,3-Trichlorobenzene	ug/L (ppb)	50	98	100	65-136	2

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

903291

SAMPLE CHAIN OF CUSTODY

ME 03-15-19

Page # 1 of 1 VSI VWI

Report To Dave Heffner / Breeyn Greer

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone _____ Email dheffner@aspectconsulting.com

SAMPLERS (signature) Breeyn Greer

PROJECT NAME: Morell's

PO # 080190

REMARKS

INVOICE TO: AP

TURNAROUND TIME
- ☐ Standard Turnaround
- ☒ RUSH 3day AIB
- Rush charges authorized by: DAH

SAMPLE DISPOSAL
- ☒ Dispose after 30 days
- ☐ Archive Samples
- ☐ Other

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	TPH-HCID	TPH-Diesel	TPH-Gasoline	BTEX by 8021B	VOCs by 8260C	SVOCs by 8270D	PAHs 8270D SIM					Notes
						ANALYSES REQUESTED											
B-28-10.5	01 A-D	3/14/19	2230	S	4												Hold
B-28-15.5	02	3/14/19	2220	S	4												Hold
B-28-30.5	03	3/14/19	2300	S	4					X							
B-28-55.5	04	3/14/19	0100	S	4					X							Date on Sample 3/15 EMB
MW-23-031419	05 A-F	3/14/19	2255	W	6					X							Don't Rush
													Samples received at 2 °C				

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Greer	Breeyn Greer	Aspect	3/15/19	0630
Received by:	DAVID NICACIO	FED EX	3/15/19	9:49
Relinquished by: D. M-B	Liz Webber-Bruya	FSBI	3/15/19	1100
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

APPENDIX D

Clear Creek Contractors Estimate for Connection

Quote for Aspect - Morrell Dry Cleaners -

QUOTE #20057

Clearcreek Contractors, Inc.
3203 15TH Street
Everettt, WA 98201
markm@clearcreekcon.com

Contact: Mark McCullough
Phone: (360) 659-2459
Fax: (360) 659-9346
Cell: (206) 423-8120

Bond: Not Included
Sales Tax: Not Included
Bid Date: 05/24/2019

Quote To: Breeyn Greer
Aspect Consulting
350 Madison Avenue North
Bainbridge Island WA 98110

Phone: (612) 232-7343
Fax:
Email: bgreer@aspectconsulting.com

Quote is valid for 60 days.

Item	Description	Quantity	Unit	Unit Price	Extension
10	Mob/Demob	1.000	LS	4,705.000	4,705.00
20	Site Prep	1.000	LS	860.000	860.00
30	Surface Demolition and Disposal	150.000	SF	11.000	1,650.00
40	Remedial Trenching	40.000	LF	54.000	2,160.00
50	Pipe Installation	105.000	LF	32.000	3,360.00
55	Pressure Test	1.000	LS	850.000	850.00
65	Backfill Using Clean Imported Soil	12.000	TON	135.000	1,620.00
80	Stockpile trench spoils on site	12.000	TON	67.000	804.00
90	Provide & Install 575-LA w/ LW HDSBS-1 Lid	1.000	LS	10,190.000	10,190.00
120	Asphalt Resurfacing	150.000	SF	18.000	2,700.00
				Total Quote: $	**28,899.00**

Inclusions/Exclusions:

Bid Item 10 includes setupm security fence, portable toilets, and cost to mob/demob labor and equipment.
Unit rate bid items are estimated quantities only. Project billing will be based on actual quantities encountered during field work.
Quantities encountered that are 50% more or 50% less than bid quantities are subject to changes in unit rates.
Includes one mobilization / demobilization to the site.
Site assessment and analytical testing is not included.
Physical testing or compaction monitoring is not included.
Clearcreek has not included applying and/or paying for permits.
Analytical testing for waste characterization or profiling is not included.
Concrete removal, transport, and disposal are not included.
Concrete restoration is not included.
Private utility locate is not included.
Utility or building shoring is not included.
Costs associated with repairs, damages, and delays from unidentified utilities are not included.
Clearcreek assumes no utilities are in the excavation area that would impede our work.
Dewatering and disposal of water is not included.
Asphalt striping is not included.
We are assuming direct load, haul, and dispose of soil (no stockpiling).
Manholes have not been included for HSVE connection points. Assume direct bury of connection point.
Bid Item 65 includes providing and placing sand pipe bedding and crushed surfacing for paving.

APPENDIX E

Report Limitations and Guidelines for Use

REPORT LIMITATIONS AND USE GUIDELINES

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the Client. No other party may rely on this report or the product of our services without the express written consent of Aspect Consulting, LLC (Aspect). This limitation is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual conditions or limitations and guidelines governing their use of the report. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and recognized standards of professionals in the same locality and involving similar conditions.

Services for Specific Purposes, Persons and Projects

Aspect has performed the services in general accordance with the scope and limitations of our Agreement. This report has been prepared for the exclusive use of the Client and their authorized third parties, approved in writing by Aspect. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

This report is not, and should not, be construed as a warranty or guarantee regarding the presence or absence of hazardous substances or petroleum products that may affect the subject property. The report is not intended to make any representation concerning title or ownership to the subject property. If real property records were reviewed, they were reviewed for the sole purpose of determining the subject property's historical uses. All findings, conclusions, and recommendations stated in this report are based on the data and information provided to Aspect, current use of the subject property, and observations and conditions that existed on the date and time of the report.

Aspect structures its services to meet the specific needs of our clients. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and subject property. This report should not be applied for any purpose or project except the purpose described in the Agreement.

This Report Is Project-Specific

Aspect considered a number of unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you
- Not prepared for the specific purpose identified in the Agreement
- Not prepared for the specific real property assessed
- Completed before important changes occurred concerning the subject property, project or governmental regulatory actions

If changes are made to the project or subject property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

Geoscience Interpretations

The geoscience practices (geotechnical engineering, geology, and environmental science) require interpretation of spatial information that can make them less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Use Guidelines" apply to your project or site, you should contact Aspect.

Discipline-Specific Reports Are Not Interchangeable

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the subject property.

Environmental Regulations Are Not Static

Some hazardous substances or petroleum products may be present near the subject property in quantities or under conditions that may have led, or may lead, to contamination of the subject property, but are not included in current local, state or federal regulatory definitions of hazardous substances or petroleum products or do not otherwise present potential liability. Changes may occur in the standards for appropriate inquiry or regulatory definitions of hazardous substance and petroleum products; therefore, this report has a limited useful life.

Property Conditions Change Over Time

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, Phase I ESA reports are applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope failure or groundwater fluctuations. If more than six months have passed since issuance of our report, or if any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Phase I ESAs – Uncertainty Remains After Completion

Aspect has performed the services in general accordance with the scope and limitations of our Agreement and the current version of the “Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process”, ASTM E1527, and U.S. Environmental Protection Agency (EPA)'s Federal Standard 40 CFR Part 312 "Innocent Landowners, Standards for Conducting All Appropriate Inquiries".

No ESA can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with subject property. Performance of an ESA study is intended to reduce, but not eliminate, uncertainty regarding the potential for environmental conditions affecting the subject property. There is always a potential that areas with contamination that were not identified during this ESA exist at the subject property or in the study area. Further evaluation of such potential would require additional research, subsurface exploration, sampling and/or testing.

Historical Information Provided by Others

Aspect has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data does not provide definitive information with regard to all past uses, operations or incidents affecting the subject property or adjacent properties. Aspect makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others.

Exclusion of Mold, Fungus, Radon, Lead, and HBM

Aspect’s services do not include the investigation, detection, prevention or assessment of the presence of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detection, assessment, prevention or abatement of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Aspect’s services also do not include the investigation or assessment of hazardous building materials (HBM) such as asbestos, polychlorinated biphenyls (PCBs) in light ballasts, lead based paint, asbestos-containing building materials, urea-formaldehyde insulation in on-site structures or debris or any other HBMs. Aspect’s services do not include an evaluation of radon or lead in drinking water, unless specifically requested.

APPENDIX D

Pre-Expansion SVE Performance Monitoring

D. Pre-Expansion Soil Vapor Extraction System Performance Monitoring

The Morrell's Dry Cleaners Soil Vapor Extraction (SVE) system has operated continuously since October 15, 2014. Figure 7 of the main report shows the SVE system components, the dry cleaners and adjacent building details, and the permanent sub-slab vapor probe locations beneath the Morell's dry cleaners building. Morrell's Dry Cleaners occupies the northern 40 feet of the building. The southern 20 feet of the building served as Stadium Thriftway storage space until March 2015, when Tease Chocolates began operating in this lease space.

The construction, testing, and start-up of the SVE system are described in the "Construction and Design Report" (Aspect, 2014a) and "Construction Completion Report" (Aspect, 2014b). The system was monitored initially on a biweekly, and later on a monthly, basis. During operation and maintenance (O&M) site visits, system parameters were recorded, vapor concentrations were measured using a photoionization detector (PID), and sub-slab vapor pressures were measured. This appendix evaluates SVE system performance with respect to sub-slab depressurization (SSD) and contaminant mass removal.

D.1 Sub-Slab Depressurization (SSD) Performance

The 3,600-square-foot dry cleaners building has a concrete slab on top of 6 to 12 inches of gravel bedding and is underlain by about 30 feet of glacial till and about 15 feet of dry advance outwash. There is a risk of vapor intrusion into the Morell's building when Volatile organic compounds (VOCs) diffuse from the glacial till and accumulate in the gravel bedding beneath the building. SSD alleviates the risk of vapor intrusion by gently removing VOC accumulation beneath the slab before the vapors enter into the building.

Previously analyzed sub-slab vapor samples collected from beneath the alley and the building in 2012 and 2014, respectively, had results that exceeded the Model Toxics Control Act (MTCA) Method B sub-slab soil gas screening levels (Aspect, 2014a and 2014b). The concentration of PCE was 150,000 $\mu g/m^3$ beneath the middle of the alley, which is consistent with soil impacts extending beyond the building perimeter to the north.

The SVE system was operated to maintain a minimum of 0.005 inches of water column (IWC) of vapor pressure beneath the entire slab foundation of the dry cleaner building. The extent of SSD from the SVE trench in the alley (VE-H) was initially evaluated using a 1-horse-power (HP), regenerative blower (Rotron Model EN404) during the January 2014 SVE pilot test. Table D-1 shows the sub-slab pressure measurements collected during the 4-hour SVE pilot test. Note that the temporary vapor point (VP) locations used in the pilot test are different than the permanent VPs used for soil gas collection (see Figure D-1 from Aspect, 2014b). The 1-HP blower provided 0.005 IWC of depressurization beneath the entire Morrell's Dry Cleaners lease space, but not beneath the adjoining lease space; therefore, a larger blower was selected for the SVE system.

After start-up of the SVE system on October 15, 2014, the extent of SSD from VE-H was evaluated using the permanently installed 2-HP, regenerative blower (Rotron Model EN505). Sub-slab sample locations were completed with a Cox-Colvin vapor pin in the middle of Morrell's Dry Cleaners (VP-4) and the adjoining lease space (VP-7). The SVE system was operated with the SVE trench (VE-H) and the four SVE wells (VE-1 to VE-4) fully open, which provided about 5 IWC of vacuum pressure in VE-H. Table D-2 shows the sub-slab pressure measurements collected during SVE O&M site visits. The vacuum pressures ranged from 0.015 to 0.028 IWC in VP-4 in Morrell's Dry Cleaners, which exceeds the 0.005 IWC standard; however, the vacuum pressures ranged from 0.000 to 0.005 IWC in VP-7 in the Tease Chocolate tenant space, which did not meet the 0.005 IWC standard.

To improve SSD beneath the Tease Chocolate tenant space, a sub-slab suction pit (VE-SS) was constructed on November 12 and 13, 2014 and connected to the SVE system. The SVE system was initially operated with VE-SS and the SVE wells fully open to maximize SSD. This resulting vacuum pressure was 0.025 IWC in VP-7, which is 36 feet from VE-SS. This configuration limits SVE effectiveness because air is disproportionately extracted from the sub-slab and the mass removal rate is relatively low.

Subsequently, the valve to VE-SS was partially closed to decrease the intrusion of surface air while maintaining 0.005 IWC in VP-7. As shown in Table D-2, the vacuum pressure in VE-SS ranged from 0.6 to 0.8 IWC, while the vacuum pressure in VE-7 ranged from 0.007 to 0.013 IWC. VP-7 was destroyed when the lease space was redeveloped in 2015, and an alternate probe VP-5 was completed inside Morrell's Dry Cleaners and adjacent to the interior wall between the two lease spaces. The vacuum pressure ranged from 0.188 to 0.321 IWC in VP-5 when VE-SS operated.

Sub-slab vapor samples were collected from VP-4 and VP-5 to evaluate the effectiveness of the SVE system and the rebound of contamination in the absence of SVE. VE-SS was shut down for 39 days prior to sample collection on April 21, 2015, and for 35 days prior to sample collection on September 7, 2015, while vapor was alternately extracted from VE-H. When sub-slab vapors were allowed to recover for a month, the concentrations of PCE and TCE exceeded the Method B sub-slab soil gas screening levels. In contrast, VE-SS was only shut down during sample collection on December 28, 2016. The extraction of vapors from VE-SS maintained the concentrations of PCE and TCE below the Method B sub-slab soil gas screening levels when the concentrations were not allowed to rebound. Therefore, VE-SS has been operated continuously since 2016, and VE-H has been permanently shut off.

D.2 Contaminant Mass Removal

Selected SVE system operational data are summarized in Table D-3. Summa canister samples were collected from the following SVE system locations and submitted for laboratory analysis:

- "VE-1/2 Leg" of the system, which includes soil gas extracted from SVE wells VE-1 and VE-2 completed in the glacial till (screen intervals of 18 to 32 feet bgs)
- "VE-3/4 Leg" of the system, which includes soil gas extracted from SVE wells VE-3 and VE-4 completed in the advance outwash (screen intervals of 30 to 45 feet bgs)
- Sub-slab suction pit (VE-SS)

- Combined flow prior to the GAC vessels (INF)
- Combined flow between the GAC vessels (MID)
- Effluent from the GAC vessels (EFF)

All samples were analyzed for individual VOCs by Method TO-15. Samples collected on July 5, 2018, were also analyzed for aliphatic and aromatic petroleum hydrocarbons in three carbon ranges (by Method MA-APH). Sample results are summarized in Table D-4. PCE initially accounted for 98.7 percent by weight of detected VOCs. The percentage decreased to the 77 to 87 percent range as the PCE concentrations and detection limits decreased, and to 60 percent on August 30, 2016, because of detections of methylene chloride and petroleum hydrocarbons—including benzene, toluene, xylenes, pentane, and hexane—that were previously not detected or were present at lower concentrations.

Samples collected during the SVE pilot test (Aspect, 2014a) indicate that the relative concentrations of PCE biodegradation products increase with depth, as summarized in Table D-5 below:

Table D-5. Percentage of Chlorinated VOC Compounds with Depth during SVE Pilot Test

Pilot Test Well Depth (feet bgs)	VE-H 1.5 - 4	VE-1 18 - 32	VE-3 31-45
Formation	Glacial till	Glacial till	Advance outwash
PCE	100%	96%	77%
TCE	ND	2%	8%
cis-1,2-DCE	ND	2%	15%
Vinyl chloride	ND	ND	0.08%

ND – not detected

During O&M site visits, a photoionization detector (PID) was used to measure VOC concentrations and an anemometer was used to measure gas flow rates at various points in the SVE system. Based on measured concentrations and gas flow rates, contaminant mass is primarily removed from the four SVE wells. Mass removal from VE-H and VE-SS, which is limited by diffusion of PCE from the underlying glacial till, attenuated to negligible amounts within a couple of months. Thus VE-H and VE-SS were primarily used for SSD.

By September 2018, the mass removal had reduced enough to warrant only one of the two GAC vessels remain connected and the first in series was disconnected. At this time, the GAC inlet concentration was no longer collected; as GAC efficiency was not being monitored. Total mass removal calculations transitioned to be based on PID measurements at the VE-1/2, VE-3/4, and VE-SS legs, normalized with respect to flow rate (i.e., blower flowrate divided by the sum of the three leg flow rates).

PCE concentration is correlated to the VOC concentration measured by PID using the average of the [PCE]/[VOC] ratios measured on the seven occasions when GAC influent samples were collected for laboratory analysis (refer to Table D-4). The resulting correlation factor of 0.29 is used to estimate PCE mass removal based on PID readings. PCE mass removal estimates are provided in Table D-3 and plotted on report Figure E-2. The SVE

system has removed an estimated 345 pounds (lbs) of PCE from the subsurface through shutdown of the original system for expansion on September 21, 2020. An average PCE removal rate of 0.633 lbs/day is estimated for the first 3 months of SVE system operation (mid-October through mid-December 2015), versus 0.133 lbs/day estimated for the pre-expansion annual average for 2020.

Mass removal of petroleum hydrocarbons by the SVE system is comparable to mass removal of chlorinated VOCs. This is evident from analysis of the combined flow (INF) sample collected on July 5, 2018, in which the sum of PCE, TCE, and DCE is about 11,000 $\mu g/m^3$ and the sum of aliphatic hydrocarbons in the C5 to C12 range is 12,000 $\mu g/m^3$. Chlorinated VOCs are primarily coming from the mid-depth soils beneath the dry cleaner building (via angled wells VE-1 and VE-2 screened at 18 to 32 feet bgs), whereas petroleum hydrocarbons are primarily coming from deeper soils (via angled wells VE-3 and VE-4 screened at 30 to 45 feet bgs). The source of the deep petroleum hydrocarbon contamination is not known. One possible source is historical dry-cleaning operations, which may have used petroleum hydrocarbons (e.g., Stoddard solvent) before chlorinated solvents came into use.

The original SVE system configuration operated continuously through the evening of September 21, 2020, when it was shut down for system expansion construction. System expansion construction details and restart operational data can be found in Appendix E.

References

Aspect Consulting, LLC (Aspect), 2014a, Interim Cleanup Action Construction and Design Report, Morrell's Dry Cleaners, Prepared for David Shaw, Successor to Walker Chevrolet, May 16, 2014.

Aspect Consulting, LLC (Aspect), 2014b, Interim Cleanup Action Construction Completion Report, Morrell's Dry Cleaners, Prepared for David Shaw, Successor to Walker Chevrolet, December 23, 2014.

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Aspect Consulting, LLC (Aspect), 2020a, Summary of 2019 Interim Action and SVE System Expansion Morell's Dry Cleaner Site, Prepared for D.E. Wickham, Successor to Walker Chevrolet, June 17, 2020.

Attachments: Table D-1 – Sub-Slab Depressurization Measurements during Pilot Test

Table D-2 – Sub-Slab Depressurization Measurements during SVE Operations

Table D-3 – SVE System Operational Data

Table D-4 – SVE System Gas Sampling Results

Table D-1. Sub-Slab Depressurization Measurements during Pilot Test

Project No. 080190, Morrell's Dry Cleaners Site (VCP No. SW1039), Tacoma, Washington

Elapsed Time (minutes)	VP-1 (IWC)	VP-3 (IWC)	VP-4 (IWC)	VP-5 (IWC)	VP-7 (IWC)	VP-6 (IWC)	VP-2 (IWC)	VP-8 (IWC)
Distance from SVE Trench (ft)	1.75	9	22.5	35	57.4	57.4	12.5	57.9
Pilot Test (0 min)	0	0	0	0	0	0	0.002	0
Pilot Test (15 min)	-0.058	-0.024	-0.014	-0.01	-0.001	-0.003	-0.003	-0.003
Pilot Test (45 min)	-0.058	-0.025	-0.015	-0.011	0	0	-0.004	-0.001
Pilot Test (75 min)	-0.056	-0.024	-0.014	-0.01	0	0	-0.002	0.001
Pilot Test (105 min)	-0.05	-0.02	-0.011	-0.008	0	-0.002	-0.001	-0.003
Pilot Test (135 min)	-0.054	-0.023	-0.014	-0.01	0	0.002	-0.002	0.001
Pilot Test (165 min)	-0.056	-0.024	-0.014	-0.01	0	-0.001	-0.004	-0.001
Pilot Test (195 min)	-0.055	-0.024	-0.014	-0.01	0	-0.001	-0.003	-0.001
Pilot Test (225 min)	-0.053	-0.024	-0.013	-0.01	0	0	-0.004	-0.003

Notes:

Pilot test performed on January 21, 2014 using a 1-horsepower Rotron blower for the SVE Trench (VE-H)

Recommended minimum vacuum for sub-slab depressurization = 0.005 IWC

IWC = inches of water column

SVE = soil vapor extraction

Table D-2. Sub-Slab Depressurization Measurements during SVE Operations

Project No. 080190, Morrell's Dry Cleaners Site (VCP No. SW1039), Tacoma, Washington

Date	VE-H (IWC)	VE-SS (IWC)	VP-4 (IWC)	VP-5 (IWC)	VP-7 (IWC)	
Location	Alley	Morrell's Dry Cleaners	Morrell's Dry Cleaners	Morrell's Dry Cleaners	Stadium Thriftway Storage/ Teese Chocolates	
Distance from VE-H (ft)	0		22.5	38	57.4	
Distance from VE-SS (ft)		0	12	28	36	**Comments**
10/15/2014	-4	NA	-0.03		-0.005	VE-H, VE-1/2, and VE-3/4 were fully open
10/16/2014	-4	NA	-0.024		0	VE-H, VE-1/2, and VE-3/4 were fully open
10/22/2014	-5	NA	-0.028		-0.001	VE-H, VE-1/2, and VE-3/4 were fully open
10/29/2014	-5	NA	-0.022		0	VE-H, VE-1/2, and VE-3/4 were fully open
11/6/2014	-5	NA	-0.015		0	VE-H, VE-1/2, and VE-3/4 were fully open
11/13/2014	-5	NA	-0.015		-0.001	VE-H, VE-1/2, and VE-3/4 were fully open
11/13/2014	-5	NA	-0.441		-0.021	VE-SS, VE-1/2, and VE-3/4 fully open, VE-H turned off
11/20/2014	-	-1.5	-0.5		-0.025	VE-SS, VE-1/2, and VE-3/4 fully open, VE-H turned off
12/4/2014	-	-0.7	-0.247		-0.009	VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
12/18/2014	-	-0.6	-0.182		-0.007	VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
1/2/2015	-	-0.6	-0.183		-0.007	VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
1/15/2015	-	-0.6	-0.211		-0.008	VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
1/28/2015	-	-1.7	-		-	VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
2/11/2015	-	-0.7	-0.233		-	VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
2/26/2015	-	-0.7	-0.237		-0.013	VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
3/13/2015	-	-0.7	-0.25			VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
4/21/2015	-5	-	-0.015	-0.012		VE-H barely open, VE-1/2, and VE-3/4 fully open, VE-SS turned off
5/27/2015	-	-0.8	-0.31	-0.257		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
6/30/2015	-	-0.8	-0.383	-0.321		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
7/29/2015	-3	-	-0.016	-0.013		VE-H barely open, VE-1/2, and VE-3/4 fully open, VE-SS turned off
8/27/2015	-	-0.8	-0.339	-0.286		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
9/28/2015	-3	-	-0.001	-0.008		VE-H barely open, VE-1/2, and VE-3/4 fully open, VE-SS turned off
10/29/2015	-	-0.6	-0.227	-0.188		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
12/1/2015	-2	-0.5	-0.191	-0.155		VE-SS and VE-H barely open, VE-1/2 and VE-3/4 fully open
12/28/2015	-	-0.6	-0.202	-0.164		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
1/29/2016	-	-0.6	-0.279	-0.236		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
2/26/2016	-	-0.6	-0.255	-0.214		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
3/29/2016	-	-0.6	-0.203	-0.197		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
4/26/2016	-	-0.6				VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
6/3/2016	-	-0.7	-0.338	-0.281		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
6/29/2016	-3	-	-0.015	-0.011		VE-H barely open, VE-1/2 and VE-3/4 fully open, VE-SS turned off
8/3/2016	-	-0.6	-0.324	-0.272		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
8/30/2016	-3	-	-	-		VE-H barely open, VE-1/2 and VE-3/4 fully open, VE-SS turned off
10/5/2016	-3	-	-0.011	-0.007		VE-H barely open, VE-1/2 and VE-3/4 fully open, VE-SS turned off
11/2/2016	-	-0.9	-0.357	-0.298		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
12/6/2016	-	-0.7	-0.297	-0.251		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
12/28/2016	-	-0.6	-0.298	-0.238		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
2/3/2017	-	-0.9				VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
3/2/2017	-	-0.8		-0.446		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
4/4/2017	-	-0.8		-0.446		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
5/4/2017	-	-0.9		-0.463		VE-SS barely open, VE-1/2 and VE-3/4 fully open, VE-H turned off
6/2/2017	-3	-		-0.014		VE-H barely open, VE-1/2 and VE-3/4 fully open, VE-SS turned off

Notes:

May-21

VE-SS was installed on 11/13/2014 to reduce contamination beneath the dry cleaners and to provide sub-slab depressurization beneath the entire building.

The 2-hp regenerative blower does not have flow capacity to simultaneously operate VE-H and VE-SS effectively.

VP-7 was sampled in the former Stadium Thriftway storage space. After Teese Chocolates began occupying the tenant space, VP-5 was installed near the adjoining wall in Morrell's Dry Cleaners in April 21, 2015.

IWC = inches of water column

SVE = soil vapor extraction

VE-1/2 - Manifolded angled SVE wells completed in the glacial till.

VE-3/4 - Manifolded angled SVE wells completed in the advance outwash.

VE-H - SVE trench

VE-SS - Sub-slab suction pit within the dry cleaners building. VE-SS is connected to the SVE system.

Table D-3. SVE System Operational Data

Project No. 080190, Morrell's Dry Cleaners Site (VCP No. SW1039)
608 North First Street, Tacoma, Washington

													Est. PCE Mass Removal			VE-1/2 Leg		VE-3/4 Leg	
Date	SVE Blower Clock (hours)	Elapsed Run Time (days)	Cumulative Percent Operating Time	Effluent Pitot Tube Differential Pressure (IWC)	Air Density (kg/m^3)	Blower Flow Rate[1] (SCFM)	Pressure at Blower (IWC)	Pressure at Wellhead/ Sample Point (IWC)	Inlet/ Outlet Temp (F)	Inlet/ Outlet Temp (K)	[VOC] (ppmV, PID) (Measured)	[VOC] (ppmV, PID) (Standard)	PCE Mass Removal Rate[3] (lbs/day)	Mass of PCE Removed[3] (lbs)	Cumulative Mass of PCE Removed[3] (lbs)	Flow Rate[2] (SCFM)	[VOC] (ppmV, PID)	Flow Rate[2] (SCFM)	[VOC] (ppmV, PID)
10/15/14	5	0.0																	
10/15/14	7	0.1	100%	2.1	1.18	94	-18.5	16	103	313	267	279	4.518	0.5	0.5	20.1	280	22.4	191
10/16/14	26	0.9	100%	2.1	1.19	94	-19	16	98	310	139	144	2.352	1.9	2.3	19.5	205	19.6	221
10/22/14	173	7.0	100%	2.1	1.18	94	-19	15	99	310	34	35	0.575	3.5	5.9	19.5	193	21.0	98
10/29/14	345	14.2	100%	2.1	1.18	94	-19	15	98	310	32	33	0.541	3.9	9.7	20.3	400	21.1	130
11/6/14	534	22.1	100%	2.1	1.18	94	-20	15	98	310	40	41	0.677	5.3	15.1	24.8	400	21.8	394
11/13/14	699	28.9	99.8%	2.1	1.19	94	-20	15	94	308	23	24	0.389	2.7	17.7	19.7	460	22.0	168
11/13/14	700	29.0	99.9%	2.1	1.19	94	-20	15	94	308	23	24	0.389	0.0	17.8	3.0	363	3.0	168
11/20/14	868	36.0	99.9%	2.1	1.19	94	-17	16	98	310	24	25	0.406	2.8	20.6	2.3	265	4.5	167
12/4/14	1,204	50.0	100.0%	1.7	1.16	94	-31	13	104	313	34	36	0.575	8.1	28.7	68.3	98	73.5	71
12/18/14	1,539	63.9	99.9%	1.6	1.16	94	-37	11	106	314	48	51	0.812	11.3	40.0	75.3	75	80.5	92
1/2/15	1,899	78.9	99.9%	1.6	1.16	94	-38	11	104	313	22	23	0.372	5.6	45.6	74.9	47	80.1	84
1/15/15	2,209	91.9	99.8%	1.6	1.16	94	-38	11	106	314	18	19	0.305	3.9	49.5	94.5	360	83.4	134
1/28/15	2,521	104.9	99.9%	1.6	1.16	94	-38	11	104	313	31	32	0.525	6.8	56.3	86.7	302	84.5	138
2/11/15	2,858	118.9	99.9%	1.6	1.17	94	-35	13	103	313	8	8	0.135	1.9	58.2	83.2	65	89.9	33
2/26/15	3,214	133.7	99.8%	1.5	1.17	94	-35	14	104	313	11	12	0.186	2.8	61.0	60.8	101	43.0	37
3/13/15	3,576	148.8	99.9%	1.5	1.15	94	-35	14	112	318	13	14	0.220	3.3	64.3	78.2	136	81.1	41
4/21/15	4,401	183.2	97.4%	1.9	1.17	94	-19	16	106	314	1	1	0.017	0.6	64.9	21.5	91	23.0	32
5/27/15	5,060	210.6	94.0%	1.6	1.16	94	-31	15	108	315	28	30	0.474	13.0	77.9	75.9	946	88.4	63
6/30/15	5,827	242.6	94.0%	1.6	1.14	94	-32	15	118	321	23	25	0.389	12.4	90.3	76.0	173	65.1	20
7/29/15	6,516	271.3	94.5%	1.7	1.15	94	-31	15	113	318	19	20	0.321	9.2	99.6	37.2	162	34.3	20
8/27/15	7,156	298.0	94.3%	1.6	1.14	94	-33	14	118	321	12	13	0.203	5.4	105.0	75.3	312	92.6	19
9/28/15	7,925	330.0	94.8%	1.6	1.16	94	-34	14	106	314	12	13	0.203	6.5	111.5	78.3	36	58.4	38
10/29/15	8,669	361.0	95.3%	1.3	1.16	94	-39	12	106	314	12	13	0.203	6.3	117.8	76.0	78	91.5	14
12/1/15	9,339	388.9	94.4%	1.5	1.20	94	-22	16	91	306	3	3	0.051	1.4	119.2	41.8	57	42.6	12
12/28/15	9,988	416.0	94.8%	1.4	1.18	94	-37	11	92	306	7	7	0.118	3.2	122.4	74.2	11	58.3	12
1/29/16	10,757	448.0	95.1%	1.4	1.19	88	-32	12	93	307	9	9	0.143	4.6	127.0	109.7	38	105.9	13
2/26/16	11,425	475.9	95.4%	1.4	1.18	89	-36	12	94	308	15	15	0.240	6.7	133.7	108.6	110	111.7	27
3/29/16	12,197	508.0	95.7%	1.4	1.16	89	-35	12	107	315	12	13	0.192	6.2	139.8	45.7	115	47.2	18
4/26/16	12,847	535.1	95.7%	1.4	1.15	89	-36	12	109	316	16	17	0.256	6.9	146.8	64.6	154	39.7	27
6/3/16	13,753	572.9	96.0%	1.5	1.13	93	-36	12	118	321	9	10	0.151	5.7	152.5	109.9	51	118.6	23
6/29/16	14,360	598.1	96.0%	1.5	1.14	93	-35	11	114	319	8	9	0.134	3.4	155.9	95.4	167	120.2	21
8/3/16	15,079	628.1	95.5%	1.5	1.13	93	-37	11	118	321	7	8	0.117	3.5	159.4	73.0	41	88.9	9
8/30/16	15,614	650.4	94.9%	1.5	1.13	93	-36	11	120	322	7	8	0.117	2.6	162.0	43.9	28	45.4	9
10/5/16	16,446	685.1	95.0%	1.5	1.15	92	-37	11	108	315	6	6	0.099	3.4	165.4	85.3	14	101.5	9
11/2/16	17,114	712.9	95.2%	1.5	1.16	92	-37	11	104	313	11	12	0.182	5.1	170.5	47.4	3	44.5	20
12/6/16	17,936	747.1	95.4%	1.5	1.19	91	-36	11	90	305	5	5	0.082	2.8	173.3	55.5	16	43.3	9
12/28/16	18,459	768.9	95.5%	1.5	1.18	91	-38	11	94	308	5	5	0.082	1.8	175.1	58.8	31	48.3	10
2/3/17	19,345	805.9	95.7%	1.5	1.17	91	-36	8	93	307	5	5	0.082	3.0	178.1	56.0	28	59.7	9
3/2/17	19,995	832.9	95.9%	1.5	1.16	92	-36	7	99	310	6	6	0.099	2.7	180.8	66.5	39	70.3	11
4/4/17	20,781	865.7	96.0%	1.5	1.14	92	-35	7	106	314	5	5	0.083	2.7	183.5	57.6	37	51.0	10
5/5/17	21,530	896.9	96.1%	1.5	1.14	92	-36	7	107	315	4	4	0.066	2.1	185.6	25.8	5	29.5	8
6/2/17	22,142	922.4	96.0%	1.5	1.11	93	-36	6	120	322	6	6	0.100	2.6	188.1	44.0	9	45.4	14
6/29/17	22,747	947.6	95.9%	1.5	1.14	93	-37	6	106	314	7	7	0.117	3.0	191.1	31.0	44	34.0	11
8/1/17	23,507	979.3	95.9%	1.5	1.13	93	-36	6	114	319	13	14	0.218	6.9	198.0	35.0	27	34.0	18
9/5/17	24,171	1,006.9	95.4%	1.6	1.12	96	-31	8	119	321	10	11	0.173	4.8	202.8	40.0	8	37.0	13
9/29/17	24,713	1,029.5	95.3%	1.3	1.13	87	-41	4	108	315	37	39	0.579	13.1	215.8	29.0	12	32.0	30
10/26/17	25,362	1,056.6	95.4%	1.4	1.14	89	-37	6	108	315	18	19	0.288	7.8	223.6	27.0	9	30.0	23
12/4/17	26,297	1,095.5	95.6%	1.7	1.17	97	-39	4	90	305	4	4	0.070	2.7	226.4	42.0	5	41.0	12
1/5/18	27,063	1,127.4	95.7%	1.7	1.16	97	-35	4	96	309	4	4	0.070	2.2	228.6	24.0	8	26.0	7
2/1/18	27,365	1,140.0	94.6%	1.8	1.15	100	-35	4	99	310	5	5	0.090	1.1	229.7	30.0	51	30.0	11

Table D-3. SVE System Operational Data

Project No. 080190, Morrell's Dry Cleaners Site (VCP No. SW1039)
608 North First Street, Tacoma, Washington

													Est. PCE Mass Removal			VE-1/2 Leg		VE-3/4 Leg	
Date	SVE Blower Clock (hours)	Elapsed Run Time (days)	Cumulative Percent Operating Time	Effluent Pitot Tube Differential Pressure (IWC)	Air Density (kg/m^3)	Blower Flow Rate[1] (SCFM)	Pressure at Blower (IWC)	Pressure at Wellhead/ Sample Point (IWC)	Inlet/ Outlet Temp (F)	Inlet/ Outlet Temp (K)	[VOC] (ppmV, PID) (Measured)	[VOC] (ppmV, PID) (Standard)	PCE Mass Removal Rate[3] (lbs/day)	Mass of PCE Removed[3] (lbs)	Cumulative Mass of PCE Removed[3] (lbs)	Flow Rate[2] (SCFM)	[VOC] (ppmV, PID)	Flow Rate[2] (SCFM)	[VOC] (ppmV, PID)
3/5/18	28,031	1,167.8	94.4%	1.7	1.16	97	-37	3.5	95	308	6	6	0.105	2.9	232.6	27.0	25	51.0	19
4/2/18	28,806	1,200.1	94.9%	1.7	1.15	97	-36	4	100	311	6	6	0.105	3.4	236.0	54.0	60	88.0	22
5/1/18	29,502	1,229.1	95.0%	1.8	1.13	101	-34	4	108	315	10	11	0.182	5.3	241.3	29.0	102	25.0	32
6/8/18	30,372	1,265.3	95.0%	1.7	1.13	98	-33	4	110	316	5	5	0.088	3.2	244.5	83.0	16	74.0	14
7/5/18	30,928	1,288.5	94.8%	1.6	1.12	95	-33	4	115	319	3.5	3.7	0.060	1.4	245.9	66.0	11	77.0	9
07/30/18	31,069	1,294	93.5%	1.9	1.11	104	-30	4	118	321	2	2	0.037	0.2	246.1	45	4	35.0	3
9/5/18	31,486	1,312	92.3%	1.8	1.11	101	-32	4	120	322	10	11	0.182	3.2	249.3	40	67	38.0	27
10/3/18	31,683	1,320	91.1%	2	N/A	105	-34	NA	98	310	N/A	N/A	0.084	0.7	249.9	30	7	29.0	4
11/5/18	31,771	1,324	89.3%	2	N/A	105	-34	N/A	96	309	N/A	N/A	0.094	0.3	250.3	29	11	29.0	4
12/18/18	32,270	1,344	88.2%	1.8	N/A	100	-38	N/A	98	310	N/A	N/A	0.166	3.4	253.7	27	22	29.0	11
1/15/19	32,940	1,372	88.4%	1.9	N/A	103	-38	N/A	90	305	N/A	N/A	0.171	4.8	258.5	39	15	26.0	11
3/8/19	34,177	1,424	88.7%	2	N/A	104	-36	N/A	80	300	N/A	N/A	0.104	5.4	263.9	36	13	33.0	4
4/3/19	34,798	1,450	88.9%	2	N/A	106	-36	N/A	102	312	N/A	N/A	0.217	5.6	269.5	27	16	23.0	24
5/1/19	35,472	1,478	89.1%	2	N/A	106	-36	N/A	108	315	N/A	N/A	0.143	4.0	273.5	26	11	38.0	12
6/12/19	36,479	1,520	89.3%	2	N/A	108	-35	N/A	120	322	N/A	N/A	0.178	7.5	281.0	34	10	48.0	14
7/16/19	37,297	1,554	89.6%	2	N/A	107	-35	N/A	118	321	N/A	N/A	0.136	4.6	285.6	45	7	42.0	11
8/14/19	37,991	1,583	89.7%	2.2	N/A	112	-32	N/A	112	318	N/A	N/A	0.049	1.4	287.0	37	4	52.0	3
9/10/19	38,637	1,610	89.9%	2.2	N/A	112	-35	N/A	108	315	N/A	N/A	0.145	3.9	290.9	53	7	82.0	10
10/11/19	39,384	1,641	90.1%	2.2	N/A	110	-36	N/A	100	311	N/A	N/A	0.145	4.5	295.4	47	7	83.0	10
11/5/19	39,984	1,666	90.2%	2	N/A	105	-37	N/A	96	309	N/A	N/A	0.496	12.4	307.8	53	30	46.0	41
12/3/19	40,657	1,694	90.3%	2.4	N/A	113	-25	N/A	90	305	N/A	N/A	0.002	0.1	307.9	9	0	12.0	0
1/2/20	41,374	1,724	90.5%	2.4	N/A	113	-25	N/A	90	305	N/A	N/A	0.044	1.3	309.2	13	2	22.0	4
2/5/20	42,192	1,758	90.7%	2.4	N/A	113	-27	N/A	87	304	N/A	N/A	0.057	1.9	311.2	20	2	7.0	4
3/5/20	42,885	1,787	90.8%	2.4	N/A	114	-30	N/A	90	305	N/A	N/A	0.245	7.1	318.2	24	22	19.0	21
4/7/20	43,673	1,820	90.9%	1.8	N/A	101	-45	N/A	103	313	N/A	N/A	0.142	4.7	322.9	63	12	58.0	5
5/12/20	44,514	1,855	91.1%	2	N/A	106	-37	N/A	106	314	N/A	N/A	0.201	7.0	329.9	34	10	38.0	17
6/2/20	45,017	1,876	91.2%	2.1	N/A	109	-36	N/A	112	318	N/A	N/A	0.216	4.5	334.5	41	15	42.0	16
7/13/20	46,002	1,917	91.4%	2.1	N/A	109	-36	N/A	116	320	N/A	N/A	0.048	2.0	336.4	36	1	34.0	5
8/10/20	46,675	1,945	91.5%	2.1	N/A	110	-35	N/A	120	322	N/A	N/A	0.152	4.3	340.7	35	7	42.0	12
9/2/20	47,222	1,967	91.5%	2.1	N/A	110	-35	N/A	117	320	N/A	N/A	0.092	2.1	342.8	25	4	42.0	8
9/21/20	47,909	1,996	92.1%	System shutdown for Expansion Construction									0.092	2.6	345.4				

IWC = inches of water column
PCE = tetrachloroethene
PID = photoionization detector
ppmV = parts per million by volume
SCFM = standard cubic feet per minute
SVE = soil vapor extraction
VOC = volatile organic compound

Notes:

1) Rotron EN505 blower curve indicates that the blower should extract 97.5 SCFM at 37.5 IWC and 120 SCFM at 20 IWC. Flow rate for the blower is measured using a pitot tube, and the flow measurements reconcile with the two Rotron EN505 blower curve match points, indicating the accuracy of the blower flow measurements.
2) Flow rates are measured with an anemometer for the VE-1/2 and VE-3/4 legs of the SVE system. These are highly variable and combined measurements often greatly exceed blower capacity, indicating limitations for the anemometer flow measurements.
3) PCE concentration was correlated to the VOC concentration measured by PID using the average of the [PCE]/[VOC] ratios measured on the seven occasions on which SVE influent samples were analyze by EPA Method TO-15 (refer to Table C-4). The resulting correlation factor of 0.290 is used to estimate PCE mass removal based on PID readings.

Table D-4. SVE System Gas Sampling Results

Project No. 080190, Morrell's Dry Cleaners Site (VCP No. SW1040), Tacoma, Washington

Location	VE-1/2	VE-3/4	VE-SS	GAC Influent							Between GAC		GAC Effluent					
Date	7/5/18	7/5/18	7/5/18	10/15/14	3/13/15	6/30/15	2/26/16	8/30/16	10/26/17	7/5/18	2/26/16	8/30/16	10/15/14	3/13/15	6/30/15	2/26/16	8/30/16	10/26/17
Chemical	Well Screen Intervals 18 to 32 feet bgs	Well Screen Intervals 30 to 45 feet bgs	Sub-slab	Combined Flow Prior to Treatment							Between Serial Carbon Vessels		Emissions to Atmosphere					
Chlorinated Volatile Organic Compounds																		
Tetrachloroethene (PCE)	**96,000**	**26,000**	**1,200 ve**	**800,000**	**31,000**	**38,000**	**7,500**	**21,000**	**21,000 ve**	**9,900 ve**	**11,000**	**2,500**	< 8.2 U	< 8.1 U	< 8.0 U	< 6.8 U	< 3.4 U	**25**
Trichloroethene (TCE)	**450**	**1,300**	**29**	**2,000**	**2,400**	**2,100**	**580**	**1,100**	**1,300**	**440**	**1,200**	**1,500**	< 6.5 U	< 6.4 U	< 6.4 U	< 5.4 U	< 2.7 U	**1,900**
cis-1,2-Dichloroethene (cDCE)	**5,300**	**1,300**	<1.3 U	**1,500**	**2,200**	**1,400**	**550**	**790**	**740**	**390**	**540**	**1,500**	< 4.8 U	< 4.7 U	**1,100**	**1,500**	**12**	**12**
trans-1,2-Dichloroethene (tDCE)	<200 U	<99 U	<1.3 U	< 1300 U	< 73 U	< 66 U	< 20 U	< 40 U	< 9.9 U	<9.9 U	**7.1**	< 40 U	< 4.8 U	< 4.7 U	**16**	**24**	< 2 U	**950**
1,1-Dichloroethene	<200 U	<99 U	**4.6**	< 1300 U	< 73 U	< 66 U	< 20 U	< 40 U	< 9.9 U	<9.9 U	< 4 U	< 40 U	< 4.8 U	< 4.7 U	< 4.7 U	< 4 U	< 2 U	**5.6**
1,1,1-Trichloroethane	<270 U	<140 U	**4.8**	< 1800 U	< 100 U	< 91 U	< 27 U	< 55 U		<14 U	< 5.5 U	< 55 U	< 6.6 U	< 6.5 U	< 6.5 U	< 5.5 U	< 2.7 U	
Vinyl chloride	**440**	<64 U	<0.84 U	< 820 U	< 47 U	< 43 U	< 13 U	< 26 U	< 6.4 U	<6.4 U	< 2.6 U	< 26 U	< 3.1 U	< 3.0 U	< 3.0 U	< 2.6 U	< 1.3 U	< 2.6 U
Carbon tetrachloride	<310 U	<310 U	**6.5**	< 2000 U	**160**	< 100 U	< 31 U	< 63 U		**22**	**70**	< 63 U	< 7.6 U	< 7.5 U	< 7.4 U	< 6.3 U	< 3.1 U	
Chloroform	<24 U	**46**	**1.5**	< 1600 U	< 90 U	< 82 U	< 24 U	< 49 U		**15**	**22**	< 49 U	< 5.9 U	< 5.8 U	< 5.8 U	**45**	< 2.4 U	
Methylene chloride	<43,000 U	<22,000 U	<290 U	< 1100 U	< 640 U	< 580 U	< 870 UJ	**10,000**		<2,200 U	**430 J**	< 8700 U	< 42 U	< 41 U	**48**	**250 J**	**850**	
1,4-Dichlorobenzene	<120 U	<60 U	**1.0**	< 1900 U	< 110 U	< 100 U	< 30 U	< 60 U		<6 U	< 6 U	< 60 U	< 7.3 U	< 7.2 U	< 7.1 U	< 6 U	< 3 U	
Petroleum Hydrocarbons																		
APH EC5-8 aliphatics[2]	<23,000 U	**40,000**	<150 U							**10,000**								
APH EC9-12 aliphatics[2]	<17,000 U	<8,700 U	**1,200**							**2,000**								
APH EC9-10 aromatics[2]	<12,000 U	<6,200 U	<82 U							<620 U								
Benzene	<160 U	**190**	<1.1 U	< 1000 U	< 59 U	< 53 U	< 16 U	**160**	**130**	**58**	**34**	**280**	< 3.9 U	< 3.8 U	< 3.8 U	< 3.2 U	< 1.6 U	**130**
Toluene	<190 U	**280**	**4.5**	< 1200 U	< 69 U	< 63 U	< 19 U	**280**	**200**	**93**	< 3.8 U	< 38 U	< 4.6 U	< 4.5 U	< 4.5 U	< 3.8 U	**2.7**	**28**
Ethylbenzene	<220 U	<110 U	<1.4 U	< 1400 U	< 80 U	< 72 U	< 22 U	< 43 U	**13**	<11 U	< 4.3 U	< 43 U	< 5.3 U	< 5.2 U	< 5.1 U	< 4.3 U	< 2.2 U	< 4.3 U
Total Xylenes	<650 U	**650**	<4.3 U	< 1400 U	< 80 U	< 72 U	< 43 U	**211**	**335**	**210**	< 8.7 U	< 87 U	< 5.3 U	< 5.2 U	< 5.1 U	< 8.7 U	< 4.3 U	**47**
Naphthalene	<52 U	<26 U	**3.0 fb**				< 26 U	< 52 U	< 13 U	**3.5 fb**	< 5.2 U	< 52 U				< 5.2 U	< 2.6 U	< 5.2 U
1,2-Dibromoethane (EDB)	<38 U	<19 U	<0.56 U	< 2500 U	< 140 U	< 130 U	< 38 U	< 77 U		<1.9 U	< 7.7 U	< 77 U	< 9.3 U	< 9.1 U	< 9.1 U	< 7.7 U	< 3.8 U	
1,2-Dichloroethane (EDC)	<20 U	<10 U	<0.24 U	< 1300 U	< 74 U	< 68 U	< 20 U	< 40 U	< 10 U	<1 U	**4.5**	< 40 U	< 4.9 U	< 4.8 U	< 4.8 U	< 4 U	< 2 U	< 4 U
Methyl tert-butyl ether (MTBE)	<900 U	<450 U	<5.9 U	< 1200 U	< 66 U	< 60 U	< 18 U	< 36 U		<45 U	< 3.6 U	< 36 U	< 4.4 U	< 4.3 U	< 4.3 U	< 3.6 U	< 1.8 U	
Propene	<340 U	<170 U	<2.3 U				< 34 U	< 69 U		<17 U	< 6.9 U	< 69 U				< 6.9 U	**4.1**	
Isobutene	<460 U	<230 U	<3 U				< 46 U	< 92 U		<23 U	< 9.2 U	< 92 U				< 9.2 U	**9.5**	
Pentane	<1,500 U	<740 U	<9.7 U				**170**	**320**		**170**	**430**	**420**				< 30 U	< 15 U	
Cyclopentane	<140 U	<72 U	<0.95 U				< 14 U	**48**		<7.2 U	< 2.9 U	**81**				**160**	**4**	
n-Hexane	<1,800 U	<880 U	<12 U	< 1100 U	**640**	**260**	**230**	**550**		**150**	**760**	**930**	< 4.3 U	< 4.2 U	< 4.2 U	< 35 U	< 18 U	
Cyclohexane	<3,400 U	<1,700 U	<23 U	< 1100 U	**370**	**160**	< 340 U	< 690 U		<170 U	**380**	< 690 U	< 4.2 U	< 4.1 U	< 4.1 U	< 69 U	< 34 U	
Heptane				< 1300 U	**630**	**150**							< 5.0 U	< 4.9 U	< 4.8 U			
2,2,4-Trimethylpentane				< 1500 U	**2,700**	**1,500**							< 5.7 U	< 5.6 U	< 5.5 U			
Other Detected Volatile Organic Compounds																		
Acetone	<2,400 U	<1,200 U	<16 U	< 3000 U	< 440 U	< 400 U	< 240 U	< 480 U		<120 U	< 48 U	< 480 U	**36**	< 28 U	**37**	< 48 U	**30**	
Acrolein	<460 U	<230 U	<3 U				< 46 U	< 92 U		<23 U	< 9.2 U	< 92 U				< 9.2 U	**9.4**	
CFC-113	<380 U	<190 U	**23**				< 38 U	< 77 U		**23**	< 7.7 U	< 77 U				< 7.7 U	< 3.8 U	
Chlorodifluoromethane	<180 U	<88 U	**1.3**				< 18 U	< 35 U		<8.8 U	< 3.5 U	< 35 U				< 3.5 U	< 1.8 U	
Dichlorodifluoromethane	<250 U	<120 U	**3.1**	< 1600 U	< 91 U	< 82 U	**29**	**55**		**38**	**48**	**49**	< 6.0 U	**68**	**60**	**60**	**42**	
Ethanol	<3,800 U	<1,900 U	<25 U	< 2400 U	< 140 U	< 120 U	< 380 U	< 750 U		<190 U	< 75 U	< 750 U	< 9.2 UJ	**28**	**130**	< 75 U	< 38 U	
2-Propanol	<4,300 U	<2,200 U	<28 U	< 3200 U	< 180 U	< 160 U	< 430 UJ	< 860 U		<220 U	< 86 UJ	< 860 U	< 12 U	< 12 U	**35**	< 86 UJ	**85**	
Tetrahydrofuran				**1,600**	< 54 U	< 49 U							< 3.6 U	< 3.5 U	< 3.5 U			
Trichlorofluoromethane	<280 U	<140 U	**5.8**	< 1800 U	< 100 U	< 94 U	< 28 U	< 56 U		<14 U	< 5.6 U	< 56 U	< 6.8 U	< 6.7 U	**16**	**5.6**	**6.2**	

APH air-phase hydrocarbons
bgs below ground surface
fb the analyte was detected in the method blank

J the value reported is an estimate (concentration is below lowest calibration standard)
U not detected at the indicated reporting limit
ve the value reported is an estimate (response exceeded the valid instrument calibration range)

Notes:

1) All concentrations are in micrograms per cubic meter. Only analytes detected in at least one sample are included in this table. Detections are bolded.

2) All samples were analyzed by EPA Method TO-15 for volatile organic compounds (VOCs). Samples collected on 7/5/18 were also analyzed by Method MA-APH for aliphatic and aromatic hydrocarbons in the indicated carbon ranges. Non-petroleum compounds were subtracted from the EC5-8 aliphatic range prior to quantitation.

TULLY'S COFFEE

INVESTMENT SERVICES

COUNSELING OFFICE

FRANCO THE TAILOR

MORRELL'S DRY CLEANERS

STADIUM THRIFTWAY STORAGE SPACE

5' Tall Wooden Fence Separates Tully's Alley and Morrell's Alley

8' Tall Brick Wall

Decommissioned 750 Gallon Bunker Oil UST

Plugged Vapor Sample Point VP-1

Plugged Vapor Sample Point VP-2

Wastewater Drum

GAC Drum

GAC Drum/Vapor Emission Stack

Plugged Geoprobe Boring DP-4

Plugged Geoprobe Boring DP-5

3 Electrical Panels with Overhead Power

2 Overhead Power Meters

3/4" Gas Line Elevated 12" AGS Connects to Below Grade

2 Gas Meters at Grade

Plugged Vapor Sample Point VP-3

Rear Entrance

Wrought Iron Gate

4' Tall Wood Gate

SVE Trench

SVE Blower

SVE Knock-Out Tank

Boarded Shut

SVE Riser Pipes for SVE Trench, VE-1/VE-2, and VE-3/VE-4

Cinder Block Chimney

Gas Meter

Machine Room

Restroom

Boiler Room

Storage Room

Office

Interior Wall

Sub-Slab Suction Pit Connected to SVE System on 11/13/2014

VP-1

VP-2

VP-3

VP-4

VP-5

VP-6

VP-7

VP-7

VP-8

VE-SS

VE-1

VE-3

VE-2

VE-4

MW-15

MW-21

MW-8

MW-8D

MW-16

MW-17

MW-2

MW-18

MW-19

MW-20

15' Wide Gas Easement

Glacial Till Wells VE-1 and VE-2 Manifolded and Connected to Conveyance Pipe Above SVE Trench

Advance Outwash Wells VE-3 and VE-4 Manifolded and Connected to Conveyance Pipe Above SVE Trench

OHP

SS

SD

W

LEGEND

- Horizontal Projection
- Screened Interval
- Vertical Monitoring Well
- Angled Monitoring Well
- Angled SVE Well
- Sub-Slab Vapor Probe
- Sub-Slab Vapor Probe (Temporary for SVE Pilot Test)
- Sub-Slab Suction Pit (Connected to SVE System)
- Parcel Boundaries

0 10 20 Feet

Aspect CONSULTING

SVE Pilot Test and Install

MORRELL'S DRY CLEANERS

CONSTRUCTION COMPLETION REPORT

TACOMA, WASHINGTON

FIGURE NO.

DESIGNED BY: AN | DRAWN BY: SCC | REVISED BY: - | PROJECT NUMBER: 080150 | REVISION: - | DATE: DEC 2014

APPR. | DATE | DESCRIPTION | REV.

CAD Path: Q:_GeoTech\080150 Stadium Thriftway\2014-12 Construction Completion Report\080150-003.dwg 02 ALLEY DETAIL 10' SCALE | Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet | Date Saved: Dec 17, 2014 9:38am | User: scudd

APPENDIX E

SVE Expansion As-Built Record and Initial Performance

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Soil Vapor Extraction Expansion (2020)

The interim action SVE wells (VE-1 through VE-4) have removed a significant amount of contaminant mass from vadose zone soils beneath the northeast portion of the Morrell's building, (Appendix D of Work Plan). However, those wells only targeted contamination beneath the northeast portion of the building. SVE was expanded in 2020 to address the entire Morell's Building footprint area, thus targeting a larger portion of impacted vadose zone contamination and expanding the sub-slab depressurization (SSD) potential beneath the building. The work plan for this VE expansion was outlined in the *Summary of 2019 Interim Actions and SVE Expansion Memorandum* (Aspect, 2020a; Appendix C of Work Plan). This section provides an as-built record for the connection of the four new angled wells (VE-5 through VE-8; Figure E-1) and one new vertical well (MW-23) to the existing SVE system.

VE-5 and VE-7 were completed in the glacial till, with screen intervals of 18 to 32 feet bgs. SVE wells VE-6 and VE-8 were completed in the Advance Outwash, with screen intervals of 32 to 46 feet bgs. MW-23 has a dual screen: a vadose zone screen from 10 to 20 feet bgs and a saturated-zone screen from 45 to 60 feet bgs. Well construction details can be found in Appendix C of the Work Plan.

Due to the lack of space in the ally, the new angled wells were connected to the SVE system by tapping into existing laterals attached to VE-1/2 and VE-3/4 in the northwest corner of the parking lot; Figure E-1. MW-24 and MW-31, initially constructed as SVE wells, were not added to the system due to near-zero PID readings during drilling.

Construction sequence, trenching and backfill, piping, vault and instrumentation details, vapor emissions control, waste management, expanded SVE startup and monitoring are discussed below. Information on the existing SVE system layout and components can be found in the "Interim Cleanup Action Construction Completion Report" (Aspect, 2014b).

Construction Completion Details

This section summarizes the construction and completion details for the SVE conveyance pipes from the wellheads to the connection with existing SVE laterals. The four new wells were connected to the existing system in the following construction sequence:

1. Asphalt demolition and trenching
2. Conveyance pipe connection and vault installation
3. Conveyance pipe vacuum testing and slope confirmation
4. Trench backfill, site restoration, and system restart

Aspect provided preconstruction tenant and contractor coordination as well as an on-site preconstruction meeting with all interested tenants and the contractor on September 14, 2020. Construction began on September 21, 2020, at which time the SVE system was shut down for the duration of construction. Aspect also provided part-time oversight

during trenching, conveyance pipe installation, and restoration and was onsite for the vacuum testing and slope confirmation. All work was completed at night, generally between 8 p.m. and 6 a.m. per the tenants' request.

SVE Trenching and Backfill

An approximately 40-foot-long trench was excavated from MW-23 north to just south of MW-15 and MW-21. The trench was approximately 2.5-feet deep and 2.5-feet wide. Figure E-1 shows the approximate trenching and asphalt patch perimeter. The design was somewhat dictated by the locations of the installed wells, the property line, and the natural gas line in relation to the tie-in points.

Excavated soil was field screened with a PID. Granular soil and previously placed gravel fill[1] that did not elicit a PID response was used as backfill in the trench. Soil that did elicit a PID response was not eligible for backfill and was placed in a roll off box for disposal. The roll off box was covered when not actively in use.

Once piping construction was complete, piping was bedded in 6 inches of sand, and covered with a geotextile membrane. The trench was backfilled with a 9-inch layer of native soil, approximately 12 inches of gravel, and restored with approximately 3 inches of asphalt. The MW-23 monument was removed and replaced once piping construction and backfill was complete for continued use as a monitoring well.

Piping, Vault, and Instrumentation Details

The connection of the new SVE wells was completed by tapping into the existing conveyance piping serving wells VE-1 through VE-4. These connections are all underground, and each lateral (existing and new) received instrumentation accessible via four, 2-foot by 2-foot utility vaults.[2] An as-built diagram of the piping from wells to connection point, ports, and utility vaults can be seen on Figure E-1. The vaults have hatch-style, traffic-rated doors which open for easy access to the valves and gauges within. Instrumentation inside the vaults included a flow-control valve, anemometer and sample port, and vacuum gage on each individual well line.

Each new 4-inch-diameter SVE well was connected to a 3-inch-diameter, Schedule 80 PVC lateral which feeds into 4-inch-diameter headers. A ball valve is placed on each SVE well lateral to connect or disconnect that well from the blower. Between the vaults and the SVE equipment manifold in the alley, the flows are combined and transmitted through two existing 4-inch PVC conveyance pipes.[3] Two ball values were also placed on the 4-inch header to direct flows into either of the 4-inch laterals for increased control in optimizing the system.

The conveyance pipes were completed to the manifolded wells with a negative slope and with no sag points so that condensate drains back into the wells. There is a natural gas line that extends east along the parcel boundary, which was hand located during

[1] Gravel backfill was placed during original SVE construction in September 2014.

[2] As originally constructed, VE-1/2 and VE-3/4 remain dual well laterals.

[3] Existing SVE piping downstream of the vault was not modified.

construction and determined to be approximately 25 inches below grade. This utility was carefully avoided and no conveyance pipes were installed beneath the natural gas line.

Once laterals from VE-7, VE-8, and MW-23 were constructed and glued, a pressure test was completed to ensure completely sealed unions. VE-5 and VE-6 laterals were determined to be too short for vacuum testing at less than 3-feet long, each. Pressure testing was completed by inducing 10 PSI within the pipe for 10 minutes. None of the laterals had an observable loss in pressure throughout the testing period. An as-built of the expanded SVE system is shown on Figure E-1.

Vapor Emissions Control

The VOC emissions are treated with granular activated carbon (GAC) prior to discharge through one of the existing 55-gallon, vapor-phase GAC drums. The existing GAC drums have a flow capacity of roughly 150 standard cubic feet per minute (SCFM). Effluent from the GAC is being monitored with a PID and a PCE Gastec tube for signs of breakthrough. Should any signs of GAC breakthrough be detected during O&M visits, the substrate would be replaced with new coconut carbon substrate; or disconnected if emissions calculations demonstrate it is obsolete.

The Puget Sound Clean Air Agency (PSCAA) is the local authority that regulates air emissions at the Site. As described in Section 6.03(94) of Regulation I of the PSCAA, soil and groundwater remediation systems are exempt from submitting a Notice of Construction and needing an Order of Approval from the PSCAA when air emission releases are less than 15 pounds per year (lbs/year) of benzene or vinyl chloride, less than 500 lbs/year of PCE, and less than 1,000 lbs/year of toxic air contaminants. These limits will not be exceeded at the Site. Monthly emissions monitoring and calculations are performed and documented to verify that emission limits are not exceeded.

IDW Management

Soil

Granular soil that elicited a PID response was placed in the roll-off box and disposed of as F002 listed hazardous waste not requiring incineration. Aspect conducted waste disposal characterization sampling and the analytical results were below laboratory detection levels; laboratory reports are provided in Attachment 1. However, due to tenant induced time constraints on storing the roll-off box in the parking lot, the existing F002 profile was used.

A total of 17.86 tons of soil was transported to Chemical Waste Management of the Northwest Subtitle C landfill in Arlington, Oregon for disposal as Subtitle C waste. The waste manifests are provided in Attachment 2.

Dewatering Water

Unexpected significant rainfall occurred during construction on the night of September 22, 2020. As a result, approximately 300 gallons of water was pumped from the excavation and temporarily stored onsite. Aspect conducted waste disposal characterization sampling; the analytical results were below laboratory detection

levels (laboratory reports are provided in Appendix B). This water was transported to Lafarge North America in Seattle, Washington, for disposal as Non-RCRA, Non-DOT waste. The waste manifests are provided in Attachment 2.

Startup and Initial Expanded SVE Performance

The expanded SVE system was restarted on October 1, 2020. The original SVE wells were closed prior to restart. By closing original wells VE-1 through VE-4 and only running new wells VE-5 through VE-8 and MW-23, the expanded SVE system initially extracted soil vapor only from pore volumes that have previously been at the outskirts or beyond the radius of influence of the original SVE system. Once the system was restarted, the system was allowed to equilibrate for 1 hour prior to completing an initial round of Operation and Maintenance (O&M) measurements, which include:

1. Vacuum and the concentrations of VOCs from each of the active wellheads (VE-5 through VE-8 and MW-23 for initial system restart)
2. Vacuum, temperature, flow rate, and concentration from the manifolded line between the vapor liquid separator and the blower
3. Pressure and temperature from the effluent line from the blower
4. Influent and effluent concentrations from the vapor-phase GAC drums

The concentrations of VOCs were measured with a PID. The PCE mass removal rate was calculated from the flow rate, PID measurement, vacuum pressure, and temperature; it is assumed that all contamination exists as PCE.

On October 2, 2020, an Aspect field technician repeated the O&M measurements, monitored blower performance, and collected effluent vapor samples. Vapor samples were collected from each of the five new SVE wells and analyzed by Environmental Protection Agency (EPA) Method TO-15 for chlorinated VOCs, benzene, toluene, ethylbenzene, and xylenes (BTEX). After the ‘day one’ set of measurements, O&M visits became weekly for the first month of operation to accurately track PCE removal and monitor for PCE breakthrough of the first GAC filter. After the first month of operation, the O&M visits returned to the standard monthly schedule.

The calculated mass of PCE removed by the system increased from an average of 0.133 lbs/day (estimated for the first 9 months of 2020) to an average of 0.295 lbs/day (estimated for the first 2 months after expanded SVE startup).

Soil vapor sampling results are summarized in Table E-1 and expanded SVE startup operational data is shown in Table E-2. PCE emissions are shown on Figure E-2. Laboratory reports are included in Attachment 1. The system will be operated in alternating patterns to maximize contaminant mass removal.

Sub-Slab Depressurization Monitoring

As discussed in Appendix D an important function of the SVE system is to provide SSD throughout the Morell’s building, and alleviate the potential for vapor intrusion. The original SVE configuration was determined to provide adequate SSD throughout the

building by monitoring the vacuum at VP-7[4] in response to the operation of VE-SS in 2015 and sampling sub-slab soil gas in 2016.

VP-7 was destroyed due to tenant space renovation in 2015, however VP-5 was installed in the center of the building, just north of the dividing wall to continue to monitor SSD. VP-7 was demonstrated to have sufficient vacuum[4] when VP-5 measured around 0.2 inches water column vacuum. A record of VP-5 monitoring is provided in Table E-3.

[4] Recommended minimum vacuum for sub-slab depressurization = 0.005 inches water column.

References

Aspect Consulting, LLC (Aspect), 2014a, Interim Cleanup Action Construction and Design Report, Morrell's Dry Cleaners, Prepared for David Shaw, Successor to Walker Chevrolet, May 16, 2014.

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TABLES

Table E-1. Soil Vapor and Air Emissions Data

Project No. 080190, Morell's Dry Cleaners (VCP SW1039), Tacoma, Washington

Location Date		Pre-Expansion Effluent 09/21/2020	MW-23 10/02/2020	VE-5 10/02/2020	VE-6 10/02/2020	VE-7 10/02/2020	VE-8 10/02/2020	Post-Expansion Effluent 3/24/2021
Analyte	**Unit**							
BTEX								
Benzene	ug/m3	**20**	< 14 U	< 170 U	**6.3**	< 770 U	**42**	**35**
Toluene	ug/m3	< 810 U	< 830 U	< 9800 U	< 320 U	< 45000 U	< 770 U	< 160 U
Ethylbenzene	ug/m3	< 19 U	< 19 U	< 230 U	< 7.4 U	< 1000 U	< 18 U	**5.4**
Total Xylenes	ug/m3	< 37 U	< 38 U	< 450 U	< 15 U	< 2100 U	**51**	
Other SVOCs								
1,4-Dioxane	ug/m3	< 15 U	< 16 U	< 190 U	< 6.1 U	< 860 U	< 15 U	< 3.1 U
Hexachlorobutadiene	ug/m3	< 9.2 U	< 9.4 U	< 110 U	< 3.6 U	< 510 U	< 8.7 U	< 1.8 U
PAHs								
Naphthalene	ug/m3	< 11 U	< 12 U	< 140 U	< 4.5 U	< 630 U	< 11 U	< 2.2 U
VOCs								
1,1,1-Trichloroethane	ug/m3	< 23 U	< 24 U	< 280 U	< 9.3 U	< 1300 U	< 22 U	< 4.6 U
1,1,2,2-Tetrachloroethane	ug/m3	< 5.9 U	< 6 U	< 71 U	< 2.3 U	< 330 U	< 5.6 U	< 1.2 U
1,1,2-Trichloroethane	ug/m3	< 2.3 U	< 2.4 U	< 28 U	< 0.93 U	< 130 U	< 2.2 U	< 0.46 U
1,1,2-Trichlorotrifluoroethane	ug/m3	< 33 U	< 34 U	< 400 U	< 13 U	< 1800 U	< 31 U	< 6.5 U
1,1-Dichloroethane	ug/m3	< 17 U	< 18 U	< 210 U	< 6.9 U	< 970 U	< 17 U	< 3.4 U
1,1-Dichloroethene	ug/m3	< 17 U	< 17 U	< 210 U	< 6.7 U	< 950 U	< 16 U	< 3.4 U
1,2,4-Trichlorobenzene	ug/m3	< 32 U	< 33 U	< 390 U	< 13 U	< 1800 U	< 30 U	< 6.3 U
1,2,4-Trimethylbenzene	ug/m3	< 110 U	< 110 U	< 1300 U	< 42 U	< 5900 U	< 100 U	< 21 U
1,2-Dibromoethane (EDB)	ug/m3	< 3.3 U	< 3.4 U	< 40 U	< 1.3 U	< 180 U	< 3.2 U	< 0.65 U
1,2-Dichlorobenzene	ug/m3	< 26 U	< 26 U	< 310 U	< 10 U	< 1400 U	< 25 U	< 5.1 U
1,2-Dichloroethane (EDC)	ug/m3	< 1.7 U	< 1.8 U	< 21 U	< 0.69 U	< 97 U	< 1.7 U	< 0.34 U
1,2-Dichloropropane	ug/m3	< 9.9 U	< 10 U	< 120 U	< 3.9 U	< 550 U	< 9.5 U	< 2 U
1,3,5-Trimethylbenzene	ug/m3	< 110 U	< 110 U	< 1300 U	< 42 U	< 5900 U	< 100 U	< 21 U
1,3-Dichlorobenzene	ug/m3	< 26 U	< 26 U	< 310 U	< 10 U	< 1400 U	< 25 U	< 5.1 U
1,4-Dichlorobenzene	ug/m3	< 9.9 U	< 11 U	< 120 U	< 4 U	< 560 U	< 9.5 U	< 2 U
1-Propene	ug/m3	< 52 U	< 53 U	< 630 U	< 20 U	< 2900 U	< 49 U	< 10 U
2-Butanone	ug/m3	< 130 U	**160**	< 1500 U	< 50 U	< 7100 U	**2000**	< 25 U
2-Chlorotoluene	ug/m3	< 220 U	< 230 U	< 2700 U	< 88 U	< 12000 U	< 210 U	< 44 U
2-Hexanone	ug/m3	< 180 U	< 180 U	< 2100 U	< 70 U	< 9800 U	< 170 U	< 35 U
4-Methyl-2-pentanone	ug/m3	< 180 U	< 180 U	< 2100 U	< 70 U	< 9800 U	< 170 U	< 35 U
Acetone	ug/m3	< 200 U	< 210 U	< 2500 U	< 81 U	< 11000 U	**400**	< 40 U
Acrolein	ug/m3	< 89 U	< 91 U	< 1100 U	< 35 U	< 5000 U	< 85 U	< 18 U
Allyl Chloride	ug/m3	< 67 U	< 69 U	< 810 U	< 27 U	< 3800 U	< 64 U	< 13 U
Bromodichloromethane	ug/m3	< 2.9 U	< 2.9 U	< 35 U	< 1.1 U	< 160 U	< 2.7 U	< 0.57 U
Bromoform	ug/m3	< 89 U	< 91 U	< 1100 U	< 35 U	< 5000 U	< 85 U	< 18 U
Bromomethane	ug/m3	< 100 U	< 100 U	< 1200 U	< 40 U	< 5600 U	< 96 U	< 20 U
Butane	ug/m3	**150**	< 100 U	< 1200 U	< 40 U	< 5700 U	**780**	**270**
Carbon Disulfide	ug/m3	< 270 U	< 270 U	< 3200 U	< 110 U	< 15000 U	< 260 U	< 53 U
Carbon Tetrachloride	ug/m3	< 14 U	< 14 U	< 160 U	**15**	< 750 U	**53**	**11**

Table E-1. Soil Vapor and Air Emissions Data

Project No. 080190, Morell's Dry Cleaners (VCP SW1039), Tacoma, Washington

Chlorobenzene	ug/m3	< 20 U	< 20 U	< 240 U	< 7.8 U	< 1100 U	< 19 U	< 3.9 U
Chloroethane	ug/m3	< 110 U	< 120 U	< 1400 U	< 45 U	< 6300 U	< 110 U	< 22 U
Chloroform	ug/m3	**17**	**4.3**	< 25 U	**25**	< 120 U	**88**	**22**
Chloromethane	ug/m3	< 160 U	< 160 U	< 1900 U	< 63 U	< 8900 U	< 150 U	< 32 U
cis-1,2-Dichloroethene (cDCE)	ug/m3	**350**	**1700**	**3200**	**320**	**7400**	**220**	**180**
cis-1,3-Dichloropropene	ug/m3	< 20 U	< 20 U	< 240 U	< 7.7 U	< 1100 U	< 19 U	< 3.9 U
Cyclohexane	ug/m3	< 300 U	< 300 U	< 3600 U	< 120 U	< 17000 U	< 280 U	**67**
Dibromochloromethane	ug/m3	< 3.7 U	< 3.7 U	< 44 U	< 1.4 U	< 200 U	< 3.5 U	< 0.72 U
Dichlorodifluoromethane	ug/m3	**23**	< 22 U	< 260 U	**200**	< 1200 U	**33**	**36**
Ethanol	ug/m3	< 320 UJ	< 330 UJ	< 3900 UJ	< 130 UJ	< 18000 UJ	< 310 UJ	< 64 U
Ethyl acetate	ug/m3	< 310 U	< 320 U	< 3700 U	< 120 U	< 17000 U	< 300 U	< 61 U
Isopropyl Alcohol	ug/m3	< 370 U	< 380 U	< 4500 U	< 150 U	< 21000 U	< 350 U	< 73 U
Isopropylbenzene	ug/m3	< 110 U	< 110 U	< 1300 U	< 42 U	< 5900 U	< 100 U	**34**
m,p-Xylenes	ug/m3	< 37 U	< 38 U	< 450 U	< 15 U	< 2100 U	**51**	**67**
Methyl Methacrylate	ug/m3	< 180 U	< 180 U	< 2100 U	< 70 U	< 9800 U	< 170 U	< 35 U
Methyl tert-butyl ether (MTBE)	ug/m3	< 78 U	< 79 U	< 940 U	< 31 U	< 4300 U	< 74 U	< 15 U
Methylene Chloride	ug/m3	< 1500 UJ	< 1500 UJ	< 18000 UJ	< 590 UJ	< 83000 UJ	< 1400 UJ	< 300 U
n-Hexane	ug/m3	< 150 U	< 160 U	< 1800 U	< 60 U	< 8500 U	**250**	**140**
Nonane	ug/m3	< 230 U	< 230 U	< 2700 U	< 89 U	< 13000 U	< 220 U	< 45 U
n-Propylbenzene	ug/m3	< 110 U	< 110 U	< 1300 U	< 42 U	< 5900 U	< 100 U	< 21 U
o-Xylene	ug/m3	< 19 U	< 19 U	< 230 U	< 7.4 U	< 1000 U	< 18 U	**24**
Pentane	ug/m3	< 130 U	< 130 U	< 1500 U	< 50 U	< 7100 U	**550**	**190**
Styrene	ug/m3	< 37 U	< 37 U	< 440 U	< 14 U	< 2000 U	< 35 U	< 7.2 U
t-Butyl alcohol (TBA)	ug/m3	< 520 U	< 530 U	< 6300 U	< 210 U	< 29000 U	< 500 U	< 100 U
Tetrachloroethene (PCE)	ug/m3	**7400 E**	**15000 E**	**39000 E**	**1700**	**520000 E**	**2300**	**3300 E**
Tetrahydrofuran	ug/m3	< 13 U	**630**	**6200**	**350**	**9700**	**2800**	< 2.5 U
trans-1,2-Dichloroethene	ug/m3	< 17 U	< 17 U	< 210 U	< 6.7 U	< 950 U	< 16 U	< 3.4 U
trans-1,3-Dichloropropene	ug/m3	< 20 U	< 20 U	< 240 U	< 7.7 U	< 1100 U	< 19 U	< 3.9 U
Trichloroethene (TCE)	ug/m3	**340**	**1100**	**770**	**230**	**10000**	**350**	**190**
Trichlorofluoromethane	ug/m3	< 97 U	< 99 U	< 1200 U	< 38 U	< 5400 U	< 92 U	< 19 U
Vinyl Acetate	ug/m3	< 300 U	< 310 U	< 3700 U	< 120 U	< 17000 U	< 290 U	**96**
Vinyl Bromide	ug/m3	< 19 U	< 19 U	< 230 U	< 7.4 U	< 1000 U	< 18 U	< 3.7 U
Vinyl Chloride	ug/m3	< 11 U	< 11 U	**230**	< 4.3 U	< 610 U	< 10 U	**2.4**
1,3-Butadiene	ug/m3	< 1.9 U	< 1.9 U	< 23 U	< 0.75 U	< 110 U	< 1.8 U	< 0.38 U
2,2,4-Trimethylpentane	ug/m3	**680**	< 210 U	< 2400 U	< 79 U	< 11000 U	**2500**	**600 E**
4-Ethyltoluene	ug/m3	< 110 U	< 110 U	< 1300 U	< 42 U	< 5900 U	< 100 U	< 21 U
alpha-Chlorotoluene	ug/m3	< 2.2 U	< 2.3 U	< 27 U	< 0.88 U	< 120 U	< 2.1 U	< 0.44 U
Freon 114	ug/m3	< 30 U	< 31 U	< 360 U	< 12 U	< 1700 U	< 29 U	< 5.9 U
Heptane	ug/m3	< 180 U	< 180 U	< 2100 U	< 70 U	< 9800 U	< 170 U	**130**

Notes:

Bold - detected

U - Analyte not detected at or above Reporting Limit (RL) shown

J - Result value estimated

UJ - Analyte not detected and the Reporting Limit (RL) is an estimate

E - Result exceeded calibration range. Result usable for qualitative analysis of analyte presence, but numeric value should not be included in quantitate analysis.

Table E-2. SVE System Operational Data and Calculations

Project No. 080190, Morell's Dry Cleaners (VCP SW1039), Tacoma, Washington

				GAC		VE-1/2		VE-3/4		VE-5		VE-6		VE-7		VE-8		MW-23		VE-SS		Est. PCE Mass Removal[3,4]		
Date	SVE Blower Clock (hours)	Elapsed Run Time (days)	Cumulative Percent Operating Time	Blower Flow Rate[1] (CFM)	Effluent [VOC] (ppmV, Gastec)	Flow Rate[2] (CFM)	[VOC] (ppmV, PID)	Flow Rate[2] (CFM)	[VOC] (ppmV, PID)	Flow Rate[2] (CFM)	[VOC] (ppmV, PID)	Flow Rate[2] (CFM)	[VOC] (ppmV, PID)	Flow Rate[2] (CFM)	[VOC] (ppmV, PID)	Flow Rate[2] (CFM)	[VOC] (ppmV, PID)	Flow Rate[2] (CFM)	[VOC] (ppmV, PID)	Flow Rate[2] (CFM)	[VOC] (ppmV, PID)	Removal Rate (lbs/day)	Incr. Removal (lbs)	Cum. Removal (lbs)
9/21/2020	47,909	1,996	92.1%	System Shutdown for Expansion Construction														Final Calculations Pre-Expansion				0.092	2.6	345.4
9/21/2020	47,909	1,996	92.1%	System Shutdown for Expansion Construction																				
10/1/2020	47,909	1,996	92.1%	112	0.6	17	14	38	25	nm	nm	nm	nm	nm	nm	nm	nm	nm	nm	47	3	0.263	N/A	345.4
10/2/2020	47,935	1,997	92.1%	110	1	off	off	nm	nm	19	10	27	3	26	86	26	9	39	9	48	3	0.345	0.4	345.8
10/9/2020	48,104	2,004	92.1%	110	0.8	off	off	nm	nm	23	4	30	3	21	79	21	12	22	3	53	3	0.270	1.9	347.7
10/16/2020	48,269	2,011	92.1%	112	0.5	off	off	off	off	21	16	20	2	24	77	24	12	26	3	50	5	0.347	2.4	350.1
10/23/2020	48,436	2,018	92.2%	112	0.1	off	off	off	off	21	2	18	1	19	9	20	5	32	1	42	4	0.070	0.5	350.6
11/23/20	49,178	2,049	92.3%	109	0.5	off	off	off	off	28	4	18	2	32	69	27	11	25	2	31	3	0.341	10.5	361.1
12/29/20	50,039	2,085	92.4%	111	0.5	off	off	off	off	25	7.7	25	6.1	24	44.2	25	8.3	24	1.2	34	3.6	0.225	8.1	369.2
01/29/21	50,718	2,113	92.4%	107	0.5	off	off	off	off	32	11	30	4.3	37	17.3	31	3.8	32	0.2	36	3.5	0.133	3.8	373.0
02/26/21	51,438	2,143	92.6%	107	0.7	off	off	off	off	30	10.5	29	4	36	22.6	30	4.2	32	0.7	36	3.3	0.151	4.5	377.5
03/24/21	52,601	2,192	93.6%	109	2.5	off	off	off	off	30	7.4	28	4.1	29	23.6	27	8.5	31	3	34	4.7	0.165	8.0	385.5

CFM = cubic feet per minute
PCE = tetrachloroethene
PID = photoionization detector
ppmV = parts per million by volume
SVE = soil vapor extraction
VOC = volatile organic compound

Notes:

1) Rotron EN505 blower curve indicates that the blower should extract 97.5 SCFM at 37.5 IWC and 120 SCFM at 20 IWC. Blower flow rate is measured using a pitot tube.
2) Flow rates for the VE-1/2, VE-3/4, and SV-SS legs of the SVE system are measured using an anemometer .
3) [PCE] was correlated to [VOC] measured by PID using the average of the [PCE]/[VOC] ratios measured on the seven occasions on which SVE influent samples were analyzed by EPA Method TO-15 (refer to Table C-4).The resulting correlation factor of 0.290 is used to estimate PCE mass removal based on PID readings.
4) From startup through 9/5/18, flow rate and [VOC] at the GAC influent were used to estimate PCE mass. After September 2018, [VOC] was not measured at the GAC influent, so PCE mass is estimated using measurements at the VE-1/2, VE-3/4, and VE-SS legs (VE-H leg closed), normalized with respect to flow rate (i.e., blower flow rate divided by the sum of the three leg flow rates).

Table E-3. Sub-Slab Depressurization Monitoring

Project No. 080190, Morell's Dry Cleaners (VCP SW1039), Tacoma, Washington

Date	VE-SS	VP-5	Notes
	(inches wc)	(inches wc)	
10/1/2020	1.1	0.563	
10/2/2020	1.2	0.569	
10/9/2020	1.2	0.558	
10/16/2020	1.2	0.614	
10/23/2020	0.6	0.292	Valve on VE-SS adjusted to reduce Vacuum
11/23/2020	**0.5**	0.234	
12/29/2020	0.5	0.281	
1/27/2021	0.6	0.314	
2/26/2021	0.5	0.278	
3/24/2021	0.6	0.282	

FIGURES

Plugged Vapor Sample Point VP-3

MW-21
MW-31
MW-15
VE-5
MW
See Detail 1/F7
VE-6
VE-1
VE-3
MW-8D
VE-2
VE-4
MW-16
VE-7
MW-30
MW-17
MW-2
MW-18
VE-8
MW-23
MW-29

Approximate Asphalt Patch Extents

0 15 30 Feet

Shallow SVE Vault

SCALE: NTS

1/F7

to VE-5

Each 3" well lateral has an annemometer port, vacuum gauge, and ball valve.

Existing 4" Line from VE-1/2

4" Header

Existing 4" Line from VE-3/4

to VE-6

4" Header

Existing 4" Lines to SVE System

to VE-7 to VE-8 to MW-23

LEGEND

- Vertical Monitoring Well, 2019 Installation
- Angled SVE Well, 2019 Installation
- Blue Halo Indicates Injection of Biostimulants in June 2014
- Yellow Halo Indicates Injection of Biostimulants in July 2019
- Horizontal Projection
- Screened Interval
- Pre-Existing Vertical Monitoring Well
- Pre-Existing Angled Monitoring Well
- Pre-Existing Angled SVE Well
- 2014 SVE Conveyance Pipe
- 2020 SVE Conveyance Pipe
- Parcel Bounday
- Property Boundary
- Proposed Component
- Existing Component
- Ball Valve
- V — Vacuum Gauge (0-30" water)
- H — 1/4" Hole with Threaded Plug

SVE Layout & Vault Detail

Data Gaps Investigaiton Work Plan

Morrell's Dry Cleaner (VCP No. SW1039)

608 North 1st Street, Tacoma, Washington

FIGURE NO.

8

Aspect CONSULTING

REV.	DESCRIPTION	DATE	APPR.

DRAWN BY: SCC
DESIGNED BY: DAH
PROJECT NUMBER: 080190
REVISION: -
DATE: Apr-2021

REVISED BY: BMG

Date Saved: Apr 26, 2021 5:03pm | | User: bgreer
Coordinate System: NAD 1983 State Plane Washington North FIPS 4601 Feet | |
CAD Path: Q:_Geo\Tech\080190 Stadium Thriftway\2021-03 Data Gaps\080190-07 SVE As-Built.dwg 4-SVE Layout | |

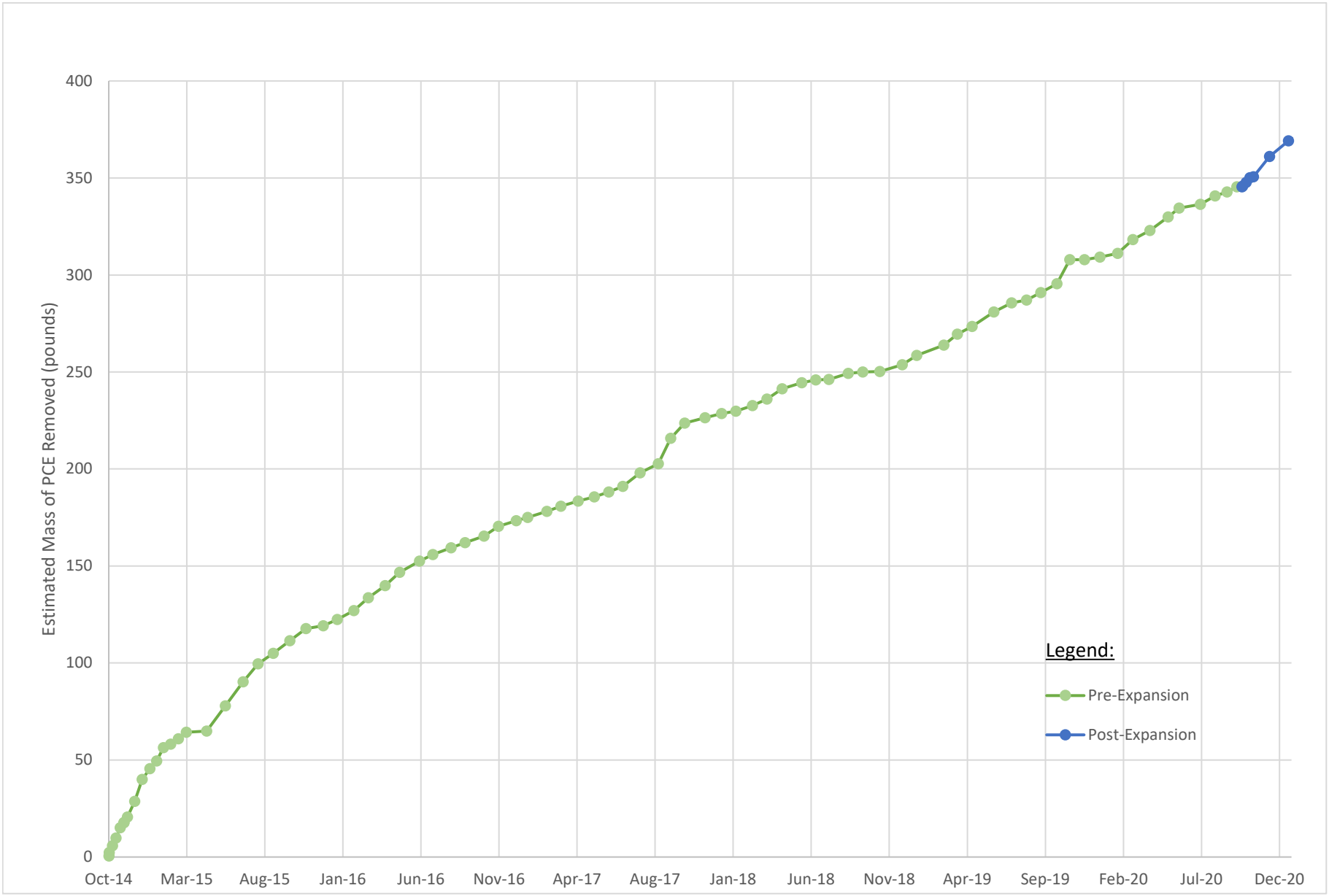

Figure E-2

Soil Vapor Extraction System Performance

Morrell's Dry Cleaners, Tacoma, WA

Aspect Consulting

May 2021

\\seafps\Projects\Walker Chevrolet 080190\Deliverables\Data Gaps Investigation Work Plan_2021\App E SVE Expansion\E-2 SVE System Performance

ATTACHMENT 1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 5, 2020

Breeyn Greer, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Ms Greer:

Included are the results from the testing of material submitted on September 22, 2020 from the Morell's PO 080190, F&BI 009388 project. There are 5 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP1005R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 22, 2020 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's PO 080190, F&BI 009388 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
009388 -01	EFF-092120

The tetrachloroethene concentration in sample EFF-092120 exceeded the calibration range of the instrument. The data were flagged accordingly.

All quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	EFF-092120	Client:	Aspect Consulting, LLC
Date Received:	09/22/20	Project:	Morell's PO 080190, F&BI 009388
Date Collected:	09/21/20	Lab ID:	009388-01 1/43
Date Analyzed:	10/01/20	Data File:	093033.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<11	<4.3
Chloroethane	<110	<43
1,1-Dichloroethene	<17	<4.3
trans-1,2-Dichloroethene	<17	<4.3
1,1-Dichloroethane	<17	<4.3
cis-1,2-Dichloroethene	350	89
1,2-Dichloroethane (EDC)	<1.7	<0.43
1,1,1-Trichloroethane	<23	<4.3
Trichloroethene	340	63
1,1,2-Trichloroethane	<2.3	<0.43
Tetrachloroethene	7,400 ve	1,100 ve

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's PO 080190, F&BI 009388
Date Collected:	Not Applicable	Lab ID:	00-2194 MB
Date Analyzed:	09/30/20	Data File:	093013.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	ppbv
Vinyl chloride	<0.26	<0.1
Chloroethane	<2.6	<1
1,1-Dichloroethene	<0.4	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1
1,1-Dichloroethane	<0.4	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01
1,1,1-Trichloroethane	<0.55	<0.1
Trichloroethene	<0.11	<0.02
1,1,2-Trichloroethane	<0.055	<0.01
Tetrachloroethene	<6.8	<1

Date of Report: 10/05/20
Date Received: 09/22/20
Project: Morell's PO 080190, F&BI 009388

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 009434-01 1/3.4 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Vinyl chloride	ug/m3	<0.87	<0.87	nm
Chloroethane	ug/m3	<9	<9	nm
1,1-Dichloroethene	ug/m3	<1.3	<1.3	nm
trans-1,2-Dichloroethene	ug/m3	<1.3	<1.3	nm
1,1-Dichloroethane	ug/m3	<1.4	<1.4	nm
cis-1,2-Dichloroethene	ug/m3	<1.3	<1.3	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.14	<0.14	nm
1,1,1-Trichloroethane	ug/m3	<1.9	<1.9	nm
Trichloroethene	ug/m3	<0.37	<0.37	nm
1,1,2-Trichloroethane	ug/m3	<0.19	<0.19	nm
Tetrachloroethene	ug/m3	<23	<23	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Vinyl chloride	ug/m3	35	102	70-130
Chloroethane	ug/m3	36	101	70-130
1,1-Dichloroethene	ug/m3	54	106	70-130
trans-1,2-Dichloroethene	ug/m3	54	102	70-130
1,1-Dichloroethane	ug/m3	55	103	70-130
cis-1,2-Dichloroethene	ug/m3	54	106	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	102	70-130
1,1,1-Trichloroethane	ug/m3	74	101	70-130
Trichloroethene	ug/m3	73	111	70-130
1,1,2-Trichloroethane	ug/m3	74	112	70-130
Tetrachloroethene	ug/m3	92	110	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

009388

ME 09-22-20

Page # 1 of 1

Report To Breeyn Greer

Company Aspect

Address 710 2nd Ave Ste 550

City, State, ZIP Seattle WA 98104

Phone 6122327343 Email bgreer@aspectconsulting.com

SAMPLERS (*signature*) Breeyn Greer

PROJECT NAME & ADDRESS: Morell's

PO # 080190

NOTES: SVE

INVOICE TO AP

TURNAROUND TIME
- [x] Standard
- [ ] RUSH

Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Default: Clean after 3 days
- [ ] Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
EFF-092120	01	3676	106	IA / (SG)	9/21/20	-29.0	1946	-5.0	1950			X				
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Samples received at 21 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn Greer	Breeyn Greer	Aspect	9/22/20	1040
Received by:	Eric Dunn	FCB	9/22/20	10:40
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
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Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 26, 2020

Breeyn Greer, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Ms Greer:

Included are the additional results from the testing of material submitted on September 22, 2020 from the Morell's PO 080190, F&BI 009388 project. There are 8 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP1026R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on September 22, 2020 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morell's PO 080190 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
009388 -01	EFF-092120

The tetrachloroethene concentration in sample EFF-092120 exceeded the calibration range of the instrument. The data were flagged accordingly.

The TO-15 calibration standard failed the acceptance criteria for several analytes. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	EFF-092120	Client:	Aspect Consulting, LLC
Date Received:	09/22/20	Project:	Morell's PO 080190, F&BI 009388
Date Collected:	09/21/20	Lab ID:	009388-01 1/43
Date Analyzed:	10/01/20	Data File:	093033.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<52	<30	1,2-Dichloropropane	<9.9	<2.1
Dichlorodifluoromethane	23	4.7	1,4-Dioxane	<15	<4.3
Chloromethane	<160	<77	2,2,4-Trimethylpentane	680	150
F-114	<30	<4.3	Methyl methacrylate	<180	<43
Vinyl chloride	<11	<4.3	Heptane	<180	<43
1,3-Butadiene	<1.9	<0.86	Bromodichloromethane	<2.9	<0.43
Butane	150	62	Trichloroethene	340	63
Bromomethane	<100	<26	cis-1,3-Dichloropropene	<20	<4.3
Chloroethane	<110	<43	4-Methyl-2-pentanone	<180	<43
Vinyl bromide	<19	<4.3	trans-1,3-Dichloropropene	<20	<4.3
Ethanol	<320 ca	<170 ca	Toluene	<810	<210
Acrolein	<89	<39	1,1,2-Trichloroethane	<2.3	<0.43
Pentane	<130	<43	2-Hexanone	<180	<43
Trichlorofluoromethane	<97	<17	Tetrachloroethene	7,400 ve	1,100 ve
Acetone	<200	<86	Dibromochloromethane	<3.7	<0.43
2-Propanol	<370	<150	1,2-Dibromoethane (EDB)	<3.3	<0.43
1,1-Dichloroethene	<17	<4.3	Chlorobenzene	<20	<4.3
trans-1,2-Dichloroethene	<17	<4.3	Ethylbenzene	<19	<4.3
Methylene chloride	<1,500 ca	<430 ca	1,1,2,2-Tetrachloroethane	<5.9	<0.86
t-Butyl alcohol (TBA)	<520	<170	Nonane	<230	<43
3-Chloropropene	<67	<21	Isopropylbenzene	<110	<21
CFC-113	<33	<4.3	2-Chlorotoluene	<220	<43
Carbon disulfide	<270	<86	Propylbenzene	<110	<21
Methyl t-butyl ether (MTBE)	<78	<21	4-Ethyltoluene	<110	<21
Vinyl acetate	<300	<86	m,p-Xylene	<37	<8.6
1,1-Dichloroethane	<17	<4.3	o-Xylene	<19	<4.3
cis-1,2-Dichloroethene	350	89	Styrene	<37	<8.6
Hexane	<150	<43	Bromoform	<89	<8.6
Chloroform	17	3.5	Benzyl chloride	<2.2	<0.43
Ethyl acetate	<310	<86	1,3,5-Trimethylbenzene	<110	<21
Tetrahydrofuran	<13	<4.3	1,2,4-Trimethylbenzene	<110	<21
2-Butanone (MEK)	<130	<43	1,3-Dichlorobenzene	<26	<4.3
1,2-Dichloroethane (EDC)	<1.7	<0.43	1,4-Dichlorobenzene	<9.9	<1.6
1,1,1-Trichloroethane	<23	<4.3	1,2-Dichlorobenzene	<26	<4.3
Carbon tetrachloride	<14	<2.1	1,2,4-Trichlorobenzene	<32	<4.3
Benzene	20	6.1	Naphthalene	<11	<2.1
Cyclohexane	<300	<86	Hexachlorobutadiene	<9.2	<0.86

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morell's PO 080190, F&BI 009388
Date Collected:	Not Applicable	Lab ID:	00-2194 MB
Date Analyzed:	09/30/20	Data File:	093013.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5 ca	<4 ca	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35 ca	<10 ca	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 10/26/20
Date Received: 09/22/20
Project: Morell's PO 080190, F&BI 009388

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 009434-01 1/3.4 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<4.1	<4.1	nm
Dichlorodifluoromethane	ug/m3	3.0	3.0	0
Chloromethane	ug/m3	<13	<13	nm
F-114	ug/m3	<2.4	<2.4	nm
Vinyl chloride	ug/m3	<0.87	<0.87	nm
1,3-Butadiene	ug/m3	<0.15	<0.15	nm
Butane	ug/m3	<8.1	<8.1	nm
Bromomethane	ug/m3	<7.9	<7.9	nm
Chloroethane	ug/m3	<9	<9	nm
Vinyl bromide	ug/m3	<1.5	<1.5	nm
Ethanol	ug/m3	<26	<26	nm
Acrolein	ug/m3	<7	<7	nm
Pentane	ug/m3	<10	<10	nm
Trichlorofluoromethane	ug/m3	<7.6	<7.6	nm
Acetone	ug/m3	<16	<16	nm
2-Propanol	ug/m3	34	35	3
1,1-Dichloroethene	ug/m3	<1.3	<1.3	nm
trans-1,2-Dichloroethene	ug/m3	<1.3	<1.3	nm
Methylene chloride	ug/m3	<120	<120	nm
t-Butyl alcohol (TBA)	ug/m3	<41	<41	nm
3-Chloropropene	ug/m3	<5.3	<5.3	nm
CFC-113	ug/m3	<2.6	<2.6	nm
Carbon disulfide	ug/m3	<21	<21	nm
Methyl t-butyl ether (MTBE)	ug/m3	<6.1	<6.1	nm
Vinyl acetate	ug/m3	<24	<24	nm
1,1-Dichloroethane	ug/m3	<1.4	<1.4	nm
cis-1,2-Dichloroethene	ug/m3	<1.3	<1.3	nm
Hexane	ug/m3	<12	<12	nm
Chloroform	ug/m3	<0.17	<0.17	nm
Ethyl acetate	ug/m3	<25	<25	nm
Tetrahydrofuran	ug/m3	<1	<1	nm
2-Butanone (MEK)	ug/m3	<10	<10	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.14	<0.14	nm
1,1,1-Trichloroethane	ug/m3	<1.9	<1.9	nm
Carbon tetrachloride	ug/m3	<1.1	<1.1	nm
Benzene	ug/m3	<1.1	<1.1	nm
Cyclohexane	ug/m3	<23	<23	nm
1,2-Dichloropropane	ug/m3	<0.79	<0.79	nm
1,4-Dioxane	ug/m3	<1.2	<1.2	nm
2,2,4-Trimethylpentane	ug/m3	<16	<16	nm

Date of Report: 10/26/20
Date Received: 09/22/20
Project: Morell's PO 080190, F&BI 009388

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 009434-01 1/3.4 (Continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<14	<14	nm
Heptane	ug/m3	<14	<14	nm
Bromodichloromethane	ug/m3	<0.23	<0.23	nm
Trichloroethene	ug/m3	<0.37	<0.37	nm
cis-1,3-Dichloropropene	ug/m3	<1.5	<1.5	nm
4-Methyl-2-pentanone	ug/m3	<14	<14	nm
trans-1,3-Dichloropropene	ug/m3	<1.5	<1.5	nm
Toluene	ug/m3	<64	<64	nm
1,1,2-Trichloroethane	ug/m3	<0.19	<0.19	nm
2-Hexanone	ug/m3	<14	<14	nm
Tetrachloroethene	ug/m3	<23	<23	nm
Dibromochloromethane	ug/m3	<0.29	<0.29	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.26	<0.26	nm
Chlorobenzene	ug/m3	<1.6	<1.6	nm
Ethylbenzene	ug/m3	<1.5	<1.5	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.47	<0.47	nm
Nonane	ug/m3	<18	<18	nm
Isopropylbenzene	ug/m3	<8.4	<8.4	nm
2-Chlorotoluene	ug/m3	<18	<18	nm
Propylbenzene	ug/m3	<8.4	<8.4	nm
4-Ethyltoluene	ug/m3	<8.4	<8.4	nm
m,p-Xylene	ug/m3	7.0	6.9	1
o-Xylene	ug/m3	2.1	2.1	0
Styrene	ug/m3	<2.9	<2.9	nm
Bromoform	ug/m3	<7	<7	nm
Benzyl chloride	ug/m3	<0.18	<0.18	nm
1,3,5-Trimethylbenzene	ug/m3	<8.4	<8.4	nm
1,2,4-Trimethylbenzene	ug/m3	<8.4	<8.4	nm
1,3-Dichlorobenzene	ug/m3	<2	<2	nm
1,4-Dichlorobenzene	ug/m3	<0.78	<0.78	nm
1,2-Dichlorobenzene	ug/m3	<2	<2	nm
1,2,4-Trichlorobenzene	ug/m3	<2.5	<2.5	nm
Naphthalene	ug/m3	1.4	1.4	0
Hexachlorobutadiene	ug/m3	<0.73	<0.73	nm

Date of Report: 10/26/20
Date Received: 09/22/20
Project: Morell's PO 080190, F&BI 009388

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	95	70-130
Dichlorodifluoromethane	ug/m3	67	107	70-130
Chloromethane	ug/m3	28	95	70-130
F-114	ug/m3	94	106	70-130
Vinyl chloride	ug/m3	35	102	70-130
1,3-Butadiene	ug/m3	30	102	70-130
Butane	ug/m3	32	96	70-130
Bromomethane	ug/m3	52	107	70-130
Chloroethane	ug/m3	36	101	70-130
Vinyl bromide	ug/m3	59	101	70-130
Ethanol	ug/m3	25	49 vo	70-130
Acrolein	ug/m3	31	93	70-130
Pentane	ug/m3	40	97	70-130
Trichlorofluoromethane	ug/m3	76	108	70-130
Acetone	ug/m3	32	101	70-130
2-Propanol	ug/m3	33	94	70-130
1,1-Dichloroethene	ug/m3	54	106	70-130
trans-1,2-Dichloroethene	ug/m3	54	102	70-130
Methylene chloride	ug/m3	94	49 vo	70-130
t-Butyl alcohol (TBA)	ug/m3	41	94	70-130
3-Chloropropene	ug/m3	42	96	70-130
CFC-113	ug/m3	100	107	70-130
Carbon disulfide	ug/m3	42	98	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	103	70-130
Vinyl acetate	ug/m3	48	97	70-130
1,1-Dichloroethane	ug/m3	55	103	70-130
cis-1,2-Dichloroethene	ug/m3	54	106	70-130
Hexane	ug/m3	48	92	70-130
Chloroform	ug/m3	66	103	70-130
Ethyl acetate	ug/m3	49	105	70-130
Tetrahydrofuran	ug/m3	40	105	70-130
2-Butanone (MEK)	ug/m3	40	100	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	102	70-130
1,1,1-Trichloroethane	ug/m3	74	101	70-130
Carbon tetrachloride	ug/m3	85	106	70-130
Benzene	ug/m3	43	100	70-130
Cyclohexane	ug/m3	46	95	70-130
1,2-Dichloropropane	ug/m3	62	111	70-130
1,4-Dioxane	ug/m3	49	112	70-130
2,2,4-Trimethylpentane	ug/m3	63	109	70-130

Date of Report: 10/26/20
Date Received: 09/22/20
Project: Morell's PO 080190, F&BI 009388

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (Continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	110	70-130
Heptane	ug/m3	55	110	70-130
Bromodichloromethane	ug/m3	90	109	70-130
Trichloroethene	ug/m3	73	111	70-130
cis-1,3-Dichloropropene	ug/m3	61	102	70-130
4-Methyl-2-pentanone	ug/m3	55	110	70-130
trans-1,3-Dichloropropene	ug/m3	61	102	70-130
Toluene	ug/m3	51	110	70-130
1,1,2-Trichloroethane	ug/m3	74	112	70-130
2-Hexanone	ug/m3	55	99	70-130
Tetrachloroethene	ug/m3	92	110	70-130
Dibromochloromethane	ug/m3	120	111	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	115	70-130
Chlorobenzene	ug/m3	62	108	70-130
Ethylbenzene	ug/m3	59	101	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	101	70-130
Nonane	ug/m3	71	111	70-130
Isopropylbenzene	ug/m3	66	102	70-130
2-Chlorotoluene	ug/m3	70	100	70-130
Propylbenzene	ug/m3	66	107	70-130
4-Ethyltoluene	ug/m3	66	101	70-130
m,p-Xylene	ug/m3	120	104	70-130
o-Xylene	ug/m3	59	105	70-130
Styrene	ug/m3	58	106	70-130
Bromoform	ug/m3	140	105	70-130
Benzyl chloride	ug/m3	70	96	70-130
1,3,5-Trimethylbenzene	ug/m3	66	107	70-130
1,2,4-Trimethylbenzene	ug/m3	66	110	70-130
1,3-Dichlorobenzene	ug/m3	81	112	70-130
1,4-Dichlorobenzene	ug/m3	81	94	70-130
1,2-Dichlorobenzene	ug/m3	81	98	70-130
1,2,4-Trichlorobenzene	ug/m3	100	96	70-130
Naphthalene	ug/m3	71	96	70-130
Hexachlorobutadiene	ug/m3	140	100	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

SAMPLE CHAIN OF CUSTODY

009388

ME 09-22-20

Page # 1 of 1

Report To Breeyn Greer
Company Aspect
Address 710 2nd Ave Ste 550
City, State, ZIP Seattle WA 98104
Phone 6122327343 Email bgreer@aspectconsulting.com

SAMPLERS (*signature*) Breeyn

PROJECT NAME & ADDRESS: Morell's

PO # 080190

NOTES: SVE

INVOICE TO: AP

TURNAROUND TIME
- [x] Standard
- [ ] RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
- [x] Default: Clean after 3 days
- [ ] Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
EFF-092120	01	3676	106	IA / (SG)	9/21/20	-29.0	1946	-5.0	1950	(X)		X				(X) - per BG
				IA / SG												10/20/20 ME
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												

Samples received at 21 °C

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Breeyn	Breeyn Greer	Aspect	9/22/20	1040
Received by:	Eric Dunn	FCB	9/22/20	1040
Relinquished by:				
Received by:				

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

October 22, 2020

Breeyn Greer, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Ms Greer:

Included are the results from the testing of material submitted on October 7, 2020 from the Morrell's PO 080190, F&BI 010116 project. There are 12 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP1022R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on October 7, 2020 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Morrell's PO 080190, F&BI 010116 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
010116 -01	VE-05-100220
010116 -02	VE-06-100220
010116 -03	VE-07-100220
010116 -04	VE-08-100220
010116 -05	MW-23-100220

The TO-15 calibration standard failed the acceptance criteria for several analytes. The data were flagged accordingly.

The tetrachloroethene concentration in samples VE-05-100220, VE-07-100220, and MW-23-100220 exceeded the calibration range of the instrument. The data were flagged accordingly.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VE-05-100220	Client:	Aspect Consulting, LLC
Date Received:	10/07/20	Project:	Morrell's PO 080190
Date Collected:	10/02/20	Lab ID:	010116-01 1/520
Date Analyzed:	10/16/20	Data File:	101528.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<630	<360	1,2-Dichloropropane	<120	<26
Dichlorodifluoromethane	<260	<52	1,4-Dioxane	<190	<52
Chloromethane	<1,900	<940	2,2,4-Trimethylpentane	<2,400	<520
F-114	<360	<52	Methyl methacrylate	<2,100	<520
Vinyl chloride	230	89	Heptane	<2,100	<520
1,3-Butadiene	<23	<10	Bromodichloromethane	<35	<5.2
Butane	<1,200	<520	Trichloroethene	770	140
Bromomethane	<1,200	<310	cis-1,3-Dichloropropene	<240	<52
Chloroethane	<1,400	<520	4-Methyl-2-pentanone	<2,100	<520
Vinyl bromide	<230	<52	trans-1,3-Dichloropropene	<240	<52
Ethanol	<3,900 ca	<2,100 ca	Toluene	<9,800	<2,600
Acrolein	<1,100	<470	1,1,2-Trichloroethane	<28	<5.2
Pentane	<1,500	<520	2-Hexanone	<2,100	<520
Trichlorofluoromethane	<1,200	<210	Tetrachloroethene	39,000 ve	5,700 ve
Acetone	<2,500	<1,000	Dibromochloromethane	<44	<5.2
2-Propanol	<4,500	<1,800	1,2-Dibromoethane (EDB)	<40	<5.2
1,1-Dichloroethene	<210	<52	Chlorobenzene	<240	<52
trans-1,2-Dichloroethene	<210	<52	Ethylbenzene	<230	<52
Methylene chloride	<18,000 ca	<5,200 ca	1,1,2,2-Tetrachloroethane	<71	<10
t-Butyl alcohol (TBA)	<6,300	<2,100	Nonane	<2,700	<520
3-Chloropropene	<810	<260	Isopropylbenzene	<1,300	<260
CFC-113	<400	<52	2-Chlorotoluene	<2,700	<520
Carbon disulfide	<3,200	<1,000	Propylbenzene	<1,300	<260
Methyl t-butyl ether (MTBE)	<940	<260	4-Ethyltoluene	<1,300	<260
Vinyl acetate	<3,700	<1,000	m,p-Xylene	<450	<100
1,1-Dichloroethane	<210	<52	o-Xylene	<230	<52
cis-1,2-Dichloroethene	3,200	820	Styrene	<440	<100
Hexane	<1,800	<520	Bromoform	<1,100	<100
Chloroform	<25	<5.2	Benzyl chloride	<27	<5.2
Ethyl acetate	<3,700	<1,000	1,3,5-Trimethylbenzene	<1,300	<260
Tetrahydrofuran	6,200	2,100	1,2,4-Trimethylbenzene	<1,300	<260
2-Butanone (MEK)	<1,500	<520	1,3-Dichlorobenzene	<310	<52
1,2-Dichloroethane (EDC)	<21	<5.2	1,4-Dichlorobenzene	<120	<20
1,1,1-Trichloroethane	<280	<52	1,2-Dichlorobenzene	<310	<52
Carbon tetrachloride	<160	<26	1,2,4-Trichlorobenzene	<390	<52
Benzene	<170	<52	Naphthalene	<140	<26
Cyclohexane	<3,600	<1,000	Hexachlorobutadiene	<110	<10

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VE-06-100220	Client:	Aspect Consulting, LLC
Date Received:	10/07/20	Project:	Morrell's PO 080190
Date Collected:	10/02/20	Lab ID:	010116-02 1/17
Date Analyzed:	10/16/20	Data File:	101524.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	103	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<20	<12	1,2-Dichloropropane	<3.9	<0.85
Dichlorodifluoromethane	200	41	1,4-Dioxane	<6.1	<1.7
Chloromethane	<63	<31	2,2,4-Trimethylpentane	<79	<17
F-114	<12	<1.7	Methyl methacrylate	<70	<17
Vinyl chloride	<4.3	<1.7	Heptane	<70	<17
1,3-Butadiene	<0.75	<0.34	Bromodichloromethane	<1.1	<0.17
Butane	<40	<17	Trichloroethene	230	43
Bromomethane	<40	<10	cis-1,3-Dichloropropene	<7.7	<1.7
Chloroethane	<45	<17	4-Methyl-2-pentanone	<70	<17
Vinyl bromide	<7.4	<1.7	trans-1,3-Dichloropropene	<7.7	<1.7
Ethanol	<130 ca	<68 ca	Toluene	<320	<85
Acrolein	<35	<15	1,1,2-Trichloroethane	<0.93	<0.17
Pentane	<50	<17	2-Hexanone	<70	<17
Trichlorofluoromethane	<38	<6.8	Tetrachloroethene	1,700	240
Acetone	<81	<34	Dibromochloromethane	<1.4	<0.17
2-Propanol	<150	<59	1,2-Dibromoethane (EDB)	<1.3	<0.17
1,1-Dichloroethene	<6.7	<1.7	Chlorobenzene	<7.8	<1.7
trans-1,2-Dichloroethene	<6.7	<1.7	Ethylbenzene	<7.4	<1.7
Methylene chloride	<590 ca	<170 ca	1,1,2,2-Tetrachloroethane	<2.3	<0.34
t-Butyl alcohol (TBA)	<210	<68	Nonane	<89	<17
3-Chloropropene	<27	<8.5	Isopropylbenzene	<42	<8.5
CFC-113	<13	<1.7	2-Chlorotoluene	<88	<17
Carbon disulfide	<110	<34	Propylbenzene	<42	<8.5
Methyl t-butyl ether (MTBE)	<31	<8.5	4-Ethyltoluene	<42	<8.5
Vinyl acetate	<120	<34	m,p-Xylene	<15	<3.4
1,1-Dichloroethane	<6.9	<1.7	o-Xylene	<7.4	<1.7
cis-1,2-Dichloroethene	320	81	Styrene	<14	<3.4
Hexane	<60	<17	Bromoform	<35	<3.4
Chloroform	25	5.2	Benzyl chloride	<0.88	<0.17
Ethyl acetate	<120	<34	1,3,5-Trimethylbenzene	<42	<8.5
Tetrahydrofuran	350	120	1,2,4-Trimethylbenzene	<42	<8.5
2-Butanone (MEK)	<50	<17	1,3-Dichlorobenzene	<10	<1.7
1,2-Dichloroethane (EDC)	<0.69	<0.17	1,4-Dichlorobenzene	<4.0	<0.65
1,1,1-Trichloroethane	<9.3	<1.7	1,2-Dichlorobenzene	<10	<1.7
Carbon tetrachloride	15	2.4	1,2,4-Trichlorobenzene	<13	<1.7
Benzene	6.3	2.0	Naphthalene	<4.5	<0.85
Cyclohexane	<120	<34	Hexachlorobutadiene	<3.6	<0.34

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VE-07-100220	Client:	Aspect Consulting, LLC
Date Received:	10/07/20	Project:	Morrell's PO 080190
Date Collected:	10/02/20	Lab ID:	010116-03 1/2400
Date Analyzed:	10/16/20	Data File:	101529.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<2,900	<1,700	1,2-Dichloropropane	<550	<120
Dichlorodifluoromethane	<1,200	<240	1,4-Dioxane	<860	<240
Chloromethane	<8,900	<4,300	2,2,4-Trimethylpentane	<11,000	<2,400
F-114	<1,700	<240	Methyl methacrylate	<9,800	<2,400
Vinyl chloride	<610	<240	Heptane	<9,800	<2,400
1,3-Butadiene	<110	<48	Bromodichloromethane	<160	<24
Butane	<5,700	<2,400	Trichloroethene	10,000	1,900
Bromomethane	<5,600	<1,400	cis-1,3-Dichloropropene	<1,100	<240
Chloroethane	<6,300	<2,400	4-Methyl-2-pentanone	<9,800	<2,400
Vinyl bromide	<1,000	<240	trans-1,3-Dichloropropene	<1,100	<240
Ethanol	<18,000 ca	<9,600 ca	Toluene	<45,000	<12,000
Acrolein	<5,000	<2,200	1,1,2-Trichloroethane	<130	<24
Pentane	<7,100	<2,400	2-Hexanone	<9,800	<2,400
Trichlorofluoromethane	<5,400	<960	Tetrachloroethene	520,000 ve	77,000 ve
Acetone	<11,000	<4,800	Dibromochloromethane	<200	<24
2-Propanol	<21,000	<8,400	1,2-Dibromoethane (EDB)	<180	<24
1,1-Dichloroethene	<950	<240	Chlorobenzene	<1,100	<240
trans-1,2-Dichloroethene	<950	<240	Ethylbenzene	<1,000	<240
Methylene chloride	<83,000 ca	<24,000 ca	1,1,2,2-Tetrachloroethane	<330	<48
t-Butyl alcohol (TBA)	<29,000	<9,600	Nonane	<13,000	<2,400
3-Chloropropene	<3,800	<1,200	Isopropylbenzene	<5,900	<1,200
CFC-113	<1,800	<240	2-Chlorotoluene	<12,000	<2,400
Carbon disulfide	<15,000	<4,800	Propylbenzene	<5,900	<1,200
Methyl t-butyl ether (MTBE)	<4,300	<1,200	4-Ethyltoluene	<5,900	<1,200
Vinyl acetate	<17,000	<4,800	m,p-Xylene	<2,100	<480
1,1-Dichloroethane	<970	<240	o-Xylene	<1,000	<240
cis-1,2-Dichloroethene	7,400	1,900	Styrene	<2,000	<480
Hexane	<8,500	<2,400	Bromoform	<5,000	<480
Chloroform	<120	<24	Benzyl chloride	<120	<24
Ethyl acetate	<17,000	<4,800	1,3,5-Trimethylbenzene	<5,900	<1,200
Tetrahydrofuran	9,700	3,300	1,2,4-Trimethylbenzene	<5,900	<1,200
2-Butanone (MEK)	<7,100	<2,400	1,3-Dichlorobenzene	<1,400	<240
1,2-Dichloroethane (EDC)	<97	<24	1,4-Dichlorobenzene	<560	<91
1,1,1-Trichloroethane	<1,300	<240	1,2-Dichlorobenzene	<1,400	<240
Carbon tetrachloride	<750	<120	1,2,4-Trichlorobenzene	<1,800	<240
Benzene	<770	<240	Naphthalene	<630	<120
Cyclohexane	<17,000	<4,800	Hexachlorobutadiene	<510	<48

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VE-08-100220	Client:	Aspect Consulting, LLC
Date Received:	10/07/20	Project:	Morrell's PO 080190
Date Collected:	10/02/20	Lab ID:	010116-04 1/41
Date Analyzed:	10/16/20	Data File:	101526.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	104	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<49	<29	1,2-Dichloropropane	<9.5	<2
Dichlorodifluoromethane	33	6.8	1,4-Dioxane	<15	<4.1
Chloromethane	<150	<74	2,2,4-Trimethylpentane	2,500	540
F-114	<29	<4.1	Methyl methacrylate	<170	<41
Vinyl chloride	<10	<4.1	Heptane	<170	<41
1,3-Butadiene	<1.8	<0.82	Bromodichloromethane	<2.7	<0.41
Butane	780	330	Trichloroethene	350	66
Bromomethane	<96	<25	cis-1,3-Dichloropropene	<19	<4.1
Chloroethane	<110	<41	4-Methyl-2-pentanone	<170	<41
Vinyl bromide	<18	<4.1	trans-1,3-Dichloropropene	<19	<4.1
Ethanol	<310 ca	<160 ca	Toluene	<770	<200
Acrolein	<85	<37	1,1,2-Trichloroethane	<2.2	<0.41
Pentane	550	190	2-Hexanone	<170	<41
Trichlorofluoromethane	<92	<16	Tetrachloroethene	2,300	340
Acetone	400	170	Dibromochloromethane	<3.5	<0.41
2-Propanol	<350	<140	1,2-Dibromoethane (EDB)	<3.2	<0.41
1,1-Dichloroethene	<16	<4.1	Chlorobenzene	<19	<4.1
trans-1,2-Dichloroethene	<16	<4.1	Ethylbenzene	<18	<4.1
Methylene chloride	<1,400 ca	<410 ca	1,1,2,2-Tetrachloroethane	<5.6	<0.82
t-Butyl alcohol (TBA)	<500	<160	Nonane	<220	<41
3-Chloropropene	<64	<20	Isopropylbenzene	<100	<20
CFC-113	<31	<4.1	2-Chlorotoluene	<210	<41
Carbon disulfide	<260	<82	Propylbenzene	<100	<20
Methyl t-butyl ether (MTBE)	<74	<20	4-Ethyltoluene	<100	<20
Vinyl acetate	<290	<82	m,p-Xylene	51	12
1,1-Dichloroethane	<17	<4.1	o-Xylene	<18	<4.1
cis-1,2-Dichloroethene	220	55	Styrene	<35	<8.2
Hexane	250	70	Bromoform	<85	<8.2
Chloroform	88	18	Benzyl chloride	<2.1	<0.41
Ethyl acetate	<300	<82	1,3,5-Trimethylbenzene	<100	<20
Tetrahydrofuran	2,800	950	1,2,4-Trimethylbenzene	<100	<20
2-Butanone (MEK)	2,000	690	1,3-Dichlorobenzene	<25	<4.1
1,2-Dichloroethane (EDC)	<1.7	<0.41	1,4-Dichlorobenzene	<9.5	<1.6
1,1,1-Trichloroethane	<22	<4.1	1,2-Dichlorobenzene	<25	<4.1
Carbon tetrachloride	53	8.4	1,2,4-Trichlorobenzene	<30	<4.1
Benzene	42	13	Naphthalene	<11	<2
Cyclohexane	<280	<82	Hexachlorobutadiene	<8.7	<0.82

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	MW-23-100220	Client:	Aspect Consulting, LLC
Date Received:	10/07/20	Project:	Morrell's PO 080190
Date Collected:	10/02/20	Lab ID:	010116-05 1/44
Date Analyzed:	10/16/20	Data File:	101525.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	101	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<53	<31	1,2-Dichloropropane	<10	<2.2
Dichlorodifluoromethane	<22	<4.4	1,4-Dioxane	<16	<4.4
Chloromethane	<160	<79	2,2,4-Trimethylpentane	<210	<44
F-114	<31	<4.4	Methyl methacrylate	<180	<44
Vinyl chloride	<11	<4.4	Heptane	<180	<44
1,3-Butadiene	<1.9	<0.88	Bromodichloromethane	<2.9	<0.44
Butane	<100	<44	Trichloroethene	1,100	210
Bromomethane	<100	<26	cis-1,3-Dichloropropene	<20	<4.4
Chloroethane	<120	<44	4-Methyl-2-pentanone	<180	<44
Vinyl bromide	<19	<4.4	trans-1,3-Dichloropropene	<20	<4.4
Ethanol	<330 ca	<180 ca	Toluene	<830	<220
Acrolein	<91	<40	1,1,2-Trichloroethane	<2.4	<0.44
Pentane	<130	<44	2-Hexanone	<180	<44
Trichlorofluoromethane	<99	<18	Tetrachloroethene	15,000 ve	2,200 ve
Acetone	<210	<88	Dibromochloromethane	<3.7	<0.44
2-Propanol	<380	<150	1,2-Dibromoethane (EDB)	<3.4	<0.44
1,1-Dichloroethene	<17	<4.4	Chlorobenzene	<20	<4.4
trans-1,2-Dichloroethene	<17	<4.4	Ethylbenzene	<19	<4.4
Methylene chloride	<1,500 ca	<440 ca	1,1,2,2-Tetrachloroethane	<6	<0.88
t-Butyl alcohol (TBA)	<530	<180	Nonane	<230	<44
3-Chloropropene	<69	<22	Isopropylbenzene	<110	<22
CFC-113	<34	<4.4	2-Chlorotoluene	<230	<44
Carbon disulfide	<270	<88	Propylbenzene	<110	<22
Methyl t-butyl ether (MTBE)	<79	<22	4-Ethyltoluene	<110	<22
Vinyl acetate	<310	<88	m,p-Xylene	<38	<8.8
1,1-Dichloroethane	<18	<4.4	o-Xylene	<19	<4.4
cis-1,2-Dichloroethene	1,700	430	Styrene	<37	<8.8
Hexane	<160	<44	Bromoform	<91	<8.8
Chloroform	4.3	0.88	Benzyl chloride	<2.3	<0.44
Ethyl acetate	<320	<88	1,3,5-Trimethylbenzene	<110	<22
Tetrahydrofuran	630	210	1,2,4-Trimethylbenzene	<110	<22
2-Butanone (MEK)	160	53	1,3-Dichlorobenzene	<26	<4.4
1,2-Dichloroethane (EDC)	<1.8	<0.44	1,4-Dichlorobenzene	<11	<1.7
1,1,1-Trichloroethane	<24	<4.4	1,2-Dichlorobenzene	<26	<4.4
Carbon tetrachloride	<14	<2.2	1,2,4-Trichlorobenzene	<33	<4.4
Benzene	<14	<4.4	Naphthalene	<12	<2.2
Cyclohexane	<300	<88	Hexachlorobutadiene	<9.4	<0.88

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Morrell's PO 080190
Date Collected:	Not Applicable	Lab ID:	00-2264 MB
Date Analyzed:	10/15/20	Data File:	101510.D
Matrix:	Air	Instrument:	GCMS7
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	96	70	130

Compounds:	Concentration ug/m3	ppbv	Compounds:	Concentration ug/m3	ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5 ca	<4 ca	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35 ca	<10 ca	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.26	<0.05
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 10/22/20
Date Received: 10/07/20
Project: Morrell's PO 080190, F&BI 010116

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 010233-02 1/5.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	460	460	0
Dichlorodifluoromethane	ug/m3	15	15	0
Chloromethane	ug/m3	<20	<20	nm
F-114	ug/m3	<3.8	<3.8	nm
Vinyl chloride	ug/m3	<1.4	<1.4	nm
1,3-Butadiene	ug/m3	<0.24	<0.24	nm
Butane	ug/m3	290	290	0
Bromomethane	ug/m3	<13	<13	nm
Chloroethane	ug/m3	<15	<15	nm
Vinyl bromide	ug/m3	<2.4	<2.4	nm
Ethanol	ug/m3	<41	<41	nm
Acrolein	ug/m3	<11	<11	nm
Pentane	ug/m3	130	130	0
Trichlorofluoromethane	ug/m3	25	25	0
Acetone	ug/m3	<26	<26	nm
2-Propanol	ug/m3	<47	<47	nm
1,1-Dichloroethene	ug/m3	<2.2	<2.2	nm
trans-1,2-Dichloroethene	ug/m3	<2.2	<2.2	nm
Methylene chloride	ug/m3	<190	<190	nm
t-Butyl alcohol (TBA)	ug/m3	<67	<67	nm
3-Chloropropene	ug/m3	<8.6	<8.6	nm
CFC-113	ug/m3	<4.2	<4.2	nm
Carbon disulfide	ug/m3	<34	<34	nm
Methyl t-butyl ether (MTBE)	ug/m3	<9.9	<9.9	nm
Vinyl acetate	ug/m3	<39	<39	nm
1,1-Dichloroethane	ug/m3	<2.2	<2.2	nm
cis-1,2-Dichloroethene	ug/m3	<2.2	<2.2	nm
Hexane	ug/m3	37	37	0
Chloroform	ug/m3	<0.27	<0.27	nm
Ethyl acetate	ug/m3	<40	<40	nm
Tetrahydrofuran	ug/m3	<1.6	<1.6	nm
2-Butanone (MEK)	ug/m3	<16	<16	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.22	<0.22	nm
1,1,1-Trichloroethane	ug/m3	<3	<3	nm
Carbon tetrachloride	ug/m3	<1.7	<1.7	nm
Benzene	ug/m3	5.4	5.4	0
Cyclohexane	ug/m3	<38	<38	nm
1,2-Dichloropropane	ug/m3	<1.3	<1.3	nm
1,4-Dioxane	ug/m3	<2	<2	nm
2,2,4-Trimethylpentane	ug/m3	<26	<26	nm

Date of Report: 10/22/20
Date Received: 10/07/20
Project: Morrell's PO 080190, F&BI 010116

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 010233-02 1/5.5 (Duplicate, continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<23	<23	nm
Heptane	ug/m3	<23	<23	nm
Bromodichloromethane	ug/m3	<0.37	<0.37	nm
Trichloroethene	ug/m3	<0.59	<0.59	nm
cis-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
4-Methyl-2-pentanone	ug/m3	<23	<23	nm
trans-1,3-Dichloropropene	ug/m3	<2.5	<2.5	nm
Toluene	ug/m3	<100	<100	nm
1,1,2-Trichloroethane	ug/m3	<0.3	<0.3	nm
2-Hexanone	ug/m3	<23	<23	nm
Tetrachloroethene	ug/m3	<37	<37	nm
Dibromochloromethane	ug/m3	<0.47	<0.47	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.42	<0.42	nm
Chlorobenzene	ug/m3	<2.5	<2.5	nm
Ethylbenzene	ug/m3	<2.4	<2.4	nm
1,1,2,2-Tetrachloroethane	ug/m3	<0.76	<0.76	nm
Nonane	ug/m3	<29	<29	nm
Isopropylbenzene	ug/m3	<14	<14	nm
2-Chlorotoluene	ug/m3	<28	<28	nm
Propylbenzene	ug/m3	<14	<14	nm
4-Ethyltoluene	ug/m3	<14	<14	nm
m,p-Xylene	ug/m3	<4.8	<4.8	nm
o-Xylene	ug/m3	<2.4	<2.4	nm
Styrene	ug/m3	<4.7	<4.7	nm
Bromoform	ug/m3	<11	<11	nm
Benzyl chloride	ug/m3	<0.28	<0.28	nm
1,3,5-Trimethylbenzene	ug/m3	<14	<14	nm
1,2,4-Trimethylbenzene	ug/m3	<14	<14	nm
1,3-Dichlorobenzene	ug/m3	<3.3	<3.3	nm
1,4-Dichlorobenzene	ug/m3	<1.3	<1.3	nm
1,2-Dichlorobenzene	ug/m3	<3.3	<3.3	nm
1,2,4-Trichlorobenzene	ug/m3	<4.1	<4.1	nm
Naphthalene	ug/m3	<1.4	<1.4	nm
Hexachlorobutadiene	ug/m3	<1.2	<1.2	nm

Date of Report: 10/22/20
Date Received: 10/07/20
Project: Morrell's PO 080190, F&BI 010116

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	93	70-130
Dichlorodifluoromethane	ug/m3	67	93	70-130
Chloromethane	ug/m3	28	95	70-130
F-114	ug/m3	94	95	70-130
Vinyl chloride	ug/m3	35	98	70-130
1,3-Butadiene	ug/m3	30	97	70-130
Butane	ug/m3	32	94	70-130
Bromomethane	ug/m3	52	100	70-130
Chloroethane	ug/m3	36	96	70-130
Vinyl bromide	ug/m3	59	99	70-130
Ethanol	ug/m3	25	54 vo	70-130
Acrolein	ug/m3	31	92	70-130
Pentane	ug/m3	40	92	70-130
Trichlorofluoromethane	ug/m3	76	93	70-130
Acetone	ug/m3	32	88	70-130
2-Propanol	ug/m3	33	104	70-130
1,1-Dichloroethene	ug/m3	54	102	70-130
trans-1,2-Dichloroethene	ug/m3	54	99	70-130
Methylene chloride	ug/m3	94	58 vo	70-130
t-Butyl alcohol (TBA)	ug/m3	41	102	70-130
3-Chloropropene	ug/m3	42	95	70-130
CFC-113	ug/m3	100	95	70-130
Carbon disulfide	ug/m3	42	93	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	99	70-130
Vinyl acetate	ug/m3	48	126	70-130
1,1-Dichloroethane	ug/m3	55	99	70-130
cis-1,2-Dichloroethene	ug/m3	54	98	70-130
Hexane	ug/m3	48	87	70-130
Chloroform	ug/m3	66	97	70-130
Ethyl acetate	ug/m3	49	105	70-130
Tetrahydrofuran	ug/m3	40	91	70-130
2-Butanone (MEK)	ug/m3	40	98	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	94	70-130
1,1,1-Trichloroethane	ug/m3	74	104	70-130
Carbon tetrachloride	ug/m3	85	106	70-130
Benzene	ug/m3	43	95	70-130
Cyclohexane	ug/m3	46	89	70-130
1,2-Dichloropropane	ug/m3	62	104	70-130
1,4-Dioxane	ug/m3	49	103	70-130
2,2,4-Trimethylpentane	ug/m3	63	103	70-130

Date of Report: 10/22/20
Date Received: 10/07/20
Project: Morrell's PO 080190, F&BI 010116

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (Continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	106	70-130
Heptane	ug/m3	55	103	70-130
Bromodichloromethane	ug/m3	90	112	70-130
Trichloroethene	ug/m3	73	103	70-130
cis-1,3-Dichloropropene	ug/m3	61	105	70-130
4-Methyl-2-pentanone	ug/m3	55	102	70-130
trans-1,3-Dichloropropene	ug/m3	61	116	70-130
Toluene	ug/m3	51	102	70-130
1,1,2-Trichloroethane	ug/m3	74	108	70-130
2-Hexanone	ug/m3	55	100	70-130
Tetrachloroethene	ug/m3	92	102	70-130
Dibromochloromethane	ug/m3	120	124	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	122	70-130
Chlorobenzene	ug/m3	62	89	70-130
Ethylbenzene	ug/m3	59	93	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	99	70-130
Nonane	ug/m3	71	101	70-130
Isopropylbenzene	ug/m3	66	93	70-130
2-Chlorotoluene	ug/m3	70	98	70-130
Propylbenzene	ug/m3	66	98	70-130
4-Ethyltoluene	ug/m3	66	93	70-130
m,p-Xylene	ug/m3	120	92	70-130
o-Xylene	ug/m3	59	91	70-130
Styrene	ug/m3	58	93	70-130
Bromoform	ug/m3	140	118	70-130
Benzyl chloride	ug/m3	70	114	70-130
1,3,5-Trimethylbenzene	ug/m3	66	96	70-130
1,2,4-Trimethylbenzene	ug/m3	66	102	70-130
1,3-Dichlorobenzene	ug/m3	81	95	70-130
1,4-Dichlorobenzene	ug/m3	81	89	70-130
1,2-Dichlorobenzene	ug/m3	81	92	70-130
1,2,4-Trichlorobenzene	ug/m3	100	85	70-130
Naphthalene	ug/m3	71	90	70-130
Hexachlorobutadiene	ug/m3	140	89	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

010116

SAMPLE CHAIN OF CUSTODY

ME 10/7/20

Page # 1 of 1

Report To Breeyn Greer
Company Aspect Consulting
Address 710 2nd Ave Ste 550
City, State, ZIP Seattle, WA 98
Phone 2065124739 Email bgreer@aspectconsulting.com

SAMPLERS (*signature*) Rachel

PROJECT NAME & ADDRESS: Morrell's
PO #: 080190

NOTES:

INVOICE TO: AP

TURNAROUND TIME
☒ Standard
☐ RUSH
Rush charges authorized by:

SAMPLE DISPOSAL
☐ Default: Clean after 3 days
☐ Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 ~~BTEXN~~ BTEX	TO15 cVOCs	APH	Helium		(X)-per BG 10/12/20 ME ✓-Full List per BG 10/14/20 Notes ME
VE-05-100220	01	2438	109	IA / (SG)	10/2/20	29.5	1358	5	1403	✓	(X)	X				
VE-06-100220	02	2305	229	IA / (SG)	10/2/20	29.5	1433	5	1442	✓	(X)	X				
VE-07-100220	03	8209	105	IA / (SG)	10/2/20	30	1533	5	1538	✓	(X)	X				High PID: 85.7
VE-08-100220	04	3671	101	IA / (SG)	10/2/20	30	1520	5	1525	✓	(X)	X				
MW-23-100220	05	3483	35	IA / (SG)	10/2/20	29	1511	5	1516	✓	(X)	X				
				IA / SG												
				IA / SG												
				IA / SG												

Samples received at 19

KP

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COCTO-15.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Rachel	Rachel Cornwell	Aspect	10/7/20	1033
Received by:	Nhan Phan	FEBI	10/7/20	1033
Relinquished by:				
Received by:				

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

April 2, 2021

Breeyn Greer, Project Manager
Aspect Consulting, LLC
710 2nd Ave S, Suite 550
Seattle, WA 98104

Dear Ms Greer:

Included are the results from the testing of material submitted on March 24, 2021 from the Walker Chevrolet 080190, F&BI 103460 project. There are 13 pages included in this report.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Aspect Data
ASP0402R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on March 24, 2021 by Friedman & Bruya, Inc. from the Aspect Consulting, LLC Walker Chevrolet 080190, F&BI 103460 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	Aspect Consulting, LLC
103460 -01	EFF-032421
103460 -02	VE-COMB-032421

Non-petroleum compounds identified in the air phase hydrocarbon (APH) ranges were subtracted per the MA-APH method.

APH EC5-8 aliphatics were detected in the MA-APH method blank at a level greater than one tenth the concentration detected in the samples. The data were flagged accordingly.

Chloromethane and methylene chloride in the TO-15 laboratory control sample exceeded the acceptance criteria. The analytes were not detected in the samples, therefore the data were acceptable.

All other quality control requirements were acceptable.

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	EFF-032421	Client:	Aspect Consulting, LLC
Date Received:	03/24/21	Project:	Walker Chevrolet 080190, F&BI 103460
Date Collected:	03/24/21	Lab ID:	103460-01 1/17
Date Analyzed:	03/29/21	Data File:	032921.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	108	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	9,500 fb
APH EC9-12 aliphatics	<420
APH EC9-10 aromatics	<420

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	VE-COMB-032421	Client:	Aspect Consulting, LLC
Date Received:	03/24/21	Project:	Walker Chevrolet 080190, F&BI 103460
Date Collected:	03/24/21	Lab ID:	103460-02 1/8.5
Date Analyzed:	03/29/21	Data File:	032919.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	105	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	9,000 ve fb
APH EC9-12 aliphatics	450
APH EC9-10 aromatics	<210

Analysis For Volatile Compounds By Method MA-APH

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Walker Chevrolet 080190, F&BI 103460
Date Collected:	Not Applicable	Lab ID:	01-666 MB
Date Analyzed:	03/29/21	Data File:	032911.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	102	70	130

Compounds:	Concentration ug/m3
APH EC5-8 aliphatics	130 lc
APH EC9-12 aliphatics	<25
APH EC9-10 aromatics	<25

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	EFF-032421	Client:	Aspect Consulting, LLC
Date Received:	03/24/21	Project:	Walker Chevrolet 080190, F&BI 103460
Date Collected:	03/24/20	Lab ID:	103460-01 1/17
Date Analyzed:	03/29/21	Data File:	032921.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	113	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<20	<12	1,2-Dichloropropane	<3.9	<0.85
Dichlorodifluoromethane	38	7.6	1,4-Dioxane	<6.1	<1.7
Chloromethane	<63	<31	2,2,4-Trimethylpentane	690	150
F-114	<12	<1.7	Methyl methacrylate	<70	<17
Vinyl chloride	<4.3	<1.7	Heptane	110	27
1,3-Butadiene	<0.75	<0.34	Bromodichloromethane	<1.1	<0.17
Butane	280	120	Trichloroethene	170	31
Bromomethane	<40	<10	cis-1,3-Dichloropropene	<7.7	<1.7
Chloroethane	<45	<17	4-Methyl-2-pentanone	<70	<17
Vinyl bromide	<7.4	<1.7	trans-1,3-Dichloropropene	<7.7	<1.7
Ethanol	<130	<68	Toluene	<320	<85
Acrolein	<35	<15	1,1,2-Trichloroethane	<0.93	<0.17
Pentane	170	56	2-Hexanone	<70	<17
Trichlorofluoromethane	<38	<6.8	Tetrachloroethene	5,000 ve	740 ve
Acetone	<81	<34	Dibromochloromethane	<1.4	<0.17
2-Propanol	<150	<59	1,2-Dibromoethane (EDB)	<1.3	<0.17
1,1-Dichloroethene	<6.7	<1.7	Chlorobenzene	<7.8	<1.7
trans-1,2-Dichloroethene	<6.7	<1.7	Ethylbenzene	<7.4	<1.7
Methylene chloride	<590	<170	1,1,2,2-Tetrachloroethane	<2.3	<0.34
t-Butyl alcohol (TBA)	<210	<68	Nonane	<89	<17
3-Chloropropene	<27	<8.5	Isopropylbenzene	<42	<8.5
CFC-113	<13	<1.7	2-Chlorotoluene	<88	<17
Carbon disulfide	<110	<34	Propylbenzene	<42	<8.5
Methyl t-butyl ether (MTBE)	<31	<8.5	4-Ethyltoluene	<42	<8.5
Vinyl acetate	<120	<34	m,p-Xylene	<15	<3.4
1,1-Dichloroethane	<6.9	<1.7	o-Xylene	<7.4	<1.7
cis-1,2-Dichloroethene	180	45	Styrene	<14	<3.4
Hexane	140	39	Bromoform	<35	<3.4
Chloroform	19	3.9	Benzyl chloride	<0.88	<0.17
Ethyl acetate	<120	<34	1,3,5-Trimethylbenzene	<42	<8.5
Tetrahydrofuran	<5	<1.7	1,2,4-Trimethylbenzene	<42	<8.5
2-Butanone (MEK)	<50	<17	1,3-Dichlorobenzene	<10	<1.7
1,2-Dichloroethane (EDC)	<0.69	<0.17	1,4-Dichlorobenzene	<4.0	<0.65
1,1,1-Trichloroethane	<9.3	<1.7	1,2-Dichlorobenzene	<10	<1.7
Carbon tetrachloride	10	1.6	1,2,4-Trichlorobenzene	<13	<1.7
Benzene	31	9.7	Naphthalene	<1.8	<0.34
Cyclohexane	<120	<34	Hexachlorobutadiene	<3.6	<0.34

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	VE-COMB-032421	Client:	Aspect Consulting, LLC
Date Received:	03/24/21	Project:	Walker Chevrolet 080190, F&BI 103460
Date Collected:	03/24/20	Lab ID:	103460-02 1/8.5
Date Analyzed:	03/29/21	Data File:	032919.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	110	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<10	<5.9	1,2-Dichloropropane	<2	<0.42
Dichlorodifluoromethane	36	7.4	1,4-Dioxane	<3.1	<0.85
Chloromethane	<32	<15	2,2,4-Trimethylpentane	600 ve	130 ve
F-114	<5.9	<0.85	Methyl methacrylate	<35	<8.5
Vinyl chloride	2.4	0.93	Heptane	130	32
1,3-Butadiene	<0.38	<0.17	Bromodichloromethane	<0.57	<0.085
Butane	270	110	Trichloroethene	190	34
Bromomethane	<20	<5.1	cis-1,3-Dichloropropene	<3.9	<0.85
Chloroethane	<22	<8.5	4-Methyl-2-pentanone	<35	<8.5
Vinyl bromide	<3.7	<0.85	trans-1,3-Dichloropropene	<3.9	<0.85
Ethanol	<64	<34	Toluene	<160	<42
Acrolein	<18	<7.6	1,1,2-Trichloroethane	<0.46	<0.085
Pentane	190	65	2-Hexanone	<35	<8.5
Trichlorofluoromethane	<19	<3.4	Tetrachloroethene	3,300 ve	480 ve
Acetone	<40	<17	Dibromochloromethane	<0.72	<0.085
2-Propanol	<73	<30	1,2-Dibromoethane (EDB)	<0.65	<0.085
1,1-Dichloroethene	<3.4	<0.85	Chlorobenzene	<3.9	<0.85
trans-1,2-Dichloroethene	<3.4	<0.85	Ethylbenzene	5.4	1.2
Methylene chloride	<300	<85	1,1,2,2-Tetrachloroethane	<1.2	<0.17
t-Butyl alcohol (TBA)	<100	<34	Nonane	<45	<8.5
3-Chloropropene	<13	<4.2	Isopropylbenzene	34	6.9
CFC-113	<6.5	<0.85	2-Chlorotoluene	<44	<8.5
Carbon disulfide	<53	<17	Propylbenzene	<21	<4.2
Methyl t-butyl ether (MTBE)	<15	<4.2	4-Ethyltoluene	<21	<4.2
Vinyl acetate	96	27	m,p-Xylene	67	15
1,1-Dichloroethane	<3.4	<0.85	o-Xylene	24	5.5
cis-1,2-Dichloroethene	180	46	Styrene	<7.2	<1.7
Hexane	140	40	Bromoform	<18	<1.7
Chloroform	22	4.6	Benzyl chloride	<0.44	<0.085
Ethyl acetate	<61	<17	1,3,5-Trimethylbenzene	<21	<4.2
Tetrahydrofuran	<2.5	<0.85	1,2,4-Trimethylbenzene	<21	<4.2
2-Butanone (MEK)	<25	<8.5	1,3-Dichlorobenzene	<5.1	<0.85
1,2-Dichloroethane (EDC)	<0.34	<0.085	1,4-Dichlorobenzene	<2.0	<0.32
1,1,1-Trichloroethane	<4.6	<0.85	1,2-Dichlorobenzene	<5.1	<0.85
Carbon tetrachloride	11	1.8	1,2,4-Trichlorobenzene	<6.3	<0.85
Benzene	35	11	Naphthalene	<2.2	<0.42
Cyclohexane	67	19	Hexachlorobutadiene	<1.8	<0.17

Analysis For Volatile Compounds By Method TO-15

Client Sample ID:	Method Blank	Client:	Aspect Consulting, LLC
Date Received:	Not Applicable	Project:	Walker Chevrolet 080190, F&BI 103460
Date Collected:	Not Applicable	Lab ID:	01-666 MB
Date Analyzed:	03/29/21	Data File:	032911.D
Matrix:	Air	Instrument:	GCMS12
Units:	ug/m3	Operator:	bat

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
4-Bromofluorobenzene	106	70	130

Compounds:	Concentration ug/m3	Concentration ppbv	Compounds:	Concentration ug/m3	Concentration ppbv
Propene	<1.2	<0.7	1,2-Dichloropropane	<0.23	<0.05
Dichlorodifluoromethane	<0.49	<0.1	1,4-Dioxane	<0.36	<0.1
Chloromethane	<3.7	<1.8	2,2,4-Trimethylpentane	<4.7	<1
F-114	<0.7	<0.1	Methyl methacrylate	<4.1	<1
Vinyl chloride	<0.26	<0.1	Heptane	<4.1	<1
1,3-Butadiene	<0.044	<0.02	Bromodichloromethane	<0.067	<0.01
Butane	<2.4	<1	Trichloroethene	<0.11	<0.02
Bromomethane	<2.3	<0.6	cis-1,3-Dichloropropene	<0.45	<0.1
Chloroethane	<2.6	<1	4-Methyl-2-pentanone	<4.1	<1
Vinyl bromide	<0.44	<0.1	trans-1,3-Dichloropropene	<0.45	<0.1
Ethanol	<7.5	<4	Toluene	<19	<5
Acrolein	<2.1	<0.9	1,1,2-Trichloroethane	<0.055	<0.01
Pentane	<3	<1	2-Hexanone	<4.1	<1
Trichlorofluoromethane	<2.2	<0.4	Tetrachloroethene	<6.8	<1
Acetone	<4.8	<2	Dibromochloromethane	<0.085	<0.01
2-Propanol	<8.6	<3.5	1,2-Dibromoethane (EDB)	<0.077	<0.01
1,1-Dichloroethene	<0.4	<0.1	Chlorobenzene	<0.46	<0.1
trans-1,2-Dichloroethene	<0.4	<0.1	Ethylbenzene	<0.43	<0.1
Methylene chloride	<35	<10	1,1,2,2-Tetrachloroethane	<0.14	<0.02
t-Butyl alcohol (TBA)	<12	<4	Nonane	<5.2	<1
3-Chloropropene	<1.6	<0.5	Isopropylbenzene	<2.5	<0.5
CFC-113	<0.77	<0.1	2-Chlorotoluene	<5.2	<1
Carbon disulfide	<6.2	<2	Propylbenzene	<2.5	<0.5
Methyl t-butyl ether (MTBE)	<1.8	<0.5	4-Ethyltoluene	<2.5	<0.5
Vinyl acetate	<7	<2	m,p-Xylene	<0.87	<0.2
1,1-Dichloroethane	<0.4	<0.1	o-Xylene	<0.43	<0.1
cis-1,2-Dichloroethene	<0.4	<0.1	Styrene	<0.85	<0.2
Hexane	<3.5	<1	Bromoform	<2.1	<0.2
Chloroform	<0.049	<0.01	Benzyl chloride	<0.052	<0.01
Ethyl acetate	<7.2	<2	1,3,5-Trimethylbenzene	<2.5	<0.5
Tetrahydrofuran	<0.29	<0.1	1,2,4-Trimethylbenzene	<2.5	<0.5
2-Butanone (MEK)	<2.9	<1	1,3-Dichlorobenzene	<0.6	<0.1
1,2-Dichloroethane (EDC)	<0.04	<0.01	1,4-Dichlorobenzene	<0.23	<0.038
1,1,1-Trichloroethane	<0.55	<0.1	1,2-Dichlorobenzene	<0.6	<0.1
Carbon tetrachloride	<0.31	<0.05	1,2,4-Trichlorobenzene	<0.74	<0.1
Benzene	<0.32	<0.1	Naphthalene	<0.1	<0.02
Cyclohexane	<6.9	<2	Hexachlorobutadiene	<0.21	<0.02

Date of Report: 04/02/21
Date Received: 03/24/21
Project: Walker Chevrolet 080190, F&BI 103460

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD MA-APH

Laboratory Code: 103460-02 1/8.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
APH EC5-8 aliphatics	ug/m3	11,000	11,000	0
APH EC9-12 aliphatics	ug/m3	450	410	9
APH EC9-10 aromatics	ug/m3	<210	<210	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
APH EC5-8 aliphatics	ug/m3	67	89	70-130
APH EC9-12 aliphatics	ug/m3	67	103	70-130
APH EC9-10 aromatics	ug/m3	67	94	70-130

Date of Report: 04/02/21
Date Received: 03/24/21
Project: Walker Chevrolet 080190, F&BI 103460

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 103460-02 1/8.5 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Propene	ug/m3	<10	<10	nm
Dichlorodifluoromethane	ug/m3	36	41	13
Chloromethane	ug/m3	<32	<32	nm
F-114	ug/m3	<5.9	<5.9	nm
Vinyl chloride	ug/m3	2.4	2.5	4
1,3-Butadiene	ug/m3	<0.38	<0.38	nm
Butane	ug/m3	270	300	11
Bromomethane	ug/m3	<20	<20	nm
Chloroethane	ug/m3	<22	<22	nm
Vinyl bromide	ug/m3	<3.7	<3.7	nm
Ethanol	ug/m3	<64	<64	nm
Acrolein	ug/m3	<18	<18	nm
Pentane	ug/m3	190	220	15
Trichlorofluoromethane	ug/m3	<19	<19	nm
Acetone	ug/m3	<40	42	nm
2-Propanol	ug/m3	<73	<73	nm
1,1-Dichloroethene	ug/m3	<3.4	<3.4	nm
trans-1,2-Dichloroethene	ug/m3	<3.4	<3.4	nm
Methylene chloride	ug/m3	<300	<300	nm
t-Butyl alcohol (TBA)	ug/m3	<100	<100	nm
3-Chloropropene	ug/m3	<13	<13	nm
CFC-113	ug/m3	<6.5	<6.5	nm
Carbon disulfide	ug/m3	<53	<53	nm
Methyl t-butyl ether (MTBE)	ug/m3	<15	<15	nm
Vinyl acetate	ug/m3	96	110	14
1,1-Dichloroethane	ug/m3	<3.4	<3.4	nm
cis-1,2-Dichloroethene	ug/m3	180	210	15
Hexane	ug/m3	140	170	19
Chloroform	ug/m3	22	25	13
Ethyl acetate	ug/m3	<61	<61	nm
Tetrahydrofuran	ug/m3	<2.5	<2.5	nm
2-Butanone (MEK)	ug/m3	<25	<25	nm
1,2-Dichloroethane (EDC)	ug/m3	<0.34	<0.34	nm
1,1,1-Trichloroethane	ug/m3	<4.6	<4.6	nm
Carbon tetrachloride	ug/m3	11	13	17
Benzene	ug/m3	35	40	13
Cyclohexane	ug/m3	67	75	11
1,2-Dichloropropane	ug/m3	<2	<2	nm
1,4-Dioxane	ug/m3	<3.1	<3.1	nm
2,2,4-Trimethylpentane	ug/m3	600	590	2

Date of Report: 04/02/21
Date Received: 03/24/21
Project: Walker Chevrolet 080190, F&BI 103460

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: 103460-02 1/8.5 (Duplicate) (continued)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 30)
Methyl methacrylate	ug/m3	<35	<35	nm
Heptane	ug/m3	130	130	0
Bromodichloromethane	ug/m3	<0.57	<0.57	nm
Trichloroethene	ug/m3	190	170	11
cis-1,3-Dichloropropene	ug/m3	<3.9	<3.9	nm
4-Methyl-2-pentanone	ug/m3	<35	<35	nm
trans-1,3-Dichloropropene	ug/m3	<3.9	<3.9	nm
Toluene	ug/m3	<160	<160	nm
1,1,2-Trichloroethane	ug/m3	<0.46	<0.46	nm
2-Hexanone	ug/m3	<35	<35	nm
Tetrachloroethene	ug/m3	3,300	3,100	6
Dibromochloromethane	ug/m3	<0.72	<0.72	nm
1,2-Dibromoethane (EDB)	ug/m3	<0.65	<0.65	nm
Chlorobenzene	ug/m3	<3.9	<3.9	nm
Ethylbenzene	ug/m3	5.4	5.3	2
1,1,2,2-Tetrachloroethane	ug/m3	<1.2	<1.2	nm
Nonane	ug/m3	<45	<45	nm
Isopropylbenzene	ug/m3	34	28	19
2-Chlorotoluene	ug/m3	<44	<44	nm
Propylbenzene	ug/m3	<21	<21	nm
4-Ethyltoluene	ug/m3	<21	<21	nm
m,p-Xylene	ug/m3	67	66	2
o-Xylene	ug/m3	24	24	0
Styrene	ug/m3	<7.2	<7.2	nm
Bromoform	ug/m3	<18	<18	nm
Benzyl chloride	ug/m3	<0.44	<0.44	nm
1,3,5-Trimethylbenzene	ug/m3	<21	<21	nm
1,2,4-Trimethylbenzene	ug/m3	<21	<21	nm
1,3-Dichlorobenzene	ug/m3	<5.1	<5.1	nm
1,4-Dichlorobenzene	ug/m3	<1.9	<1.9	nm
1,2-Dichlorobenzene	ug/m3	<5.1	<5.1	nm
1,2,4-Trichlorobenzene	ug/m3	<6.3	<6.3	nm
Naphthalene	ug/m3	<2.2	<2.2	nm
Hexachlorobutadiene	ug/m3	<1.8	<1.8	nm

Date of Report: 04/02/21
Date Received: 03/24/21
Project: Walker Chevrolet 080190, F&BI 103460

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Propene	ug/m3	23	114	70-130
Dichlorodifluoromethane	ug/m3	67	129	70-130
Chloromethane	ug/m3	28	133 vo	70-130
F-114	ug/m3	94	115	70-130
Vinyl chloride	ug/m3	35	116	70-130
1,3-Butadiene	ug/m3	30	102	70-130
Butane	ug/m3	32	112	70-130
Bromomethane	ug/m3	52	121	70-130
Chloroethane	ug/m3	36	119	70-130
Vinyl bromide	ug/m3	59	113	70-130
Ethanol	ug/m3	25	113	70-130
Acrolein	ug/m3	31	95	70-130
Pentane	ug/m3	40	99	70-130
Trichlorofluoromethane	ug/m3	76	114	70-130
Acetone	ug/m3	32	107	70-130
2-Propanol	ug/m3	33	104	70-130
1,1-Dichloroethene	ug/m3	54	103	70-130
trans-1,2-Dichloroethene	ug/m3	54	94	70-130
Methylene chloride	ug/m3	94	511 vo	70-130
t-Butyl alcohol (TBA)	ug/m3	41	102	70-130
3-Chloropropene	ug/m3	42	106	70-130
CFC-113	ug/m3	100	101	70-130
Carbon disulfide	ug/m3	42	99	70-130
Methyl t-butyl ether (MTBE)	ug/m3	49	95	70-130
Vinyl acetate	ug/m3	48	95	70-130
1,1-Dichloroethane	ug/m3	55	106	70-130
cis-1,2-Dichloroethene	ug/m3	54	94	70-130
Hexane	ug/m3	48	93	70-130
Chloroform	ug/m3	66	108	70-130
Ethyl acetate	ug/m3	49	107	70-130
Tetrahydrofuran	ug/m3	40	103	70-130
2-Butanone (MEK)	ug/m3	40	97	70-130
1,2-Dichloroethane (EDC)	ug/m3	55	121	70-130
1,1,1-Trichloroethane	ug/m3	74	110	70-130
Carbon tetrachloride	ug/m3	85	111	70-130
Benzene	ug/m3	43	91	70-130
Cyclohexane	ug/m3	46	86	70-130
1,2-Dichloropropane	ug/m3	62	92	70-130
1,4-Dioxane	ug/m3	49	88	70-130
2,2,4-Trimethylpentane	ug/m3	63	77	70-130

Date of Report: 04/02/21
Date Received: 03/24/21
Project: Walker Chevrolet 080190, F&BI 103460

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF AIR SAMPLES FOR VOLATILES BY METHOD TO-15

Laboratory Code: Laboratory Control Sample (continued)

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Methyl methacrylate	ug/m3	55	93	70-130
Heptane	ug/m3	55	86	70-130
Bromodichloromethane	ug/m3	90	98	70-130
Trichloroethene	ug/m3	73	92	70-130
cis-1,3-Dichloropropene	ug/m3	61	94	70-130
4-Methyl-2-pentanone	ug/m3	55	77	70-130
trans-1,3-Dichloropropene	ug/m3	61	96	70-130
Toluene	ug/m3	51	84	70-130
1,1,2-Trichloroethane	ug/m3	74	93	70-130
2-Hexanone	ug/m3	55	99	70-130
Tetrachloroethene	ug/m3	92	83	70-130
Dibromochloromethane	ug/m3	120	92	70-130
1,2-Dibromoethane (EDB)	ug/m3	100	86	70-130
Chlorobenzene	ug/m3	62	89	70-130
Ethylbenzene	ug/m3	59	88	70-130
1,1,2,2-Tetrachloroethane	ug/m3	93	96	70-130
Nonane	ug/m3	71	106	70-130
Isopropylbenzene	ug/m3	66	83	70-130
2-Chlorotoluene	ug/m3	70	85	70-130
Propylbenzene	ug/m3	66	90	70-130
4-Ethyltoluene	ug/m3	66	86	70-130
m,p-Xylene	ug/m3	120	84	70-130
o-Xylene	ug/m3	59	90	70-130
Styrene	ug/m3	58	74	70-130
Bromoform	ug/m3	140	83	70-130
Benzyl chloride	ug/m3	70	87	70-130
1,3,5-Trimethylbenzene	ug/m3	66	82	70-130
1,2,4-Trimethylbenzene	ug/m3	66	77	70-130
1,3-Dichlorobenzene	ug/m3	81	90	70-130
1,4-Dichlorobenzene	ug/m3	81	86	70-130
1,2-Dichlorobenzene	ug/m3	81	91	70-130
1,2,4-Trichlorobenzene	ug/m3	100	87	70-130
Naphthalene	ug/m3	71	88	70-130
Hexachlorobutadiene	ug/m3	140	96	70-130

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

103460

SAMPLE CHAIN OF CUSTODY

ME 03/24/21

Page # 1 of 1

Report To Breeyn Greer
Company Aspect Consulting
Address 710 2nd Ave, Ste 550
City, State, ZIP Seattle, WA 98104
Phone _____ Email bgreer@aspectconsulting.com

SAMPLERS (*signature*) Rachel

PROJECT NAME & ADDRESS: Walker Chevrolet

PO # 080190

NOTES:

INVOICE TO: AP

TURNAROUND TIME
- [X] Standard
- [ ] RUSH
Rush charges authorized by: _____

SAMPLE DISPOSAL
- [X] Default: Clean after 3 days
- [ ] Archive (Fee may apply)

SAMPLE INFORMATION										ANALYSIS REQUESTED						
Sample Name	Lab ID	Canister ID	Flow Cont. ID	Reporting Level: IA=Indoor Air SG=Soil Gas (Circle One)	Date Sampled	Initial Vac. ("Hg)	Field Initial Time	Final Vac. ("Hg)	Field Final Time	TO15 Full Scan	TO15 BTEXN	TO15 cVOCs	APH	Helium		Notes
EFF-032421	01	3667	18	IA / (SG)	3/24/21	30	0917	5	0922	X			X			
VE-COMB-032421	02	2305	111	IA / (SG)	3/24/21	29	0926	5	0931	X			X			
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG												
				IA / SG						Samples received at 18 °C						
				IA / SG												

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Rachel	Rachel Cornwell	Aspect	3/24/21	1406
Received by:	Dhan Phan	FedEx	3/24/21	1406
Relinquished by:				
Received by:				

ATTACHMENT 2

467863

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	WAD988477873	1	(800) 337-7455	TP-020819-GE 01

GENERATOR

5. Generator's Name and Mailing Address: Thriftway Properties LLC, 710 2nd Ave., Ste: 550, Seattle, WA 98104
Generator's Site Address (if different than mailing address): Thriftway Properties LLC, 608 North 1st Street, Tacoma, WA 98403
Generator's Phone: (206) 838-5831 Attn: Dave Heffner

6. Transporter 1 Company Name: DH Environmental, Inc. — U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management of the Northwest — U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address: Chemical Waste Management of the Northwest, 17629 Cedar Springs Lane, Arlington, OR 97812 — U.S. EPA ID Number: ORD089452353
Facility's Phone: (541) 454-2643

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Material Not Regulated by DOT (non-Regulated IDW ~~water~~ soil)	17	DM	11,500	P	X004
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
OR328266 – LF01/STA801, non-reg
1. IDW soil

WMM970272

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.
Generator's/Offeror's Printed/Typed Name: On behalf of Thriftway Properties LLC Leonard J. Warnock — Signature: Leonard J. Warnock — Month 05 Day 15 Year 19

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Leonard J. Warnock — Signature: Leonard J. Warnock — Month 05 Day 23 Year 19
Transporter 2 Printed/Typed Name: G. Pinard/9 — Signature: [illegible] — Month 2 Day 5 Year 19

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a
Printed/Typed Name: Dawn Dingo — Signature: [signature] — Month 2 Day 14 Year 19

169-BLC-O 6 10498 (Rev. 9/09)

DESIGNATED FACILITY TO GENERATOR

467863

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
WAD 988427873	2 OF 2		TP-020419-01

5. Generator's Name and Mailing Address: THRIFTWAY PROPERTIES LLC

Generator's Site Address (if different than mailing address)

Generator's Phone:

6. Transporter 1 Company Name: Union Pacific Rail Road — U.S. EPA ID Number: NED001792910

7. Transporter 2 Company Name: Columbia Ridge land fill — U.S. EPA ID Number: ORD987173457

8. Designated Facility Name and Site Address — U.S. EPA ID Number

Facility's Phone:

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1.					
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information

WMXH 970272

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:

Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
James Ruppert		2	8	19
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year
Jan L Gabbey	Jan L Gabbey	2	12	19

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name | Signature | Month | Day | Year

4684484

Please print or type. Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAD027555184
2. Page 1 of: 2
3. Emergency Response Phone: (800)-337-7455
4. Manifest Tracking Number: 020121083 JJK

GENERATOR

5. Generator's Name and Mailing Address
Thriftway Properties LLC
401 2nd Ave S #201
Seattle WA 98104
Att: Alan Noell
Generator's Phone: 208 - 838 - 6592

Generator's Site Address (if different than mailing address)
Thriftway Properties LLC
633 Division Ave
Tacoma WA 98403

6. Transporter 1 Company Name: DH Environmental Inc.
U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management
U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3082, Hazardous waste, liquid, n.o.s. (Trichloroethene, Tetrachloroethane) 9, PGIII	015	DM	4,500	P	F002		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1)(T) OR328943 ERG#171
55
WMXU980684

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Travis Forslund on behalf of Thriftway
Signature:
Month: 3 Day: 4 Year: 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Travis Forslund
Signature:
Month: 3 Day: 4 Year: 19

Transporter 2 Printed/Typed Name: Michael Castaneda
Signature:
Month: 3 Day: 4 Year: 19

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Dawn Dunlap
Signature:
Month: 3 Day: 20 Year: 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO GENERATOR

RM

468484

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: WAD027555184

22. Page 2 of 2

23. Manifest Tracking Number: 020121083JJK

24. Generator's Name: THRIFTWAY PROPERTIES LLC.

25. Transporter 3 Company Name: UPRR — U.S. EPA ID Number: NED007792910

26. Transporter 4 Company Name: COLUMBIA RIDGE LANDFILL — U.S. EPA ID Number: ORD987173457

EMS 3-29-19

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes

32. Special Handling Instructions and Additional Information

WMXU980684

33. Transporter 3 Acknowledgment of Receipt of Materials

Printed/Typed Name: James Ryppa — Signature — Month 3 Day 7 Year 19

34. Transporter 4 Acknowledgment of Receipt of Materials

Printed/Typed Name: Jan L Gabbey — Signature — Month 3 Day 11 Year 19

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

GENERATOR

TRANSPORTER

DESIGNATED FACILITY

468770

3/31

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number WA D 988477873	2. Page 1 of 1	3. Emergency Response Phone (800)-337-7455	4. Manifest Tracking Number 020121088 JJK

5. Generator's Name and Mailing Address
Thriftway Properties LLC
401 2nd Ave S #201
Seattle WA 98104
Att: Alan Noell
Generator's Phone: 206 838-8592

Generator's Site Address (if different than mailing address)
Thriftway Properties LLC
~~822 Division Ave~~ 608 N 1ST ST
Tacoma WA 98403
608 4-3-19 per Scott St John/CHMW

6. Transporter 1 Company Name
R Transport Inc
U.S. EPA ID Number
WAH000028338

7. Transporter 2 Company Name
Chemical Waste Management
U.S. EPA ID Number
ORD089452353

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number
ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3077, Hazardous waste, solid, n.o.s. (Tetrachloroethene, Soil) 9, PGIII	001	CM	10	T	F002		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1) OR341087-Bulk ERG#171

WMXY 8753

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: On Behalf of Thriftway Properties Travis Forslund
Signature:
Month 3 Day 7 Year 19

INT'L
16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER
17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Jason Edmonds
Signature:
Month 3 Day 11 Year 19
Transporter 2 Printed/Typed Name: James Ruppert
Signature:
Month 3 Day 11 Year 19

DESIGNATED FACILITY
18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Dawn Dingo
Signature:
Month 4 Day 11 Year 19

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator ID Number: WAD 027555184

22. Page: 2

23. Manifest Tracking Number: 020721088 JJK

24. Generator's Name: Thriftway Properties LLC

25. Transporter _____ Company Name: CRL — U.S. EPA ID Number: ORD987173457

26. Transporter _____ Company Name — U.S. EPA ID Number

27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers No.	28. Containers Type	29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes		

32. Special Handling Instructions and Additional Information

WM XU 8753

TRANSPORTER

33. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name: Jan L Gabbey — Signature: Jan L Gabbey — Month: 4 — Day: 1 — Year: 19

34. Transporter _____ Acknowledgment of Receipt of Materials
Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

35. Discrepancy

36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

EPA Form 8700-22A (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

Travis

Chemical Waste Management Of The Northwest

17629 Cedar Springs Lane
Arlington, Oregon 97812
541-454-2643
EPA I.D.# ORD089452353

LOAD NO. _____

MANIFEST DOC. NO. _____

INBOUND
T/D: 15:02:30 2019-04-11
ID: 468770 TRK ID: 8753 L14
70700 lb G

OUTBOUND
T/D: 15:17:47 2019-04-11
ID: 468770 TRK ID: 8753 L14
70700 lb G
48800 lb PT
21900 lb N

NET 10.95 TONS

GENERATOR _____

468677

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number WAD988477873	2. Page 1 of 2	3. Emergency Response Phone (800) 337-7455	4. Manifest Tracking Number 020121003 JJK

5. Generator's Name and Mailing Address: Thriftway Properties LLC, 401 2nd Ave. S #201, Seattle, WA 98104, (206) 780-7729 Attn: Bob Hanford
Generator's Site Address (if different than mailing address): 808 North 1st Street, Tacoma, WA 98403
Generator's Phone:

6. Transporter 1 Company Name: DH Environmental Inc. — U.S. EPA ID Number: MAH000047917
7. Transporter 2 Company Name: Chemical Waste Management of the Northwest — U.S. EPA ID Number: ORD089452353
8. Designated Facility Name and Site Address: Chemical Waste Management of the Northwest, 17629 Cedar Springs Lane, Arlington, OR 97812 — Facility's Phone: — U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous Waste Solid, n.o.s., 9, PG III (tetrachloroethylene) none Shipped	0	0	0	0	
X	2. NA3082, Hazardous Waste Liquid, n.o.s., 9 PG III (tetrachloroethene, trichloroethene)	11	DM	5000	P	
	3. Material Not Regulated by DOT, (non-regulated IDW soil) none Shipped	0	0	0	0	
	4.					

14. Special Handling Instructions and Additional Information
1. OR32803 --INCL, FOOD IDW WATER: (171)
2. OR32803 --STA115, F002 IDW water, waste LDR's ERG: (171)
3. OR32803 --LF01 non-regulated IDW soil

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Thriftway LLC Leonard J. Warnock — Signature: Leonard J Warnock — Month 03 Day 20 Year 19

16. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:
Transporter signature (for exports only):

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Leonard J. Warnock — Signature: Leonard J Warnock — Month 03 Day 20 Year 19
Transporter 2 Printed/Typed Name: [illegible] — Signature: [illegible] — Month 3 Day 20 Year 19

18. Discrepancy
18a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:
18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Bobby Wilson — Signature: [signature] — Month 3 Day 28 Year 19

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

468678

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAD988477873
2. Page 1 of: 1
3. Emergency Response Phone: (800) 337-7455
4. Manifest Tracking Number: 017543359 JJK

5. Generator's Name and Mailing Address: Thirty Properties LLC, 401 2nd Ave S #307, Seattle, WA 98104 (206) 750-7709 Bob Hanford
Generator's Site Address (if different than mailing address): 608 North 1st Street, Tacoma, WA 98403

6. Transporter 1 Company Name: PH Environmental Inc.
U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management of the NW
U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address: Chemical Waste Management of the NW, 17629 Cedar Springs Lane, Arlington, OR 97812
U.S. EPA ID Number: ORD089452353
Facility's Phone: (541) 454-2643

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. UN3077, Hazardous Waste Solid, N.O.S., 9, PG III (tetrachloroethylene)	001	DM	700	P	F002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information: 1. 02341 347297 - Inc 01, F002 IDW Soil ERG: (171)

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Jacob Briere (on behalf of Thirty properties LLC)
Signature:
Month: 3 Day: 20 Year: 19

INTL

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jacob Briere
Signature:
Month: 3 Day: 20 Year: 19

Transporter 2 Printed/Typed Name: Michael Castaneda
Signature:
Month: 3 Day: 21 Year: 19

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H040			

20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Bobby Wilson
Signature:
Month: 3 Day: 28 Year: 19

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

468792

NON-HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
	WAD988477873	1	(800) 337-7455	TPLLC-032019-01

GENERATOR

5. Generator's Name and Mailing Address: Thriftway Properties LLC, 401 2nd Ave. S #201, Seattle, WA 98104, (206) 788-7728 Attn: Bob Hanford

Generator's Site Address (if different than mailing address): 608 North 1st Street, Tacoma, WA 98403

Generator's Phone:

6. Transporter 1 Company Name: DH Environmental Inc. — U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management of the Northwest — U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address: Chemical Waste Management of the Northwest, 17629 Cedar Springs Lane, Arlington, OR 97812 — U.S. EPA ID Number: ORD089452353

Facility's Phone: (541) 454-2043

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Material Not Regulated by DOT, (non-regulated IDW soil)	019	DM	11,400	P	X004
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information: [illegible] non-regulated IDW soil

WMX4980614

14. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Jacob Brine (on behalf of Thriftway properties LLC) — Signature — Month: 3 Day: 20 Year: 19

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:

Transporter Signature (for exports only):

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jacob Brine — Signature — Month: 3 Day: 20 Year: 19

Transporter 2 Printed/Typed Name: TELE EXPRESS — Signature — Month: 3 Day: 20 19

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) — U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month Day Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Dawn Dunlap — Signature — Month: 4 Day: 8 Year: 19

468792

NON-HAZARDOUS WASTE MANIFEST (Continuation Sheet)

19. Generator ID Number: WAD988477873

20. Page 2 of 2

21. Waste Tracking Number: TPLLC-032019-01

22. Generator's Name: THRIFTWAY PROPERTIES LLC.

23. Transporter 3 Company Name: UPRR — U.S. EPA ID Number: NED 001792921

24. Transporter 4 Company Name: COLUMBIA RIDGE LANDFILL — U.S. EPA ID Number: ORD 987173457

	25. Waste Shipping Name and Description	26. Containers No.	26. Containers Type	27. Total Quantity	28. Unit Wt./Vol.	

29. Special Handling Instructions and Additional Information

WMX4 980614

TRANSPORTER

30. Transporter 3 Acknowledgment of Receipt of Materials
Printed/Typed Name: JR — Signature: [signature] — Month: 3 Day: 26 Year: 19

31. Transporter ____ Acknowledgment of Receipt of Materials
Printed/Typed Name: Jan L Gabbey — Signature: Jan L Gabbey — Month: 3 Day: 28 Year: 19

DESIGNATED FACILITY

32. Discrepancy

170-BLC-O 6 10502 (Rev. 8/08)

DESIGNATED FACILITY TO GENERATOR

Please print or type.

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAD027555184

2. Page 1 of 2

3. Emergency Response Phone: (800) 337-7455

4. Manifest Tracking Number: 020121409 JJK

GENERATOR

5. Generator's Name and Mailing Address
Thriftway Properties LLC
401 2nd Ave S #201
Seattle WA 98104
Attn Alan Noell
Generator's Phone: 206 838-8592

Generator's Site Address (if different than mailing address)
Thriftway Properties LLC
833 Division Ave
Tacoma WA 98403

6. Transporter 1 Company Name: DH Environmental Inc
U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management
U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number: ORD089452353

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
X	1. NA3082, Hazardous waste, liquid, n.o.s. (Trichloroethene, Tetrachloroethane) 9, PGIII	003	DM	1100	P	F002		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information
1(T) OR328043 ERG#171
WUNU-970796

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Jacob Briere (on behalf of Thriftway Properties) Signature: [signature] Month: 4 Day: 16 Year: 20

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Jacob Briere Signature: [signature] Month: 4 Day: 16 Year: 20

Transporter 2 Printed/Typed Name: G. Pruitt Signature: [signature] Month: 4 Day: 16 Year: 20

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) U.S. EPA ID Number

Facility's Phone:

18c. Signature of Alternate Facility (or Generator) Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: Signature: Month: Day: Year:

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete.

TRANSPORTER COPY

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Waste Tracking Number
WAD027555184	1	(800)-337-7455	THRFTWY-TNK-2020

GENERATOR

5. Generator's Name and Mailing Address
Thriftway Properties LLC
Att: Alan Noell
401 2nd Ave S #201
Seattle WA 98104
Generator's Phone: 206 838-8592

Generator's Site Address (if different than mailing address)
Thriftway Properties LLC
833 Division Ave
Tacoma WA 98403

6. Transporter 1 Company Name: DH Environmental Inc
U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Largo North America
5400 W Marginal
Seattle WA 98106
Facility's Phone:
U.S. EPA ID Number

	9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1.	Non-RCRA, non-DOT (IDW Water/Ground water)	01	TT	300	G	
2.						
3.						
4.						

13. Special Handling Instructions and Additional Information
1) DH-Aspct-thriftway-IDW-10012020
35400
32800
2600

14. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Generator's/Offeror's Printed/Typed Name: Behalf of Customer — Signature — Month — Day — Year

INT'L

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter Signature (for exports only): Date leaving U.S.:

TRANSPORTER

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name — Signature — Month: 10 — Day: 1 — Year: 20

Transporter 2 Printed/Typed Name — Signature — Month — Day — Year

DESIGNATED FACILITY

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

17c. Signature of Alternate Facility (or Generator) — Month — Day — Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name: Bodan McGraw — Signature — Month: 10 — Day: 1 — Year: 20

478333 9/27

Please print or type. MW 10-5-20 Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: WAD988477873
2. Page 1 of: 2 X
3. Emergency Response Phone: (800) 337-7455
4. Manifest Tracking Number: 020121478 JJK

5. Generator's Name and Mailing Address: Thriftway Properties, 501 2nd Ave. Ste. 550, Seattle, WA 98104, (206) 812-4739 Attn: Breeyn Greer
Generator's Site Address (if different than mailing address): Thriftway Properties LLC, 608 North F Street, Tacoma, WA 98403
Generator's Phone:

6. Transporter 1 Company Name: DH Environmental Inc. — U.S. EPA ID Number: WAH000047217

7. Transporter 2 Company Name: Chemical Waste Management of the Northwest — U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address: Chemical Waste Management of the Northwest, 17629 Cedar Springs Lane, Arlington, OR 97812 — U.S. EPA ID Number: ORD089452353
Facility's Phone: (541) 454-2643

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
X	1. NA3077, Hazardous Waste, Solid, n.o.s., 9, PG III, (tetrachloroethylene)	1	CM	35720 KR 10/7/2020	P	F002
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1 OR341097 – LF04, Bulk Listed Soil ERG: (171) 35720p. Container # 8591

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

GENERATOR — X Generator's/Offeror's Printed/Typed Name: STEVE LINN — Signature — Month 09 Day 25 Year 20

INT'L — 16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: ____ Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER — 17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Andy Anderson — Signature: Andy Anderson — Month 9 Day 25 Year 20
Transporter 2 Printed/Typed Name: JR — Signature — Month 9 Day 25 Year 20

DESIGNATED FACILITY — 18. Discrepancy
18a. Discrepancy Indication Space ☒ Quantity ☒ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Corrected Container County quantity to match amount received Per Scott St. John/Director Project Serv./ DH Environmental KR 10/7/20
Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)
1. H132 2. 3. 4.

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: morgan Wolf — Signature: MWolf — Month 10 Day 05 Year 20

EPA Form 8700-22 (Rev. 12-17) Previous editions are obsolete. DESIGNATED FACILITY TO EPA's e-MANIFEST SYSTEM

9m

WASTE MANAGEMENT

CONTAMINATED SOILS LAifD DISPOSAL RESTRICTION (LDR) NOTIFICATION AND CERTinCATION FORM (PHASE IV)

Generator Name: Thriftway Properties LLC

CWM Profile Number [redacted]

Ref.#	3. US EPA HAZARDOUS WASTE CODE(s)	4. HOW MUST THE WASTE BE MANAGED? ENTER LffiER FROM BELOW
1.	F002 (Tetrachloroethene)	
2.		
3.		
4.		

1. This waste is a non-wasrewarer (See 40 CFR 268.2).

[redacted] c).

3. In column 3, identify All USEPA hazardous waste codes that apply to this wasre shipment, as defined by 40 CFR 261.
To list additional wasre code(s) use land Disposal Notification/Certification Supplemental Form (CMW 2005-F) and check here: 0
For low Mercury subcategory wasre (contains less than 260 ppm total Mercury) check here: 0

4. In column 4, enter the letter from the Management Method list below (A.l, 8.5 or D.) that describes how the wasre must be managed to comply with the Land disposal restriction regulations in 40 CFR 268.49. Please nore that if you enrer 8.5 or D, you are certifying that the wasre meets all the land Disposal Restrictions and may be Landfilled without further treatment. (States authorized by EPA to manage the LOR program may have regulatory citations different from the 40 CFR citations lisred on this form. Where these regulatory citations differ, your form will be deemed to refer to those state citations as well as 40 CFR.)

5. Underlying hazardous constituents (UHCs) if present must be identified. If any constituents apply, check appropriare box below:
   - To identify UHCs, use the Identification of Constituents of Concern Form (C M-2007) and check here: 0
   - If no UHCs (IOx UTS) are present at the point of generation, check here:)!(

MANAGEMENT METHODS

A.l RESTRICTED SOIL REQUIRES TREATMENT
"I certify under penalty of Law that I personaLLy have examined this contaminared soil and it)(does 0 does not contain Listed hazardous waste and 0 does)!(does not exhibit a characteristic of hazardous wasre requires treatment to meet the soil treatment standards as provided by 40 CFR 268.49(c)."

8.5 RESTRICTED SOIL TREATED TO ALTERNATE PERFORMANCE STANDARDS
"I certify under penalty of Law that I have personally examined and am familiar with the treatment rechnology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.49(c) without impermissible dilution of the prohibited wasres. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

D. RESTRICTED SOIL CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT
"I certify under penalty of Law that I personaLLy have examined and am familiar with the wasre through analysis and resting or through knowledge of the waste to support this certification that the wasre complies with the treatment standards specified in 40 CFR 268 subpart D. I believe that the information I submitred is true, accurate, and complete. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

I hereby certify that aU information submitted in this and aU assrx:iated documents is complete and accurate to the best of my knowledge and information.

Name: (P r i n t) Scott St. John Title: Director of Project Services

S i g n a t u r e : Dare:

CONTAMINATED SOILS LAND DISPOSAL RESTRICTION (LDR) NOTIFICATION AND CERTIFICATION FORM (PHASE IV)

Generator Name: Thriftway Properties LLC

CWM Profile Number OR341097 Manifest Number: _____

Ref. #	3. US EPA HAZARDOUS WASTE CODE(s)	4. HOW MUST THE WASTE BE MANAGED? ENTER LETTER FROM BELOW
1.	F002 (Tetrachloroethene)	[redacted]
2.		
3.		
4.		

1. This waste is a non-wastewater (See 40 CFR 268.2).

2. (Check One) This contaminated soil ☒ **does** ☐ **does not** contain listed hazardous waste and ☐ **does** ☒ **does not** exhibit a characteristic of hazardous waste and is ☐ **subject to** / ☒ **complies with** the soil treatment standards as provided by 40 CFR 268.49(c).

3. In **column 3**, identify ALL USEPA hazardous waste codes that apply to this waste shipment, as defined by 40 CFR 261.
   To list additional waste code(s) use Land Disposal Notification/Certification Supplemental Form (CMW 2005-F) and check here: ☐
   For low Mercury subcategory waste (contains less than 260 ppm total Mercury) check here: ☐

4. In **column 4**, enter the letter from the Management Method list below (A.1, B.5 or D.) that describes how the waste must be managed to comply with the land disposal restriction regulations in 40 CFR 268.49. Please note that if you enter B.5 or D, you are certifying that the waste meets all the Land Disposal Restrictions and may be landfilled without further treatment. (States authorized by EPA to manage the LDR program may have regulatory citations different from the 40 CFR citations listed on this form. Where these regulatory citations differ, your form will be deemed to refer to those state citations as well as 40 CFR.)

5. Underlying hazardous constituents (UHCs) if present must be identified. If any constituents apply, check appropriate box below:
   - To identify UHCs, use the Identification of Constituents of Concern Form (CWM-2007) and check here: ☐
   - If no UHCs (10x UTS) are present at the point of generation, check here: ☒

MANAGEMENT METHODS

A.1 RESTRICTED SOIL REQUIRES TREATMENT

[redacted]

B.5 RESTRICTED SOIL TREATED TO ALTERNATE PERFORMANCE STANDARDS

"I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with treatment standards specified in 40 CFR 268.49(c) without impermissible dilution of the prohibited wastes. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

D. RESTRICTED SOIL CAN BE LAND DISPOSED WITHOUT FURTHER TREATMENT

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR 268 subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment."

I hereby certify that all information submitted in this and all associated documents is complete and accurate to the best of my knowledge and information.

[redacted] Title: _____

Signature: _____

APPENDIX F

Terrestrial Ecological Evaluation Form (TEE)

Voluntary Cleanup Program

Washington State Department of Ecology
Toxics Cleanup Program

TERRESTRIAL ECOLOGICAL EVALUATION FORM

Under the Model Toxics Control Act (MTCA), a terrestrial ecological evaluation is necessary if hazardous substances are released into the soils at a Site. In the event of such a release, you must take one of the following three actions as part of your investigation and cleanup of the Site:

1. Document an exclusion from further evaluation using the criteria in WAC 173-340-7491.
2. Conduct a simplified evaluation as set forth in WAC 173-340-7492.
3. Conduct a site-specific evaluation as set forth in WAC 173-340-7493.

When requesting a written opinion under the Voluntary Cleanup Program (VCP), you must complete this form and submit it to the Department of Ecology (Ecology). The form documents the type and results of your evaluation.

Completion of this form is not sufficient to document your evaluation. You still need to document your analysis and the basis for your conclusion in your cleanup plan or report.

If you have questions about how to conduct a terrestrial ecological evaluation, please contact the Ecology site manager assigned to your Site. For additional guidance, please refer to https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Terrestrial-ecological-evaluation.

Step 1: IDENTIFY HAZARDOUS WASTE SITE	
Please identify below the hazardous waste site for which you are documenting an evaluation.	
Facility/Site Name: Morell's Dry Cleaners	
Facility/Site Address: 608 North First Street, Tacoma WA	
Facility/Site No: 18489568	VCP Project No.: SW 1039

Step 2: IDENTIFY EVALUATOR			
Please identify below the person who conducted the evaluation and their contact information.			
Name: Breeyn Greer			Title: Project Engineer
Organization: Aspect Consulting			
Mailing address: 701 2nd Ave. #550			
City: Seattle		State: WA	Zip code: 98104
Phone: 612-232-734	Fax:	E-mail: bgreer@aspectconsulting.com	

Step 3: DOCUMENT EVALUATION TYPE AND RESULTS

A. Exclusion from further evaluation.

1. Does the Site qualify for an exclusion from further evaluation?

☒ Yes *If you answered **"YES,"** then answer **Question 2**.*

☐ No or Unknown *If you answered **"NO" or "UNKNOWN,"** then skip to **Step 3B** of this form.*

2. What is the basis for the exclusion? *Check all that apply. Then skip to **Step 4** of this form.*

Point of Compliance: WAC 173-340-7491(1)(a)

☐ All soil contamination is, or will be,* at least 15 feet below the surface.

☐ All soil contamination is, or will be,* at least 6 feet below the surface (or alternative depth if approved by Ecology), and institutional controls are used to manage remaining contamination.

Barriers to Exposure: WAC 173-340-7491(1)(b)

☐ All contaminated soil, is or will be,* covered by physical barriers (such as buildings or paved roads) that prevent exposure to plants and wildlife, and institutional controls are used to manage remaining contamination.

Undeveloped Land: WAC 173-340-7491(1)(c)

☐ There is less than 0.25 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site and any of the following chemicals is present: chlorinated dioxins or furans, PCB mixtures, DDT, DDE, DDD, aldrin, chlordane, dieldrin, endosulfan, endrin, heptachlor, heptachlor epoxide, benzene hexachloride, toxaphene, hexachlorobenzene, pentachlorophenol, or pentachlorobenzene.

☒ For sites not containing any of the chemicals mentioned above, there is less than 1.5 acres of contiguous[#] undeveloped[±] land on or within 500 feet of any area of the Site.

Background Concentrations: WAC 173-340-7491(1)(d)

☐ Concentrations of hazardous substances in soil do not exceed natural background levels as described in WAC 173-340-200 and 173-340-709.

* An exclusion based on future land use must have a completion date for future development that is acceptable to Ecology.

[±] "Undeveloped land" is land that is not covered by building, roads, paved areas, or other barriers that would prevent wildlife from feeding on plants, earthworms, insects, or other food in or on the soil.

[#] "Contiguous" undeveloped land is an area of undeveloped land that is not divided into smaller areas of highways, extensive paving, or similar structures that are likely to reduce the potential use of the overall area by wildlife.

B. Simplified evaluation.

1. Does the Site qualify for a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No or Unknown *If you answered **"NO"** or **"UNKNOWN,"** then skip to **Step 3C** of this form.*

2. Did you conduct a simplified evaluation?

☐ Yes *If you answered **"YES,"** then answer **Question 3** below.*

☐ No *If you answered **"NO,"** then skip to **Step 3C** of this form.*

3. Was further evaluation necessary?

☐ Yes *If you answered **"YES,"** then answer **Question 4** below.*

☐ No *If you answered **"NO,"** then answer **Question 5** below.*

4. If further evaluation was necessary, what did you do?

☐ Used the concentrations listed in Table 749-2 as cleanup levels. *If so, then skip to **Step 4** of this form.*

☐ Conducted a site-specific evaluation. *If so, then skip to **Step 3C** of this form.*

5. If no further evaluation was necessary, what was the reason? *Check all that apply. Then skip to **Step 4** of this form.*

Exposure Analysis: WAC 173-340-7492(2)(a)

☐ Area of soil contamination at the Site is not more than 350 square feet.

☐ Current or planned land use makes wildlife exposure unlikely. Used Table 749-1.

Pathway Analysis: WAC 173-340-7492(2)(b)

☐ No potential exposure pathways from soil contamination to ecological receptors.

Contaminant Analysis: WAC 173-340-7492(2)(c)

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations that exceed the values listed in Table 749-2.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations that exceed the values listed in Table 749-2, and institutional controls are used to manage remaining contamination.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 15 feet at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays.

☐ No contaminant listed in Table 749-2 is, or will be, present in the upper 6 feet (or alternative depth if approved by Ecology) at concentrations likely to be toxic or have the potential to bioaccumulate as determined using Ecology-approved bioassays, and institutional controls are used to manage remaining contamination.

C. Site-specific evaluation. A site-specific evaluation process consists of two parts: (1) formulating the problem, and (2) selecting the methods for addressing the identified problem. Both steps require consultation with and approval by Ecology. *See* WAC 173-340-7493(1)(c).

1. Was there a problem? *See* WAC 173-340-7493(2).

☐ Yes *If you answered **"YES,"** then answer **Question 2** below.*

☐ No *If you answered **"NO,"** then identify the reason here and then skip to **Question 5** below:*

- ☐ No issues were identified during the problem formulation step.
- ☐ While issues were identified, those issues were addressed by the cleanup actions for protecting human health.

2. What did you do to resolve the problem? *See* WAC 173-340-7493(3).

- ☐ Used the concentrations listed in Table 749-3 as cleanup levels. *If so, then skip to **Question 5** below.*
- ☐ Used one or more of the methods listed in WAC 173-340-7493(3) to evaluate and address the identified problem. *If so, then answer **Questions 3 and 4** below.*

3. If you conducted further site-specific evaluations, what methods did you use?
Check all that apply. See WAC 173-340-7493(3).

- ☐ Literature surveys.
- ☐ Soil bioassays.
- ☐ Wildlife exposure model.
- ☐ Biomarkers.
- ☐ Site-specific field studies.
- ☐ Weight of evidence.
- ☐ Other methods approved by Ecology. If so, please specify:

4. What was the result of those evaluations?

- ☐ Confirmed there was no problem.
- ☐ Confirmed there was a problem and established site-specific cleanup levels.

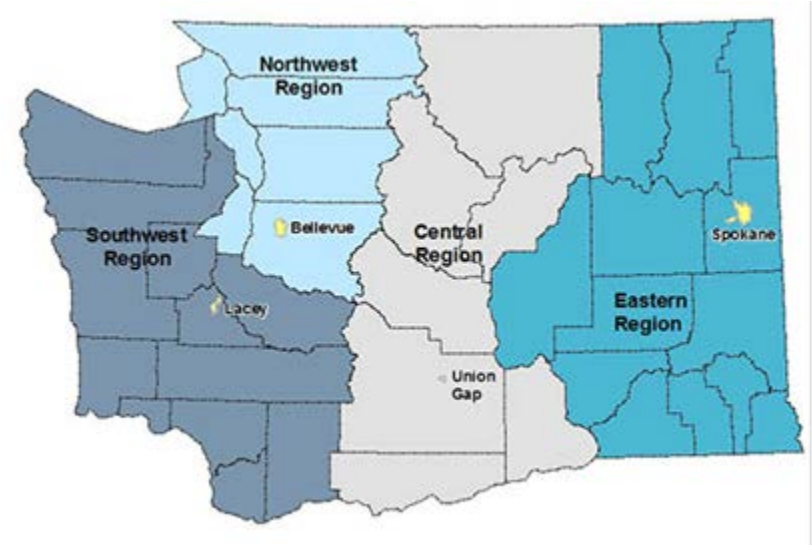
5. Have you already obtained Ecology's approval of both your problem formulation and problem resolution steps?

☐ Yes If so, please identify the Ecology staff who approved those steps:

☐ No

Step 4: SUBMITTAL

Please mail your completed form to the Ecology site manager assigned to your Site. If a site manager has not yet been assigned, please mail your completed form to the Ecology regional office for the County in which your Site is located.



Northwest Region: Attn: VCP Coordinator 3190 160th Ave. SE Bellevue, WA 98008-5452	**Central Region:** Attn: VCP Coordinator 1250 West Alder St. Union Gap, WA 98903-0009
Southwest Region: Attn: VCP Coordinator P.O. Box 47775 Olympia, WA 98504-7775	**Eastern Region:** Attn: VCP Coordinator N. 4601 Monroe Spokane WA 99205-1295

If you need this publication in an alternate format, please call the Toxics Cleanup Program at 360-407-7170. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call 877-833-6341.

APPENDIX G

VaporPin Standard Operating Procedure

Standard Operating Procedure Installation and Extraction of the Vapor Pin®

Updated March 16, 2018

Scope:

This standard operating procedure describes the installation and extraction of the VAPOR PIN® for use in sub-slab soil-gas sampling.

Purpose:

The purpose of this procedure is to assure good quality control in field operations and uniformity between field personnel in the use of the VAPOR PIN® for the collection of sub-slab soil-gas samples or pressure readings.

Equipment Needed:

- Assembled VAPOR PIN® [VAPOR PIN® and silicone sleeve(Figure 1)]; Because of sharp edges, gloves are recommended for sleeve installation;
- Hammer drill;
- 5/8-inch (16mm) diameter hammer bit (hole **must** be 5/8-inch (16mm) diameter to ensure seal. It is recommended that you use the drill guide). (Hilti™ TE-YX 5/8" x 22" (400 mm) #00206514 or equivalent);
- 1½-inch (38mm) diameter hammer bit (Hilti™ TE-YX 1½" x 23" #00293032 or equivalent) for flush mount applications;
- ¾-inch (19mm) diameter bottle brush;
- Wet/Dry vacuum with HEPA filter (optional);
- VAPOR PIN® installation/extraction tool;
- Dead blow hammer;
- VAPOR PIN® flush mount cover, if desired;
- VAPOR PIN® drilling guide, if desired;
- VAPOR PIN® protective cap; and
- VOC-free hole patching material (hydraulic cement) and putty knife or trowel for repairing the hole following the extraction of the VAPOR PIN®.

Figure 1. Assembled VAPOR PIN®

Installation Procedure:

1) Check for buried obstacles (pipes, electrical lines, etc.) prior to proceeding.

2) Set up wet/dry vacuum to collect drill cuttings.

3) If a flush mount installation is required, drill a 1½-inch (38mm) diameter hole at least 1¾-inches (45mm) into the slab. Use of a VAPOR PIN® drilling guide is recommended.

4) Drill a 5/8-inch (16mm) diameter hole through the slab and approximately 1-inch (25mm) into the underlying soil to form a void. Hole **must** be 5/8-inch (16mm) in diameter to ensure seal. It is recommended that you use the drill guide.

5) Remove the drill bit, brush the hole with the bottle brush, and remove the loose cuttings with the vacuum.

6) Place the lower end of VAPOR PIN® assembly into the drilled hole. Place the small hole located in the handle of the installation/extraction tool over the vapor pin to protect the barb fitting, and tap the vapor pin into place using a dead blow hammer (Figure 2). Make sure the installation/extraction tool is aligned parallel to the vapor pin to avoid damaging the barb fitting.

Figure 2. Installing the VAPOR PIN®

During installation, the silicone sleeve will form a slight bulge between the slab and the VAPOR PIN® shoulder. Place the protective cap on VAPOR PIN® to prevent vapor loss prior to sampling (Figure 3).

Figure 3. Installed VAPOR PIN®

7) For flush mount installations, cover the vapor pin with a flush mount cover, using either the plastic cover or the optional stainless-steel Secure Cover (Figure 4).

Figure 4. Secure Cover Installed

8) Allow 20 minutes or more (consult applicable guidance for your situation) for the sub-slab soil-gas conditions to re-equilibrate prior to sampling.

9) Remove protective cap and connect sample tubing to the barb fitting of the VAPOR PIN®. This connection can be made using a short piece of Tygon™ tubing to join the VAPOR PIN® with the

Nylaflow tubing (Figure 5). Put the Nylaflow tubing as close to the VAPOR PIN® as possible to minimize contact between soil gas and Tygon™ tubing.

Figure 5. VAPOR PIN® sample connection

10) Conduct leak tests in accordance with applicable guidance. If the method of leak testing is not specified, an alternative can be the use of a water dam and vacuum pump, as described in SOP Leak Testing the VAPOR PIN® via Mechanical Means (Figure 6). For flush-mount installations, distilled water can be poured directly into the 1 1/2 inch (38mm) hole.

Figure 6. Water dam used for leak detection

11) Collect sub-slab soil gas sample or pressure reading. When finished, replace the protective cap and flush mount cover until the next event. If the sampling is complete, extract the VAPOR PIN®.

Extraction Procedure:

1) Remove the protective cap, and thread the installation/extraction tool onto the barrel of the VAPOR PIN® (Figure 7). Turn the tool clockwise continuously, don't stop turning, the VAPOR PIN® will feed into the bottom of the installation/extraction tool and will extract from the hole like a wine cork, DO NOT PULL.

2) Fill the void with hydraulic cement and smooth with a trowel or putty knife.

Figure 7. Removing the VAPOR PIN®

- Prior to reuse, remove the silicone sleeve and protective cap and discard. Decontaminate the VAPOR PIN® in a hot water and Alconox® wash, then heat in an oven to a temperature of 265° F (130° C) for 15 to 30 minutes. For both steps, **STAINLESS – ½ hour, BRASS 8 minutes**

3) Replacement parts and supplies are available online.

APPENDIX H

Report Limitations and Guidelines for Use

REPORT LIMITATIONS AND USE GUIDELINES

Reliance Conditions for Third Parties

This report was prepared for the exclusive use of the Client. No other party may rely on this report or the product of our services without the express written consent of Aspect Consulting, LLC (Aspect). This limitation is to provide our firm with reasonable protection against liability claims by third parties with whom there would otherwise be no contractual conditions or limitations and guidelines governing their use of the report. Within the limitations of scope, schedule and budget, our services have been executed in accordance with our Agreement with the Client and recognized standards of professionals in the same locality and involving similar conditions.

Services for Specific Purposes, Persons and Projects

Aspect has performed the services in general accordance with the scope and limitations of our Agreement. This report has been prepared for the exclusive use of the Client and their authorized third parties, approved in writing by Aspect. This report is not intended for use by others, and the information contained herein is not applicable to other properties.

This report is not, and should not, be construed as a warranty or guarantee regarding the presence or absence of hazardous substances or petroleum products that may affect the Property. The report is not intended to make any representation concerning title or ownership to the Property. If real property records were reviewed, they were reviewed for the sole purpose of determining the Property's historical uses. All findings, conclusions, and recommendations stated in this report are based on the data and information provided to Aspect, current use of the Property, and observations and conditions that existed on the date and time of the report.

Aspect structures its services to meet the specific needs of our clients. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and Property. This report should not be applied for any purpose or project except the purpose described in the Agreement.

This Report Is Project-Specific

Aspect considered a number of unique, project-specific factors when establishing the Scope of Work for this project and report. You should not rely on this report if it was:

- Not prepared for you
- Not prepared for the specific purpose identified in the Agreement
- Not prepared for the specific real property assessed
- Completed before important changes occurred concerning the Property, project or governmental regulatory actions

If changes are made to the project or Property after the date of this report, Aspect should be retained to assess the impact of the changes with respect to the conclusions contained in the report.

Geoscience Interpretations

The geoscience practices (geotechnical engineering, geology, and environmental science) require interpretation of spatial information that can make them less exact than other engineering and natural science disciplines. It is important to recognize this limitation in evaluating the content of the report. If you are unclear how these "Report Limitations and Use Guidelines" apply to your project or site, you should contact Aspect.

Discipline-Specific Reports Are Not Interchangeable

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually address any environmental findings, conclusions or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding the Property.

Environmental Regulations Are Not Static

Some hazardous substances or petroleum products may be present near the Property in quantities or under conditions that may have led, or may lead, to contamination of the Property, but are not included in current local, state or federal regulatory definitions of hazardous substances or petroleum products or do not otherwise present potential liability. Changes may occur in the standards for appropriate inquiry or regulatory definitions of hazardous substance and petroleum products; therefore, this report has a limited useful life.

Property Conditions Change Over Time

This report is based on conditions that existed at the time the study was performed. The findings and conclusions of this report may be affected by the passage of time (for example, Phase I ESA reports are applicable for 180 days), by events such as a change in property use or occupancy, or by natural events, such as floods, earthquakes, slope failure or groundwater fluctuations. If more than six months have passed since issuance of our report, or if any of the described events may have occurred following the issuance of the report, you should contact Aspect so that we may evaluate whether changed conditions affect the continued reliability or applicability of our conclusions and recommendations.

Historical Information Provided by Others

Aspect has relied upon information provided by others in our description of historical conditions and in our review of regulatory databases and files. The available data does not provide definitive information with regard to all past uses, operations or incidents affecting the Property or adjacent properties. Aspect makes no warranties or guarantees regarding the accuracy or completeness of information provided or compiled by others.

Exclusion of Mold, Fungus, Radon, Lead, and HBM

Aspect's services do not include the investigation, detection, prevention or assessment of the presence of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detection, assessment, prevention or abatement of molds, fungi, spores, bacteria, and viruses, and/or any of their byproducts. Aspect's services also do not include the investigation or assessment of hazardous building materials (HBM) such as asbestos, polychlorinated biphenyls (PCBs) in light ballasts, lead based paint, asbestos-containing building materials, urea-formaldehyde insulation in on-site structures or debris or any other HBMs. Aspect's services do not include an evaluation of radon or lead in drinking water, unless specifically requested.